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## Abstracts

## Session 10: Council Prize Session

## Friday 27 January 2017 (12:15 – 13:15)

## A01

**One anastomosis gastric bypass vs. Roux-en-Y gastric bypass; a matched cohort analysis of short term safety and efficacy**

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**Background:** The One Anastomosis ('mini') Gastric Bypass (OAGB) is potentially a simpler, safer and equally effective treatment for morbid obesity as the conventional Roux-en-Y gastric bypass (RYGB). However uncertainty about its short and long-term outcomes precludes its widespread adoption among UK bariatric surgeons.

**Methods:** A matched cohort analysis was performed between patients who had undergone laparoscopic OAGB and standard RYGB in a tertiary referral bariatric centre. In the OAGB cohort, a biliopancreatic limb length of 150 cm or 200 cm was selected based on patients BMI being <50 kg/m<sup>2</sup> or ≥50 kg/m<sup>2</sup> respectively.

**Results:** Over an 8-month period, 36 OAGB were performed (81% female, mean age 47.0 years). They were compared with a matched cohort of 34 concurrent RYGB patients (80% female, mean age 46.4 years). Mean preoperative BMI was 44.7 and 45.6 kg/m<sup>2</sup>, respectively (p=0.641). Average follow-up was 4.4±2.6 months overall. At 3 months postoperatively, the average %EWL was 39.2% in OAGB patients and 36.7% in RYGB group (p=0.398). Resolution of

T2DM and hypertension were higher in the OAGB group (73% vs. 60% and 56% vs. 8%, respectively, p=0.006). There were no mortalities or intraoperative complications in this series. Early postoperative morbidity (≤30 days) was comparable in both groups, however late morbidity (>30 days) was significantly lower in the OAGB group (8.3% vs. 38% p=0.003). Postoperative resource utilization (inclusive of readmissions, outpatient radiological and endoscopic investigations and reoperations) was significantly lower in the OAGB group [8.3% vs. 38% (p=0.003), respectively]. Three OAGB patients complained of bile reflux symptoms postoperatively, two of whom had resolution of their symptoms by 12 weeks. Nutritional deficiencies were comparable in both groups in the short-term (41.7% vs. 55.9%, p=0.234). There was no significant difference in %EWL between 150 cm and 200 cm biliopancreatic limb lengths in the OAGB cohort (p=0.055).

**Conclusion** OAGB appears to be as effective as RYGB, is associated with lower morbidity and readmission rates, and similar rates of nutritional deficiencies in the short term. Longer follow-up and prospective data collection is necessary to evaluate the long-term outcomes of OAGB, but its early results are promising.

## A02

**Occupational outcomes of bariatric surgery in a high volume UK centre**

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**Background:** Bariatric surgery offers excellent weight loss results and improvement in obesity-associated co-morbidities; less is known about the wider social impacts of surgery. Although many patients undergoing bariatric surgery are of working age, there is little evidence on the effect surgery has on employment. We aimed to assess the occupational outcomes of patients undergoing bariatric surgery at a high volume UK centre.

**Methods:** A retrospective search was performed of a prospectively maintained consecutive electronic database of patient demographics and outcomes pre- and post-bariatric surgery. All patients with electronically documented follow-up beginning within 6 months of surgery were included. Details of employment statuses were extracted from patient records from the pre-operative and each post-operative consultation (divided into "employed", "unemployed", "retired", and "sick pay"). Any missing pre-operative employment data was recovered from clinic letters. Post-operative follow-up was categorised into: Within six months; 7-18 months; 19-30 months; and greater than 30 months.

**Results:** 805 patients were included, 75% of whom had post-operative employment status documented (at any follow-up). Follow-up ranged from 1-41 months (median 17). Breakdown of pre-operative employment status was: 55% employed, 42% unemployed, 3% retired, 0% sick pay. The percentage of patients in employment increased post-operatively, remaining above 65% at all follow-up durations; similarly the percentage unemployed fell post-operatively, being less than 25% at all follow-up durations. The percentage retired increased with time (up to 13%), whilst the number on sick pay stayed static (1%). For those in employment pre-operatively, approximately 90% were still in employment at each subsequent follow-up. For patients who were unemployed pre-operatively, approximately 40% were in employment at each subsequent follow-up.

**Conclusion:** This is the largest UK series looking at employment outcomes following bariatric surgery. The study gives reassurance that the vast majority of patients in employment pre-operatively return to work, and that a large proportion out of work pre-operatively enter employment post-operatively. This data is important when counselling patients, and also reinforces the ongoing socioeconomic benefits of bariatric surgery.

## A03

**Our initial experience with Single Anastomosis Gastric Bypasses. A study of 273 patients**Abdulzahra Hussain<sup>2</sup>, Shamsi EL-Hasani<sup>1</sup><sup>2</sup>Doncaster & Bassetlaw Hospitals NHS Trust, Doncaster, UK, <sup>1</sup>King's College Hospitals NHS Trust, London, UK

**Background:** Rutledge introduces Single anastomosis gastric bypass and it is an alternative option in metabolic and bariatric surgery. The aim of this study is to evaluate safety, efficacy and postoperative outcomes of single anastomosis gastric bypass as a new procedure at our units.

**Methods:** We have performed 266 primary single anastomosis gastric bypasses and an additional 7 second stage single anastomosis gastric bypasses after an initial first stage sleeve gastrectomy, during May 2014-May 2016. Age: 19-68 years, median 44 years. 186 women and 87 men, BMI: 33-78, median 48.1 [Weight: 96-235 kg, mean 123.4 kg]. 36% of patients had BMI above 50. 21% were diabetic. Sleep apnoea incidence was 6%, 19% were hypertensive and 31% had arthritis.

**Results:** Excess body weight loss ranged 41-125% with a mean of 76%. The preoperative diagnosis of diabetes was 21% and postoperative complete remission was 83%. Hypertension resolution was 61%. All sleep apnoea patients improved symptomatically with none requiring CPAP machine after one year. Two patients developed diarrhoea cured by shortening the afferent limb and three stomal ulcers were reported, one of which needed revisional surgery. Two patients developed liver decompensation and revised by shortening the biliopancreatic limb. One patient developed gastro-jejunal stenosis treated by dilatation and one had gastro-jejunal bleeding needed revision of anastomosis and one patient developed reflux and was managed by Roux-en Y Gastric Bypass. 143 patients completed one year (77 patients have completed 18 months) follow-up. Mortality was zero.

**Conclusion:** Single anastomosis gastric bypass is providing acceptable results for metabolic syndrome and weight problem with no serious morbidity and no mortality.

## A04

**Laparoscopic-transgastric endoscopic retrograde cholangiopancreatography following Roux en-Y gastric bypass – A case series**

William Hawkins, Waleed Al-Khyatt, Paul MacKenzie, Adam Stone, Guy Slater, Christopher Pring

St Richard's Hospital, Chichester, West Sussex, UK

**Background:** Endoscopic retrograde cholangiopancreatography (ERCP) remains technically challenging following Roux-en-Y gastric bypass (RYGB). Although laparoscopic common bile duct exploration (LCBDE) is routinely performed in our unit for management of choledocholithiasis, ERCP approach is sometimes deemed necessary. Our aim is to describe our experience in the application of laparoscopic-transgastric ERCP (LTERCP).

**Methods:** A case series of patients with a history of RYGB who underwent LTERCP through the gastric remnant to access the biliary tree. After establishing a carbon dioxide pneumoperitoneum, 1 x 12-mm and 2 x 5-mm trocars were positioned based on patient body habitus. With the aid of two stay sutures, a gastrotomy was made using hook diathermy on the anterior surface of the gastric body. A left upper quadrant 15-mm trocar was then placed and advanced into the gastrotomy, allowing access for the ERCP scope. A two-layer absorbable suture was subsequently performed for gastrotomy closure.

**Results:** Five female patients underwent LTERCP between Oct 2012 and Oct 2016. Mean (range) for age, weight, and BMI were 60 yrs (32-81), 96.2 kg (62-122) and 37.6 kg/m<sup>2</sup> (25.5-46), respectively. One patient had a previous open RYGB while 4 patients had prior laparoscopic RYGB. Indications for LTERCP were choledocholithiasis and previous open surgery (1 patient), cholangitis (2 patients) and bile leak following laparoscopic cholecystectomy (LC) (2 patients). Two patients underwent simultaneous LC and LTERCP. All patients had successful biliary cannulation and sphincterotomy but no stents were deployed (to avoid need for removal). Median (range) length of hospital stay was 10 days

(1 - 33). There were no complications related to the ERCP or gastrotomy closure.

**Conclusion:** In our series, LTERCP is a safe and reliable approach for the evaluation and management of biliary pathologies in patients with prior history of RYGB. This technique may be considered in units with appropriate facilities when traditional endoscopic approaches are impossible.

## A05

**Bariatric surgery outcomes in the over-60s: a single centre, observational study from 2007-2012**

Ahmed Ahmed, George Tharakan, Sanjay Purkayastha, Krishna Moorthy, Harvinder Chahal, Tricia Tan

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**Background:** As the population ages, a new patient cohort for bariatric surgery has been created which brings its own inherent issues. In particular, controversy has arisen over the safety and efficacy of surgery in elderly patients, and whilst NICE have refrained from imposing an upper age limit on UK patients, the American College of Surgeons have recommended an upper age limit of 70 years. Current literature is divided over the safety and efficacy of bariatric surgery in this age group.

**Methods:** A retrospective review of all patients over the age of 60 who underwent bariatric surgery at a tertiary bariatric centre. Data was collected from clinic letters, discharge summaries, clinical codes, and by contacting GPs.

**Results:** Our cohort consisted of 102 patients, aged 63.8 +/- 3.3 yrs, with a mean BMI of 47.2 +/- 6.58 kg/m<sup>2</sup> (n=88) and mean starting weight of 131.5 +/- 22 kg. 18 underwent a laparoscopic adjustable gastric band (LAGB), 61 Roux-en-Y gastric bypass (RYGB) and 23 sleeve gastrectomy (SG). All procedures were performed laparoscopically except for two RYGBs that were converted to open procedures intraoperatively due to adhesions.

We found the safety of these procedures to be excellent: the mean length of stay was 2.3 +/- 1.3 days (n=101), with only one ITU admission and a 30-day mortality rate of 0%. Early complications occurred in 13 out of 99 patients (13%), in keeping with other published studies.

The procedures were effective: the mean weight loss at 1 year for all patients was 25 +/- 10%, with the RYGB group losing the most (29%). Diabetes, dyslipidaemia and hypertension improved at 1 year, although the numbers for some of these sub-analyses were small. The overall medication burden similarly dropped (n=33). Five out of 54 patients (9%) experienced a cardiovascular complication, which is favourable when compared to the background prevalence of CV disease of 33.9% (men) and 22.3% (women) in 65-74 yr olds.

**Discussion:** Our findings suggest that bariatric surgery can safely be performed in the over-60s, with significant patient benefits for at least 1 year follow-up. Longer term follow up is required to ensure that the patient benefits are sustained.

## A06

**Roux en-Y gastric bypass as a revisional procedure for a failed gastric band: A review of 125 consecutive cases**

Paul Mackenzie, Waleed Al-Khyatt, William Hawkins, Guy Slater, Chris Pring

St Richards Hospital, Chichester, UK

**Background:** Laparoscopic adjustable gastric bands (LAGB) are often associated with good outcomes, however a significant group of patients may require revisional surgery for poor weight loss or band complications. In our unit, Roux-en-Y gastric bypass (RYGB) has emerged as the revisional procedure of choice. This study aimed to evaluate the safety and efficacy of RYGB after LAGB in a tertiary bariatric unit.

**Methods:** We performed a retrospective analysis of a prospectively maintained database of patients who underwent conversion of LAGB to RYGB between Jan 2010 and Oct 2016. Patient demographics, preoperative comorbidities, reasons

for band failure, operative outcomes and % excess weight loss (%EWL) at 6-, 12-, and 24-months were included.

**Results:** Revisional RYGB was performed in 125 patients (121 laparoscopic, 4 open). Female: Male ratio was 9:1. Mean  $\pm$  SD age and BMI of  $43.2 \pm 10$  years and  $47.6 \pm 7.7$  kg/m<sup>2</sup> respectively. Comorbidities included type II diabetes mellitus (18%), hypertension (26%), hypercholesterolaemia (20%), obstructive sleep apnoea (8%), osteoarthritis (23%), and acid reflux (26%). Indications for band revision were inadequate weight loss (39.2%), slippage (28.8%), vomiting/reflux (13.6%) or others, including band erosion, (18.4%). A planned single-step revisional RYGB was performed in 91 (72.8%) patients, the remainder had their band removed prior to RYGB. Mean  $\pm$  SD length of hospital stay was  $2.7 \pm 0.7$  days. One patient (0.8%) required an unplanned conversion to open RYGB due to extensive adhesions. There was no postoperative mortality. Two patients (1.6%) had postoperative bleeding, of whom one (0.8%) required relook laparoscopy. Six patients (5%) developed a gastro-jejunal stricture requiring endoscopic dilatation. Mean  $\pm$  SD %EWL at 6-, 12-, and 24-months were  $49.4 \pm 14.4\%$ ,  $64 \pm 17.9\%$ , and  $66.4 \pm 22.5\%$ , respectively.

**Conclusion:** In this series, revisional LRYGB is associated with very low complication rate and excellent EWL at 2 years. This indicates that the conversion of failed LAGB to RYGB is a safe and effective procedure when performed in an experienced bariatric unit.

### Session 3: Parallel Free Paper Session - Surgical

Thursday 26 January 2017 (12.15 – 13.15)

#### B01

##### Use of body-contouring procedures to improve weight-loss maintenance following bariatric surgery

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**Background:** Despite proven benefits of bariatric surgery in reducing weight, patients are often left with excess skin. Body contouring surgery is not routinely available, however it has been shown to improve quality of life and may help maintain weight loss. We aim to evaluate the effect of massive-weight-loss-body-contouring-surgery on weight loss maintenance over a 3-year period.

**Methods:** Two demographically matched groups of female patients were retrospectively analysed. The control group (n=61) received either a sleeve gastrectomy or gastric bypass. The test group (n=30) received this plus body contouring surgery 12 months after bariatric surgery. An independent t-test was used to compare mean weight loss at 6 weeks and 3, 6, 12, 24 and 36 months. Statistical analysis was adjusted for patients lost to follow-up.

**Results:** Between 6 weeks and 12 months there was no difference in weight loss. At 24 months the test group (n=21) lost a mean 35.7% of their pre-op weight; the control group (n=54) lost a mean 30.2%. At 36 months the test group (n=10) maintained weight loss with a mean loss of 35.0%; the control group (n=15) increased weight from 24 months with a mean loss of 24.7%. Differences in weight loss at 24 and 36 months were statistically significant.

**Conclusions** Our results suggest patients who undergo body contouring surgery after bariatric surgery are able to lose significantly more weight and maintain weight loss at 3 years of follow-up compared to those undergoing bariatric surgery alone.

#### B02

##### Post-prandial hypoglycaemia following Gastric bypass – Review of clinical presentation and management

Brijesh Madhok, Kamal Mahawar, Peter Small, Shlok Balupuri, Norbert Schroeder, Nimantha De Alwis

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**Background:** Post-prandial hypoglycaemia (PPHG) is a rare complication of gastric bypass. Its pathogenesis is not fully understood, and strategies varying from medical to surgical treatment such as pancreatectomy have been attempted for treating PPHG.

**Methods:** We undertook a review of patients treated for PPHG in our unit in the last five years. Results are expressed as median (range).

**Results:** A total of 31 patients experienced symptoms of PPHG; 24 of them were females. Median age was 40 years (24 to 66 years), and body mass index (BMI) was  $46.7$  kg/m<sup>2</sup> (37 to 67.5). Two patients underwent One-anastomosis gastric bypass (OAGB), and the rest underwent Roux-en-Y gastric bypass (RYGB). Median percentage excess weight loss (%EWL) at 6, 12, and 24 months was 60 (23 to 85), 69 (34 to 94), and 69 (29 to 94) respectively. Of the 12 patients suffered from type 2 diabetes mellitus, 11 patients did not require any treatment for diabetes after gastric bypass; one patient had to continue on Metformin. Median time period from the operation to onset of symptoms was 14 months (2 to 84). Diagnosis of reactive hypoglycaemia was based on clinical symptoms and levels of blood glucose (BG) reported by patients or measured in clinic for the majority of patients. The rest underwent further investigations such as oral glucose tolerance test (GTT) to confirm the diagnosis. Initially they were commenced on alpha-glucosidase inhibitor (Acarbose 50 mg TDS), and majority of patients (N=20) reported relief of symptoms. The rest 11 patients who did not tolerate Acarbose or did not benefit were prescribed various medications such as Diazoxide, Octreotide. One patient who has not responded to any of the medications is being considered for reversal of gastric bypass (RYGB).

**Conclusion:** We suggest a treatment algorithm for management of PPHG that has been successful so far without surgical intervention. It is important to make patients and general practitioners aware of this rare complication of gastric bypass; emphasising that it may develop several years after surgery.

#### B03

##### Management of post prandial hypoglycaemia using liraglutide – comprehensive profiling pre and post intervention

Ahmed Ahmed, George Tharakan, Sanjay Purkayastha, Krishna Moorthy, Harvinder Chahal, Tricia Tan

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**Background:** Unusual metabolic complications of bariatric surgery such as postprandial hypoglycaemia (PPH) are coming to the fore. Its management remains clinically challenging. We describe a complex case that proved refractory to dietary changes, acarbose, diazoxide and octreotide but was successfully treated with liraglutide. We provide comprehensive biochemical profiling both pre and post intervention, shedding light on the pathogenesis of PPH.

**Methods:** AG is a 52 year old man who underwent RYGB in July 2010. He had no history of diabetes prior to surgery. Rapid weight loss occurred post RYGB (46% of presurgery weight at 1 year). He developed PPH, and the episodes became more frequent and severe, and were complicated by reduced awareness. AG was referred to us for further investigation. He underwent our standard investigation protocol, which includes provocation tests (mixed meal test and an extended oral glucose tolerance test), a 72 hour fast and continuous glucose monitoring (CGM).

**Results:** These tests confirmed the presence of PPH and demonstrated significant glycaemic variability. Initial treatment including dietary changes, acarbose, diazoxide and octreotide were unsuccessful. A trial of liraglutide resulted in subjective improvement. A reduction in glycaemic variability was observed during provocation tests and CGM, suggesting a crucial role in the aetiology of PPH.

**Discussion** One hypothesis holds that excessive secretion of incretins such as GLP-1 causes excessive insulinotropy, and therefore an 'overswing' phenomenon.

It is counterintuitive that GLP-1 agonists might be helpful. The current literature describes 5 patients who have had liraglutide for PPH. This case report describes the 6<sup>th</sup> patient. We have collected comprehensive biochemical data during provocation tests pre and post liraglutide. Analysis of gut hormone levels will shed light on the importance of GLP-1, GIP and glucagon in the pathogenesis of PPH and the mechanism of liraglutide's action.

## B04

### Faecal incontinence trends following laparoscopic Roux-en-Y gastric bypass for patients with morbid obesity: an observational study

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**Background:** Laparoscopic Roux-en-Y gastric bypass (LRYGB) is a well-established procedure for treatment of morbid obesity and its related health issues. However, its effect on faecal incontinence is unclear. The aim of this study was to determine trends in symptoms of faecal incontinence prior to surgery and at 12-months post LRYGB surgery.

**Methods:** Patients undergoing primary LRYGB for morbid obesity in a tertiary bariatric centre were invited to participate in the study. Cleveland Clinic Florida Faecal Incontinence Score (CCF-FIS) questionnaires were completed at the point of preoperative assessment and at 12-months postoperatively. The main outcome measure was a change in the CCF-FIS.

**Results:** Eighty-one patients (68 females) were recruited between Aug 2012 and Aug 2013. Mean  $\pm$  SD age, preoperative BMI, and 12-month BMI were  $44 \pm 11.3$  yrs,  $51 \pm 7.4$  kg/m<sup>2</sup>, and  $34 \pm 7.8$  kg/m<sup>2</sup>, respectively. The incidence of preoperative faecal incontinence for solid stool = 22%, liquid stool = 5% and flatus = 25%. At 12-months postoperatively the incidence for solid stool, liquid stool, and flatus incontinence increased to 28%, 15%, and 42% respectively. Interestingly, among patients with no preoperative symptoms, there was a significant trend towards developing new faecal incontinence for solid stool (22%,  $P=0.004$ ), liquid stool (22%,  $P=0.026$ ), flatus (54%,  $P=0.014$ ). Moreover, there is a significant trend towards developing two or more faecal incontinence symptoms at 12-months following LRYGB (22%,  $P=0.001$ ). Yet, there was no correlation between BMI at 12-months and faecal incontinence symptoms ( $P=NS$ ).

**Conclusion:** In this study, variable degrees of faecal incontinence seem prevalent among patients undergoing LRYGB. Furthermore, there was a trend towards developing new symptoms 12-months post LRYGB. Our findings may assist in providing enhanced preoperative counselling of patients.

## B05

### Bariatric surgery produces rapid improvement in renal dysfunction that is most marked in the early stages of chronic kidney disease

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**Background:** It is widely accepted that bariatric surgery is an effective treatment for weight loss and leads to an improvement in metabolic conditions, however there is relative paucity of data on the effect of surgery on progression of renal dysfunction in patients with chronic kidney disease (CKD). The aim of this study was to investigate the effect of bariatric surgery on renal dysfunction in patients with CKD stage 3-5.

**Methods:** A retrospective review of consecutive patients with CKD Stages 3-5 who underwent bariatric surgery during 2014-5 was undertaken in a high volume bariatric surgical centre in England. Changes in renal function (quantified in estimated Glomerular Filtration Rate or eGFR) were monitored over the subsequent 12 months following surgery.

**Results:** Over this one-year time period, 316 patients underwent surgery, of which 10 had CKD Stages 3-5. 6 underwent laparoscopic roux en y gastric bypass surgery and 4 underwent laparoscopic sleeve gastrectomy. Median BMI and age

were  $44.2 \pm$  IQR 13.5 &  $62.5 \pm 16.5$ , respectively. At four months from surgery, a significant reduction in BMI of 15.1% ( $p < 0.05$ ) was observed with an overall 12.9% increase in eGFR, although this did not reach statistical significance ( $p = 0.149$ ). Significant improvement in eGFR was only seen in CKD stage 3 patient of 27.4% ( $p = 0.035$ ). No significant difference was detected between each bariatric procedure. At 12 months follow up eGFR had stabilized with no significant change observed at any CKD stage ( $p = 0.54$ ).

**Conclusion:** In common with the early stages of diabetes, bariatric surgery appears to confer benefits in the earlier stages of CKD, which are most marked early in the early postoperative period. However, despite ongoing reduction in BMI, further improvements in renal function are not observed. Larger scale studies are required to understand the effect of surgery on long term renal function in those patients with CKD.

## B06

### Laparoscopic Roux-en-Y gastric bypass in adolescents with severe obesity: the arrival of prospective long-term outcomes and relevance for the UK

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**Background:** Obesity affects 9% of children in England and is associated with reduced life expectancy and impaired quality of life. Long-term benefits of conservative treatments are limited, while short-term outcomes of adolescent bariatric surgery are promising.

**Methods:** This study reports completed five-year outcomes following Roux-en-Y gastric bypass (RYGB) in a nationwide prospective non-randomised controlled study of adolescents (13-18 years) with severe obesity, a matched adolescent control group undergoing conservative treatment, and an adult comparison RYGB group. The primary outcome measure was change in weight over 5 years.

**Results:** Eighty-one adolescents: baseline age 16.5 years (SD 1.2), weight 132.8 kg (SD 22.1) and body mass index (BMI) 45.5 kg/m<sup>2</sup> (SD 6.1) underwent RYGB. Five-year weight change was -36.8 kg (95% CI -40.9 to -32.8) resulting in a BMI reduction of 13.1 kg/m<sup>2</sup>, although weight loss <10% occurred in 11%. Comorbidities and cardiovascular risk factors resolved in 74-100%: type 2 diabetes (3/3), disturbed glucose metabolism (18/21), dyslipidaemia (43/52), elevated blood pressure (11/12), inflammation (hs-CRP  $\geq 2$  mg/L; 45/61) and elevated liver enzymes (19/19), each comparing favourably with adolescent controls at 5 years. Functional (SF-36) and obesity-specific (OP-14) quality of life improved in the adolescent RYGB group (mean difference 4.2,  $p = 0.006$  and -9.9  $p = 0.009$ ). Twenty RYGB participants (25%) underwent additional abdominal surgery for complications of surgery or rapid weight loss, 72% demonstrated some nutritional deficiency, and healthcare consumption increased. Mean BMI increased in control adolescents (3.3 kg/m<sup>2</sup>; 95% CI 1.9 to 4.8), while BMI change in adults was similar to surgical adolescents (mean difference 0.8 kg/m<sup>2</sup>; 95% CI -1.1 to 2.8). Twenty adolescent controls (25%) underwent bariatric surgery within 5 years.

**Conclusion:** Substantial weight loss occurred over five years after adolescent RYGB, alongside improvements in comorbidities, risk factors and quality of life. RYGB was associated with additional surgery and nutritional deficiencies, while non-surgical treatment was associated with weight gain and 25% underwent bariatric surgery within 5 years. These long-term data should prompt discussion of UK adolescent bariatric provision.

## Session 3: Parallel Free Paper Session – Allied Health Professional

Thursday 26 January 2017 (12.15 – 13.15)

### C01

#### Ascertaining the place of social media and technology for bariatric patient support: what do allied health professionals think?

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**Background:** There is an increasing presence of patient-led social media, mobile apps and patient support technology, but little is known about the role of these in the support of bariatric surgery patients in the UK. This study sought the views of UK Allied Health Professionals (AHPs) working in bariatric surgical teams to understand their perceptions of the role of social media, mobile apps and patient-support technology within the context of bariatric surgery.

**Methods:** A confidential, printed survey was distributed to AHPs attending a national bariatric surgical conference in 2016. An email to AHPs who did not attend the conference was sent requesting voluntary participation in an online version of the survey online within two weeks of the conference.

**Results:** There were 95 responses, which was a 71% response rate (n = 134). Responses were from nurses (34%, n = 46), dieticians (32%, n = 32), psychologists (16%, n = 12), 1 nutritionist, 1 physiotherapist, 1 patient advocate and 1 surgeon; 9 respondents did not fill in their position. Respondents reported an overall increase in the use of social media and mobile apps by patients, with AHPs concerned about misinformation and that advice may differ from what is given in clinic. Technologies, e.g. telehealth and videoconferencing, are not widely used to support bariatric patients in the UK.

**Conclusion:** As the use of media and technology by patients increases, further discussions are needed to address the AHP-reported concerns of misinformation.

### C02

#### Examining the role of an emotional eating group intervention in pre-surgical bariatric patients

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**Background:** Problematic eating patterns prevalence prior to Bariatric Surgery have been demonstrated in numerous studies (e.g. Mitchell et al., 2015). Compared with the general population there are higher rates of binge eating disorder prior to surgery (Allison et al., 2006; Adami et al., 1997). Research demonstrating the predictive validity of binge eating disorder and weight loss following surgery has been mixed (de Zwaan et al., 2010). A study by Ashton et al. (2009) demonstrated a brief cognitive behavioural group intervention reduced problematic eating amongst pre-surgery patients. Binge eating or loss of control eating, grazing and night eating syndrome post-surgery is predictive of poor weight loss and psychosocial outcomes (White & Grilo, 2011). Therefore, equipping patients with the means to manage problematic eating would be of great benefit to weight loss efforts. The current research examined whether a three-session cognitive behaviourally informed emotional eating group intervention was beneficial in equipping pre-surgery patients with strategies to manage problematic eating.

**Methods:** A three-session cognitive behavioural intervention was offered to patients on a pre-surgery pathway. Each session lasted 90 minutes. Participant were weighed at each session. They also completed questionnaires indicating

their level of distress by, the frequency of, how successful they believed they were in managing their problematic eating and how well they believed they were coping in managing unhelpful emotions leading to problematic eating.

**Results:** The results indicated that in general there was a shift towards being able to manage with their problematic eating and coping more with unhelpful emotions. There was also a shift in overall weight at the end of the three sessions. Participant feedback also indicated the importance of such a group.

**Conclusion:** The results are discussed considering the efficacy and importance of a pre-surgical intervention for managing problematic eating prior to bariatric surgery.

### C03

#### Does the duration of diabetes prior to bariatric surgery impact on the outcome?

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**Background:** Bariatric surgery has emerged as an effective way of treating type 2 diabetes. However, whether the duration of diabetes prior to surgery has an impact on the resolution/remission of type 2 diabetes after surgery is still a question to be answered. The aim of this study was to compare the outcomes of resolution/remission of diabetes in patients who were known diabetic for less than and more than 5 years prior to surgery.

**Methods:** A retrospective review of a prospectively maintained database was conducted on all type 2 diabetic patients undergoing laparoscopic bariatric surgery at a regional NHS bariatric centre between 2008 and 2014. Patient demographics, operative details, HbA1c and duration of type 2 diabetes before surgery and weight loss were analysed.

**Results:** 103 type 2 diabetic patients who underwent bariatric surgery were identified. 36M:67F. Mean age 49 years (range:28-63 years). 7 laparoscopic adjustable gastric band (LAGB); 51 laparoscopic sleeve gastrectomy (LSG) and 45 laparoscopic gastric bypass (LGB). 53 patients were identified who had type 2 diabetes for more than 5 years prior to surgery (Group A) and 50 patients had diabetes for less than 5 years (Group B). Mean initial HbA1c for group A was higher (8.0%) compared to group B (7.3%). Group B had better HbA1c control than group A after surgery. At 6 months: 6.5% (group A) and 5.9% (group B); 12 months: 6.3% vs 6.0%. After 18 months, on subsequent six monthly checks the mean HbA1c was 4-11% lower than group A until 42 months (Graph 1). Group A patients performed better in weight reduction (Graph 2).

**Conclusion:** The patients who were diabetic for less than 5 years performed better in terms of resolution/remission of diabetes compared to those who were known diabetic for longer.

### C04

#### Sexual and reproductive health of women aged 18-50 awaiting bariatric surgery

Yitka Graham<sup>1</sup>, Peter K Small<sup>2</sup>, Kamal Mahawar<sup>2</sup>, Kim Hinshaw<sup>2</sup>, Sarah Gatiss<sup>2</sup>, Henk Jan Out<sup>1</sup>, Diana Mansour<sup>3</sup>

<sup>1</sup>University of Sunderland, Sunderland, UK, <sup>2</sup>Sunderland Royal Hospital, Sunderland, UK, <sup>3</sup>New Croft Centre, Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne, UK

**Background:** Over 70% of people seeking bariatric surgery are women in their reproductive years. Despite this prevalence, little is known about their sexual and reproductive health making it difficult to meet this cohort's needs pre and post bariatric surgery.

**Methods:** Female patients aged 18-50 who were on the waiting list for bariatric surgery at an NHS hospital in England were contacted by letter asking them to complete an anonymous on-line survey about their sexual and reproductive health between July 2015 and October 2016.

**Results:** Thirty participants took part in the survey (response rate 29%, n = 102) with 43% (n = 13) aged between 35-44 years, 87% (n = 26) describing themselves as heterosexual, all were white (100%, n = 30), 56% (n = 17) married and 73% (n = 22) had children. The average self-reported BMI kg/m<sup>2</sup> was 49.9 and 27% (n = 8) said they had Polycystic Ovarian Syndrome. Menstruation was described as regular in 50% (n = 15) of participants, 33% (n = 10) reported occasional painful menstruation, with 30% (n = 9) taking medication for this. The majority of respondents experienced between 3-6 days of bleeding (27%, n = 8). Fifty three % (n = 16) experienced heavy bleeding during menstruation, Contraception was used in 60% (n = 18) of respondents, with 7 using hormonal intrauterine systems. Most respondents using contraception (78%, n = 14/18) went to their GP for advice, and only 39% (n = 7/18) were aware of safe, appropriate contraceptive options for obese women awaiting bariatric surgery.

**Conclusion:** The demographic profile of these participants is similar to that of the NBSR. The menstrual data gives an indication of bleeding patterns in this cohort, which is not always routinely collected in practice. For the patients using contraception, the preferred method was intrauterine devices. Further research into the sexual and reproductive health of female bariatric patients is recommended.

## C05

### Refractory anaemia: emerging problem of bariatric surgery

**Khin Swe Myint, Matthew Lawes, Neetha Jose, Katherine Paterson, Roma Spinks, Vidya Srinivas**

*Norfolk and Norwich University Hospitals NHS Trust, Norwich, UK*

**Background:** With increasing gastric bypass surgery (GBS), micronutrient/mineral deficiency become an emerging issue and can present as anaemia.

**Methods:** We reported two cases refractory anaemia that incurred diagnostic and management challenging. **Case 1.** 52 year old lady was referred initially to haematologist for blood transfusion in Feb 2016. She had severe anaemia and breathlessness. She was subsequently referred to bariatric team. In 2000, she underwent open laparotomy and gastric bypass privately for obesity. She weighed 270 kg prior to surgery and received 6 month initial follow up only and took no vitamin supplementation apart from B12 and iron. On assessment, she weighed 175 kg and had multiple micronutrient deficiency (ferritin 11 ug/l, iron 3.4 µmol/l, transferrin saturation 4%, vitamin D 19 nmol/l, folic acid 1.7 ug/l, selenium 0.77 nmol/l), microcytic anaemia (Hb 86 g/l, MCV 64), osteoporosis (t score -3.2 in hip). She previously had blood transfusion at community hospital. Upper GI endoscopy & colonoscopy were normal. Her iron deficiency anaemia dated back 2009 (first available test on system). She responded well on intravenous iron infusion. Hb 132 g/l, MCV 88, Ferritin 107 ug/l). **Case 2.** 51 year old lady underwent GBS in 2012. Pre-op showed Hb 106 g/l, MCV 94, ferritin 148 ug/l but low iron 8.1 µmol/l, normal B12 and folate. She had type 2 diabetes, Chronic kidney disease stage 3. She presented to haematologist Oct 2016. Her anaemia was contributed to multifactorial. She developed endometrial cancer and had hysterectomy and bilateral salphingo-ophrectomy in April 2016. Her anaemia deteriorate (Hb dropped to 73 g/l, MCV 101). Subsequent detail micronutrient analysis showed her copper level was below the debatable assay range of 1 µmol/l (11-22) and therefore likely contributed to her anaemia. She is just started copper supplement and plan for review in 8 weeks' time.

**Conclusion:** Iron deficiency anaemia is relatively common after gastric bypass surgery but it may be refractory to oral iron therapy. Intravenous iron therapy could replenish not only the iron store but also restoration of anaemia without necessary blood transfusion. If anaemia persists, detail other minerals deficiency including zinc and copper should be assessed. Copper is cofactor in several oxidative enzymes and vital to the function of hematopoiesis important to rule out the cause of anemia.

## C06

### Perioperative management and outcomes of people with diabetes mellitus (DM) & impaired glucose tolerance (IGT) referred for bariatric surgery: 6 year's experience

**Wei Yang, Anjali Zalin, Kevin Shotliff, Nuala Davison, Kelli Edmiston, Veronica Greener, Hutan Ashrafian, Evangelos Efthimiou**

*Chelsea and Westminster Hospital, NHS Foundation Trust, London, UK*

**Background:** Professionals counselling and preparing patients for bariatric surgery have a complex task. A number of guidelines and tools have been developed to support consent, and safe, individualised care. We sought to examine our outcomes when adhering to national guidelines for DM management prior to elective surgery (JBDS-IP 2016) and local recommendations for postoperative DM management. In order to inform shared-decision making, we also investigated factors associated with DM remission in our population.

**Methods:** A retrospective analysis of our unit's bariatric database (based in a teaching hospital within a large city) was conducted. Patients with DM and IGT undergoing the three most common bariatric procedures between Jan 2010 and Aug 2016 were included. ANOVA, t tests, and correlation studies were used for statistical analysis. American Diabetes Association (ADA) criteria were used to define remission of diabetes.

**Results:** A total of 272 patients were included in this analysis. The majority of patients had a Roux-en-Y gastric bypass (RYGBP): 51% (n = 138) followed by Adjustable gastric banding (AGB): 23% (n = 62) and then Sleeve gastrectomy (SG): 21%: n = 58. Preoperative HbA1c reached the recommended ≤ 69 mmol/mol in the majority of patients (80%). GLP-1 agonist therapy was prescribed in 14% of patients and preoperative weight loss was greater in this group versus the non-GLP-1 agonist treated group (p < 0.05). Postoperatively, 36% of patients were discharged on metformin as per local recommendations. Remission of DM (>1 year) was achieved in 45% patients (69% RYGBP, 27% SG and 5% ABG). Factors associated with remission included: pre-op HbA1C ≤ 69 mmol/mol and minimal pre-surgery therapy for DM. DiaREM score predicted remission post-RYGBP in 65%.

**Conclusion:** Preoperative glycaemic preparation for bariatric patients with DM (in line with local and national guidelines) contributes to successful post-operative outcomes. Further evidence as to the postoperative benefit of metformin would be beneficial to enhance management of these cases. Our results are consistent with numerous other national and international other cohorts where RYGB appears to be the most effective bariatric procedure for improving glucose metabolism in people with DM.

## Session 7: Parallel - DVD

**Friday 27 January 2017 (09:30 – 10:30)**

## D01

### Gastric bypass failure – lengthening the BP limb with revision of gastro-jejunal anastomosis

**Kesava Reddy Mannur, Adam Goralczyk, Anupam Dixit**

*Homerton University Hospital, London, UK*

**Background:** Gastric bypass failure seems to happen in some percentage of people at about 3-5 years when the patients start eating almost the same amounts of food as before the surgery. These require some procedure to help lose weight again. There have been various procedures – 1. Applying a 'ring' or gastric band to the gastric pouch converting the bypass to a 'banded' gastric bypass, 2. Narrowing the stomach pouch +/- extending the alimentary limb 3. Conversion of the gastric bypass to Sleeve Gastrectomy and DS/SADI-S 4. Extending the length of the BP limb. Whilst the first 2 seem fail, the 3<sup>rd</sup> is very difficult and can cause major problems and 4<sup>th</sup> seems to be a better option in providing good weight loss without much of a problem.

**Methods:** I show through a video how this lengthening of the BP limb could be performed in a very easy way. The JJ anastomosis is disconnected using a GIA stapler. The BP limb (proximal end of jejunum) is anastomosed to the Alimentary limb (distal end of the jejunum) using a GIA Stapler and the jejunal defect is closed with either 2/0 Vicryl. The gastro-jejunal anastomosis is disconnected using GIA stapler. The jejunum is measured for about 150 cm from the DJ flexure and anastomosed to the gastric pouch by 2/0 Vicryl hand suture.

**Results:** There is a very good loss of weight in 12 patients with very little morbidity.

**Conclusion:** Lengthening of the BP limb is a good option in failed gastric bypass. BP limb or afferent limb of 150 cm or more is responsible for the good weight loss in One anastomosis Gastric bypass / MGB and the same could be the answer in RNY bypass or even MGB patients with weight gain.

## D02

### Laparoscopic management of early perforation after intragastric balloon insertion causing gastric ischaemia

**Charalampos Markakis, Ravi Aggarwal, Naim Fakh Gomez, Derek Yeung, Shima Jamshidi, Sanjay Purkayastha**

*St Mary's Hospital, Imperial College Healthcare NHS Trust, London, UK*

**Background:** Insertion of an intragastric balloon has been shown to successfully induce modest short-term weight loss in morbidly obese patients either as a standalone procedure or when used as a bridge to the definitive bariatric procedure, potentially resulting in safer outcomes. It is a safe procedure frequently associated with minor symptoms such as nausea and vomiting, however, serious complications, such as balloon migration and perforation, have been described and can result in significant morbidity and even mortality. The appropriate treatment can be conservative, endoscopic or surgical and experience in management of bariatric surgical complications is essential for favourable outcomes.

**Methods:** We present the case of a 48 year old female patient presenting with generalized peritonitis 2 days after insertion of an intragastric balloon. A CT scan showed a leak near the gastroesophageal junction. The patient was transferred to theatre for urgent laparoscopic management.

**Results:** Laparoscopy revealed four-quadrant peritonitis and a large part of the gastric fundus was necrotic with a perforation at the superolateral aspect. The intragastric balloon was removed and a fundectomy was performed removing non-viable tissue. This resulted in a staple line extending from the middle of the greater curvature to a point very close to the gastroesophageal junction.

The patient was discharged after a prolonged hospital stay. She was readmitted 3 weeks postoperatively with a leak from the proximal part of the staple line resulting in a localized perforation. This was managed conservatively and the she eventually made a full recovery.

**Conclusion:** The intragastric balloon is a useful tool in the management of bariatric patients. Serious complications are rare, but perforation in particular can be devastating. A high index of suspicion for perforation in patients exhibiting significant abdominal pain after insertion of an intragastric balloon is paramount for successful management.

## D03

### Gastric band slippage and erosion to the gastric antrum: a laparoscopic challenge

**Jihene El Kafsi, Majid Hashemi, Andrew Jenkinson, Marco Adamo, Mohammed Elkalaawy**

*University College London Hospital, London, UK*

**Background:** Gastric band removal is an increasingly common operation usually indicated by complications related to LAGB or band intolerance. We present a video of a challenging case performed recently in a high volume unit.

**Methods:** Laparoscopic removal of gastric band was recorded using integrated digital system in theatres.

**Results:** A 40 year old female was referred to clinic with a 2 month history of abdominal pain and dyspepsia on a background of LAGB insertion 4 years ago in a different centre, the band was deflate in the first instance. Examination of the abdomen was unremarkable and the port site looked healthy. A subsequent contrast study showed band slippage to the gastric antrum with no evidence of obstruction. The patient was booked for urgent removal of the gastric band on an elective bariatric list.

Intraoperatively it quickly became apparent that the band was engulfed in a phlegmon involving the left lobe of the liver, the antrum and the transverse colon. The band tubing was seen diving into the infracolic compartment before disappearing into the inflammatory mass by traversing through mesocolon. There was no evidence of a perforation but partial erosion of the tubing into the colon could not be excluded at this stage. Dissection of adhesions between liver and antrum was resumed until the band was seen. Further dissection into the inflammatory mass allowed delivery of eroded band resting inside the gastric lumen. The gastrostomy was closed with interrupted sutures and patched with omentum. The tubing was pulled through from within the mesocolon. It appeared clean with no discolouration to suggest erosion into the colon. Large drains were rested near the gastrostomy closure site.

Post-operative course was slow due to ileus. A contrast CT demonstrated a possible gastro-colic fistula with no pneumoperitoneum to suggest an overt perforation.

**Conclusion:** Gastric band removal is an increasingly common operation and can usually be undertaken as a day case, but some cases can be very challenging as demonstrated by our case were an anterior erosion into the gastric antrum caused avpossible gastrocolic fistula.

## D04

### Dismantling a butterfly gastroplasty: revision surgery of an uncommon bariatric procedure

**Naim Fakh Gomez, Sherif Hakky, Charalampos Markakis, Ravi Aggarwal, Ahmed Ahmed**

*Imperial College London, London, UK*

**Background:** Gastric Bypass is the gold standard operation for bariatric surgery. It is a good option for failed previous procedures and for salvage surgery for complications. The "Butterfly" gastroplasty, an uncommon bariatric procedure described in Egypt, consists of a micro funnel shaped pouch constructed limited to cardia using two endo-cutter cartridges. This is the first reported case for revision surgery for this type of operation.

**Methods:** We report the clinical case of a 59-year-old gentleman who underwent a laparoscopic Butterfly gastroplasty in Egypt. Patient seeked further surgery for the management of his weight regain and ongoing problems of nausea and vomiting postprandially.

**Results:** The patient underwent revisional surgery. This video shows the technical aspects of excision of the Butterfly deformity of the stomach and then the creation of a new gastric pouch, completing the gastric bypass afterwards. The patient tolerated the procedure well and was discharged home on the second postoperative date without any complications. He did not have any particular morbidity during the first month after the operation.

**Conclusion:** The Roux-en-Y gastric bypass is a good option for revisional surgery for uncommon operations such as the butterfly gastroplasty. It is a feasible option and usually extensive preoperative work out is necessary in these patients to identify the anatomy as these procedures are not standardized.

## D05

### Video: Sleeve to gastric bypass – technical details in forming the gastric pouch

**Kesava Reddy Mannur, Anupam Dixit, Adam Goralczyk**

*Homerton University Hospital, London, UK*

**Background:** Sleeve Gastrectomy is the most commonly performed bariatric surgery in the world. Many seem to put on weight or have acid reflux. Leaving

the fundus is the common problem and the reflux is the common problem for eating the wrong foods. Here we present how the sleeve is converted to gastric bypass.

**Methods:** Video of the sleeve being converted to gastric bypass showing how the fundus is dissected and resected along with the excess stomach to form the gastric pouch

**Results:** In all the patients where the gastric pouch is formed properly when the sleeve Gastrectomy is converted to gastric bypass, the weight loss has been good and food restriction is good.

**Conclusion:** It is essential to dissect the fundus properly and excise any excess stomach when converting sleeve to gastric bypass. This video shows the technical aspects of it.

## D06

### The protector band: insertion and early outcomes of a re-engineered gastric band

Mushfique Alam<sup>1</sup>, Alice Taylor<sup>1</sup>, Sally Abbot<sup>1</sup>, Mohamed Sahloul<sup>1</sup>, David Ashton<sup>2</sup>, Rishi Singhal<sup>1</sup>, Paul Super<sup>1</sup>

<sup>1</sup>Heart of England NHS Foundation Trust, Birmingham, UK, <sup>2</sup>Healthier Weight, London, UK

**Background & Aims** In recent years, the high rates of post-operative complications such as band slippage and erosion have led to a reduction in the number of laparoscopic adjustable gastric band (LAGB) procedures. A new modified gastric band – the “Protector Band” – has been designed with the aim of reducing such complications. This video demonstrates the insertion of the Protector Band and in brief, presents the early safety and efficacy profile of this new device.

**Methods:** From June 2015, adult patients eligible for standard LAGB insertion were offered enrolment into the present study utilising the Protector Band. The new design is a modification of the existing LAGB with the addition of a soft silastic mesh attached to two thirds of the superior border. Patients underwent laparoscopic protector band insertion using 14 mm access ports. A pars-flaccida approach was used, with standard band placement through a window of the lesser omentum. Gastro-gastric sutures were not utilised – 3-point suture fixation was used to secure the mesh to the hiatal margin. Pre, intra and post-operative care remained changed from standard LAGB insertion.

**Results:** A total of 25 patients have so far undergone protector band insertion (84% female, mean age 45.16 years). The mean baseline weight & BMI were 128.4 kg and 47.95 kg/m<sup>2</sup> respectively. There have been no intra-operative complications and no difference in mean operating time relative to standard LAGB insertion. 88.2% of patients were discharged the same day. The percentage of excess body weight loss were 25.7 and 27.9 at 3 and 6 months respectively. To date there have been no reports of post-operative complications.

**Conclusions** The Protector Band is easy to insert and negates the use of gastro-gastric sutures. The change in band design has not resulted in any early post-operative complications and has weight loss outcomes analogous to that of standard LAGB. This new design thus appears safe and has the potential to reduce long term complications associated with LAGB insertion.

## D07

### Refashioning of gastrojejunal anastomosis and partial excision of gastric remnant in a patient presenting with haematemesis 3 years after banded gastric bypass

Charalampos Markakis, Naim Fakhri Gomez, Ravi Aggarwal, Shima Jamsheidi, Derek Yeung, Ahmed Ahmed

St Mary's Hospital, Imperial College Healthcare NHS Trust, London, UK

**Background:** Banded gastric bypass has been proposed as an alternative to standard Roux-en-Y gastric bypass (RYGB) for more than 25 years. Its proponents point to evidence of better intermediate term weight loss outcomes and decreased rates of weight regain, especially in the super-obese. However, complications unique to the technique namely band slippage and/or erosion can be devastating and require expert management to ensure favourable outcomes.

**Methods:** We present the case of a 34 year old female patient presenting with episodes of epigastric pain and haematemesis 3 years after a banded gastric bypass procedure. She also complained of weight regain.

A CT scan was unremarkable but endoscopy showed mesh erosion, stenosis of the gastrojejunal anastomosis and a large gastrogastric fistula, which was also demonstrated in a barium meal. A decision was made to revise the gastrojejunostomy.

**Results:** The operation was completed laparoscopically. The gastrojejunostomy and eroded mesh were excised as was the part of the gastric remnant proximally to the gastrogastric fistula. The gastrojejunostomy was then refashioned and a hiatus hernia was also repaired.

The patient had a postoperative course complicated by a lower respiratory tract infection, but no surgical complications. She eventually made a full recovery and is asymptomatic 6 months after surgery.

**Conclusion:** Banded gastric bypass is a valid modification of RYGB. Band erosion is a rare, serious complication, which can be managed safely and effectively in a centre with experience in revisional bariatric surgery.

## Session 6: Free Paper Session - Surgical and AHP

Friday 27 January 2017 (08:30 – 09:30)

## E01

### Small bowel infarction due to mesenteric venous thrombosis a rare but catastrophic complication after laparoscopic sleeve gastrectomy - a case report

Jitesh Parmar, Ian Finlay

Royal Cornwall Hospital NHS Trust, Truro, UK

**Background:** Portomesenteric Venous Thrombosis (PMVT) is a rare but potentially catastrophic complication after laparoscopic bariatric surgery. Reported incidence is 0.3 to 0.4% and a vast majority of cases occur after laparoscopic sleeve gastrectomy (LSG) as compared to other types of bariatric surgery. The aetiology of PMVT after LSG is multifactorial. We aim to report a case of mesenteric venous thrombosis leading to small bowel infarction after LSG.

**Methods & Results:** Clinical presentation, radiological images and management of the case is presented. A 37 year old male patient presented with 48 hrs of abdominal pain and nausea two weeks post LSG for morbid obesity. Computed Tomography (CT) scan revealed superior and inferior mesenteric venous thrombosis with a resultant small bowel venous infarction. Patient was managed by an immediate “damage control” laparotomy with small bowel resection followed by post op anticoagulation, a second look laparotomy and anastomosis. Apart from a low antithrombin level of 66% (reference 80-130%) other thrombophilia screen were all normal at presentation. The significance of low antithrombin level in this case remained unexplained. The patient made good recovery and was discharged with oral anticoagulation for 6 months.

**Conclusion:** This case highlights importance of high index of suspicion for diagnosis of this rare complication post bariatric surgery to prevent mortality. Earlier diagnosis PMVT before development of bowel infarction can be managed non-operatively with systemic full anticoagulation.

## E02

**Role of the transcription factor 7-like 2 variants in prediction type 2 diabetes in a population of severely obese people**

Andrea Pucci<sup>1</sup>, Urszula Tymoszek<sup>1</sup>, Wui Hang Cheung<sup>1</sup>, Janine Makaronidis<sup>1</sup>, Jenny Jones<sup>1</sup>, Marco Adamo<sup>2</sup>, Andrew Jenkinson<sup>2</sup>, Mohamed Elkalaawy<sup>2</sup>, Majid Hashemi<sup>2</sup>, Helen Kingett<sup>2</sup>, Amy Kirk<sup>2</sup>, kayon Carr-Rose<sup>2</sup>, Ania Tshiala<sup>2</sup>, Grainne Buckley<sup>2</sup>, Rachel Batterham<sup>1</sup>

<sup>1</sup>Centre for Obesity Research, Rayne Institute, Department of Medicine, University College London, London, UK, <sup>2</sup>University College London Hospital Bariatric Centre for Weight Management and Metabolic Surgery, University College London Hospital, London, UK

**Background & Aims** The single nucleotide polymorphism, rs7903146, within the TCF7L2 gene, risk-allele T, is the strongest genetic marker for increased risk of developing type 2 diabetes mellitus (T2D) identified to date in the general population. However, there are no data regarding rs7903146 genotype and T2D risk in people with severe obesity.

**Material & Methods:** We undertook a retrospective study of 483 patients referred for bariatric surgery. Age, BMI, HbA1c and anti-diabetic medication usage were assessed during their first clinic visit. All subjects donated a blood sample for DNA analysis after having provided written informed consent and were genotyped for rs7903146. Logistic regression analysis was undertaken to examine the relationship between rs7903146 genotype and T2D.

**Results:** The average age, BMI and HbA1c for the entire cohort was  $45.4 \pm 11.0$  years,  $47.9 \pm 7.9$  kg/m<sup>2</sup> and  $6.3 \pm 1.2\%$  respectively. Genotyping for rs7903146 revealed 45 (9%) were TT, 196 (41%) TC and 242 (50%) CC. 150 (31%) of the entire cohort had T2D (age  $51.3 \pm 8.4$  years, BMI  $47.5 \pm 7.7$  kg/m<sup>2</sup>, HbA1c  $7.5 \pm 1.4\%$ ) and of these 120 (80%) were taking anti-diabetic medications. The TT genotype was more prevalent in T2D patients compared to non-T2D patients ( $p=0.042$ ). We did not observe any relationship between rs7903146 genotype and BMI ( $p=0.66$ ). In diet-controlled T2D patients we observed an effect of the rs7903146 genotype on baseline HbA1c (TC vs. TT  $-0.965$ ,  $p=0.039$ ) Moreover, examination of the impact of rs7903146 genotype and HbA1c in all patients not taking anti-diabetic medications revealed that TT patients had a higher HbA1c, ( $p < 0.001$ ) compared to CC/TC patients. The risk of T2D was 31% greater in TT patients compared for CC patients,  $p=0.028$  independent of BMI.

**Conclusion:** In a population of severely obese patients referred for bariatric surgery the T-allele of rs7903146 is associated with increased risk of T2D a higher HbA1c independent of BMI. Further larger studies are needed to examine the impact of rs7903146 genotype upon T2D resolution after bariatric surgery.

## E03

**The role of increased glycemic variability and glucagon in the pathophysiology of postprandial hypoglycemia after RYGB**

Ahmed Ahmed, George Tharakan, Sanjay Purkayastha, Krishna Moorthy, Harvinder Chahal, Tricia Tan

Imperial College London, London, UK

**Background:** Roux-en-Y Gastric Bypass (RYGB) surgery is currently the most effective treatment for diabetes and obesity, resulting in a significant improvement in hyperglycemia prior to any weight loss. An increasingly recognized complication of RYGB surgery is the development of postprandial hypoglycemia (PPH). The pathophysiology of PPH remains unclear with multiple mechanisms suggested including nesidioblastosis, altered insulin clearance and increased glucagon-like-1 peptide (GLP-1) secretion. Whilst many patients with PPH respond to dietary modification, there are a group that have severely disabling symptoms. Multiple treatments have been trialed ranging from acarbose, to both GLP-1 agonists and antagonists, even to reversal of RYGB. A greater understanding of the pathophysiology of PPH may help guide the development of therapeutic agents for this condition.

**Methods:** We studied a cohort of patients diagnosed with PPH at a tertiary bariatric center. We performed continuous glucose monitoring to characterize

the altered glycemic variability following RYGB. We also performed a mixed meal test (MMT) and measured gut hormone concentrations.

**Findings** We found increased glycemic variability in our cohort of PPH patients, specifically a higher MAGE score of 4.9. We also demonstrated a significantly increased peak insulin and glucagon concentration in patients who had hypoglycaemia following a MMT relative to those that did not. Glucagon did not increase in response to hypoglycaemia. No significant differences in GLP-1, oxyntomodulin or peptide YY were seen between these two groups.

**Discussion** Elevated glucagon may, in concert with the elevated GLP-1, trigger an exaggerated insulinotropic response to the early peak of glucose levels after eating. This observation supports the use of GLP-1 agonists as a glucagonostatic agent in the treatment of PPH.

## E04

**The patients' perspective on the long-term support required following bariatric surgery**

Sue Jackson<sup>1</sup>, Jude Hancock<sup>2</sup>, Andrew Johnson<sup>2</sup>

<sup>1</sup>University of the West of England, Bristol, UK, <sup>2</sup>Southmead Hospital, N Bristol NHS Trust, Bristol, UK

**Background:** Changing behaviour following bariatric surgery is notoriously challenging after a lifetime of unhealthy behaviours. Currently, post-bariatric surgery patients are supported through Weight Loss Services (WLSs) for two years before being discharged. Data indicates that in the year after bariatric surgery patients lose weight, but after two years some weight regain is likely (Sjöström, 2013). Understanding what patients feel they need in order to continue to lose weight and/or maintain a healthy weight following discharge from their WLS is important.

**Methods:** Six individuals who had undergone bariatric surgery more than five years ago attended an hour long patient advisory group (PAG) to discuss the extra support they required following discharge from the WLS. A confirmatory 1 hour meeting was subsequently held with the 10 healthcare professionals who make up the local WLS.

**Results:** Although support was available in the early post-operative years, the PAG felt it was longer-term when they experienced challenges and needed support. A list of 10 things that would help patients continue to change their behaviour in order to lose and maintain weight loss was produced. Some items were practical (e.g., meal planning; identifying "empty" calories) while others were more psychosocial (e.g., identifying/dealing with head hunger/appetite issues; dealing with others). Discussions with the WLS confirmed the list as being important and relevant to patients undergoing any kind of bariatric surgery. No further additions were suggested by the clinical team.

**Conclusion:** To prevent weight regain following discharge from WLSs there is a need to explore other ways of supporting patients long-term until behaviour changes become habit. The 10 things the PAG felt would be useful could all be made available using digital technology, so that long-term support could be provided with little cost to the NHS.

## E05

**Systematic review and meta-analysis of outcomes after revisional bariatric surgery following a failed adjustable gastric band**

Alistair Sharples, Vasileios Charalampakis, Mohamed Sahloul, Markos Daskalakis, Abd Tahrani, Rishi Singhal

Heart of England NHS Trust, Birmingham, UK

**Background:** Laparoscopic adjustable gastric band (LAGB) related complications have been reported in significant numbers of patients often leading to band removal. Increasingly revisional bariatric surgery (RBS) is offered, most commonly either band to roux-en-y gastric bypass (B-RYGB) or band to sleeve gastrectomy (B-SG). We conduct a systematic review and meta-analysis of studies to evaluate the efficacy of RBS following failed LAGB.

**Methods:** Medline, Embase, The Cochrane Library and NHS Evidence were searched for English language studies assessing patients who had undergone LAGB and who subsequently underwent RBS (either B-RYGB or B-SG). Studies were included if they presented postoperative data on weight change, obesity-related comorbidities, or quality of life and included more than 10 patients.

**Results:** Thirty-six studies met our criteria for inclusion. In total, there were 2617 patients. B-RYGB was performed in 60.5%. There was only one death within 30 days reported (0.0004%). The overall pooled morbidity rate was 13.2% (8.9% early and 8.1% late complications). There was no difference between B-RYGB and B-SG in overall morbidity, leak rate or return to theatre. Percentage excess weight loss (%EWL) for all patients combined at 6, 12 and 24 months was 44.5%, 55.7% and 59.7% respectively. There was no statistical difference in %EWL between B-RYGB and B-SG at any time point. The rates of remission of diabetes, hypertension and obstructive sleep apnoea were 46.5%, 35.9% and 80.8% respectively. Only two studies looked at quality of life and both demonstrated an improvement following revisional surgery.

**Conclusion:** The existing evidence, although limited suggests that RBS is associated with generally good outcomes similar to those experienced after primary surgery. Further, high quality, research is required to assess long-term weight loss, comorbidity and quality of life outcomes.

## E06

### Early weight loss with liraglutide 3.0 mg is a good predictor of clinically meaningful weight loss after 56 weeks

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**Background:** Early identification of responders to weight loss (WL) medications is important in order to discontinue those unlikely to achieve WL targets; EU regulators are especially interested in identifying those unlikely to achieve  $\geq 10\%$  WL at 1 year. This subgroup analysis of SCALE Obesity and Prediabetes and SCALE Diabetes trials reports results from adults achieving  $\geq 5\%$  WL from baseline at Week (W) 16 on liraglutide (early responders; ER), compared to those who did not (early non-responders; ENR).

**Methods:** 2910 adults were randomised to liraglutide 3.0 mg: 2487 without T2D (BMI  $\geq 30$  or  $27-29.9$  kg/m<sup>2</sup> +  $\geq 1$  comorbidity; 45 years; 21% male; BMI 38 kg/m<sup>2</sup>; 61% with prediabetes), and 423 with T2D (BMI  $\geq 27$  kg/m<sup>2</sup>; 55 years; 52% male; BMI 37 kg/m<sup>2</sup>). Efficacy data are for W56 completers using LS means or estimated proportions. Mean and categorical WL were estimated by ANCOVA or logistic regression model, respectively.

**Results:** 67.5% of W16 completers without T2D were ER to liraglutide; mean WL at W56: 11.5%. Proportions of ER with  $\geq 5\%$ ,  $>10\%$ , and  $>15\%$  WL at W56 were 88.2%, 54.8%, and 24.2% respectively. ENR without T2D achieved mean WL of 3.8% at W56, with 36.9% and 8.3%, and 1.8% achieving  $\geq 5\%$ ,  $>10\%$ , and  $>15\%$  WL, respectively. 50.4% of W16 completers with T2D were ER to liraglutide; mean WL at W56: 9.3%. Proportions of ER with  $\geq 5\%$ ,  $>10\%$ , and  $>15\%$  WL at W56 were 80.1%, 44.6%, and 11.6%, respectively. ENR with T2D achieved mean WL of 3.6% at W56, at which time 33.3%, 5.8% and 1.3% had achieved  $\geq 5\%$ ,  $>10\%$  and  $>15\%$  WL, respectively. WL in ENR with T2D was slightly lower than ENR without T2D. Pooled across trials 93.4% of ENR failed to achieve  $\geq 10\%$  WL at W56. Across both trials, greater improvements in CV risk factors were seen in ER than ENR, consistent with greater WL. In those without T2D rates of hepatobiliary disorders appeared higher in ER than ENR. The overall safety profile was generally comparable between ER and ENR.

**Conclusion:** Early response strongly predicts long-term response; ER with or without T2D achieved mean WL of 9.3% and 11.5% at W56, respectively.

## Posters

Thursday 26– Friday 27 January 2017

### PoD1

#### Re-intervention following one anastomosis (Mini) gastric bypass – when and why does it happen?

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**Background:** One Anastomosis (Mini) Gastric Bypass (OAGB) is an increasingly common bariatric procedure. Recent data has shown that benefits and peri-operative complication rates are comparable to Roux-en-y gastric bypass (RYGB), though there is still limited data on the longer term outcomes of OAGB. The purpose of this study is to find out frequency and reasons of major radiological, endoscopic, and surgical interventions after this procedure in our unit.

**Methods:** All consecutive patients who underwent OAGB were identified retrospectively from a prospectively maintained electronic database. All post-operative endoscopy, CT, operative reports and clinic letters were then reviewed to assess for any re-intervention. No patients were excluded.

**Results:** 266 patients underwent OAGB during the study period. Follow-up ranged from 3–47 months (median 22). 39 (15%) of patients underwent OGD during follow-up, ranging from 0–34 months post-op (median 22); the most common indications being abdominal pain (28%) and nausea/vomiting (22%). 33 (12%) patients underwent post-operative CT, ranging from 0–34 months post-op (median 9), four of which were for reasons unrelated to OAGB. Abdominal pain was the most common indication for CT (58%). Three scans were within a month of surgery. 24 (9%) of patients underwent a second operation; one in the early post-operative period (laparotomy for obstruction). Six (25%) cases were conversions to RYGB (one for ulcer perforation; five for reflux/marginal ulceration, median 19 months post-OAGB). Three cases were laparoscopies for post-op symptoms, one was a hiatus hernia repair and division of gastro-gastric fistula, and one was a laparoscopy for perforation (unknown aetiology). The remainder were cholecystectomies (five), abdominal wall hernia repairs (six), and haemorrhoid treatment (one).

**Conclusion:** The re-intervention rate related to OAGB over intermediate follow-up is acceptable (OGD 15%; CT 11%; re-operation 5%) and comparable to other bariatric procedures. This study supports the continued use of OAGB for the surgical treatment of obesity. The data also provides useful reference for other departments using OAGB, and for patient counselling regarding expected outcomes of surgery.

### PoD2

#### Short-term weight loss results in Western Europeans versus South Asian patients after laparoscopic adjustable gastric banding: a 1:2 matched control cohort study

Sally Abbott, Mohamed Sahloul, Alice Wright, Paul Super, Vasileios Charalampakis, Abd Tahrani, Srikanth Bellary, Rishi Singhal

Heart of England NHS Foundation Trust, Birmingham, UK

**Introduction** Laparoscopic Adjustable Gastric Banding (LAGB) has been shown as an effective weight loss procedure for long-term sustainable weight loss. South Asian (SA) patients have a 3–5% higher percentage of body fat than Caucasian patients of the same age, sex and BMI. The dietary composition of a typical SA diet is high in carbohydrates, which has been shown to adversely affect glucose metabolism and insulin resistance. It is therefore important to understand whether there is a disparity in weight loss outcome after bariatric surgery between Western European (WE) and SA patients.

**Methods:** Data was obtained for consecutive SA patients who had LAGB at a single bariatric centre in the UK between April 2003 and December 2015. Each of the SA patients (n=63) were randomly matched with two WE patients (n=126) for age, sex and pre-operative BMI. Data analysis was performed using SPSS. Data was analysed for statistically significant different using two-tailed independent t-test. A significance of  $p < 0.05$  was considered significant.

**Results:** There was a significant difference in BMI loss between SA and WE patients at 6 months (4.9 vs 7.5 kg/m<sup>2</sup>), ( $p < 0.01$ ) and 12 months (8.3 vs 6.1 kg/m<sup>2</sup>), ( $p < 0.05$ ) respectively post-operatively. Excess BMI loss was not significantly different at 18 (8.5 vs 6.7 kg/m<sup>2</sup>) and 24 months (9.8 vs 7.9 kg/m<sup>2</sup>) respectively post-operatively.

**Conclusion:** Although BMI loss was poorer in the short-term among SA patients, SA patients had similar efficacy and tolerability outcomes compared to WE patients following LAGB in the long-term. Given SA patients' high predisposition to diabetes and cardiovascular disease, bariatric surgical intervention using LAGB should not be discounted as an active treatment option in SA patients for the long-term treatment of obesity.

### PoD3

#### Bariatric surgery makes obese patients healthier; analysis of the national bariatric surgery registry

Anna Kamocka<sup>1</sup>, Alexander Miras<sup>1</sup>, Darshan Patel<sup>1</sup>, Simon Dexter<sup>2</sup>, Ian Finlay<sup>3</sup>, James Hopkins<sup>4</sup>, Omar Khan<sup>5</sup>, Marcus Reddy<sup>5</sup>, Peter Sedman<sup>6</sup>, Peter Small<sup>7</sup>, Shaw Somers<sup>8</sup>, Peter Walton<sup>9</sup>, Carel le Roux<sup>1</sup>, Richard Welbourn<sup>10</sup>

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**Background:** The National Bariatric Surgery Registry (NBSR) is the largest database of obesity and metabolic procedures performed in the UK. This study analysed the NBSR to give an overview of the current status quo of bariatric surgery in the UK and of comorbidity-related outcomes up to 5 years postoperatively.

**Methods:** A retrospective analysis of all NBSR entries up until 15/08/2016 was performed. Demographic data, patients' weight, Body Mass Index (BMI), functional status (ability to climb stairs or housebound), comorbidities (type 2 diabetes, hypertension, dyslipidaemia, sleep apnoea, asthma, liver disease) and yearly changes in these baseline characteristics up to 5 years postoperatively were analysed alongside with American Society of Anaesthesiologists (ASA) grading, the Obesity Surgery Mortality Risk Score (OS-MRS) and the type of the operation.

**Results:** The 56,821 patients entered were predominantly female (78%) and Caucasian (76.9%) with a mean age of 45 (SD  $\pm 11.2$ ), weight 131.5 kg ( $\pm 25.9$ ) and BMI 47.5 kg/m<sup>2</sup> ( $\pm 8$ ), ASA II (53%) and OS-MRS 'A' (46%). 83% had at least one obesity-related comorbidity at baseline. The commonest operation was Roux-en-Y Gastric Bypass (RYGB) (49.8%), followed by sleeve gastrectomy (SG) (21.3%) and gastric band (GB) (18.2%). Median length of post-operative hospital stay was 2 days. The peak total body weight loss of 29.5% ( $\pm 12.4$ ) was recorded 2 years postoperatively. Diabetes prevalence at baseline was 25.7%, and 14.8% achieved complete remission. The prevalence of impaired functional status at baseline was 58.9%. Only 40.2% were still functionally impaired at one-year follow up. RYGB and SG resulted in a significant reduction of disease prevalence across all investigated obesity-related comorbidities, whereas GB had a significant impact predominantly on functional performance.

**Conclusion:** The NBSR data indicate that bariatric surgery performed in the UK has a significant impact not only on the weight reduction but also on remission of multiple comorbidities associated with the metabolic syndrome, especially on type 2 diabetes and impaired functional performance.

### PoD4

#### Systematic review and retrospective validation of prediction models for weight loss after bariatric surgery

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**Background:** Patients are motivated to seek bariatric surgery for a number of reasons. Evidence suggests that patients often have unrealistic expectations of the weight loss they are likely to achieve. It would, therefore, be useful to have a well validated prediction tool which could be used to give patients an individualised and realistic estimate of their expected weight loss. In this study we aim to perform a systematic review of the literature to identify existing prediction models and to validate these models using our data.

**Methods:** A systematic review and meta-analysis was performed. English language, prospective and retrospective studies were included if they used data to create a prediction model for postoperative weight loss. For the validation process, a retrospective review of patients in our institution undergoing bariatric surgery between January 1st 2013 and December 31st 2014 was performed. Patients undergoing roux-en-Y gastric bypass (RYGB) and sleeve gastrectomy (SG) were included.

**Results:** The literature search produced 446 results, of which only four were included in the final review. Our study population included 317 patients. Mean preoperative BMI was 46.1  $\pm 7.1$ . Twelve month follow up was available for 257 (81.1%) patients and the mean BMI and %EWL at 12 months was 33.0  $\pm 6.7$  and 66.1%  $\pm 23.7\%$  respectively. All four of the prediction models significantly overestimated the amount of weight loss achieved by patients. The best performing prediction model in our series produced a correlation coefficient (R<sup>2</sup>) of 0.61 and an area under the curve (AUC) of 0.71 on receiver operating curve analysis.

**Conclusion:** All the models overestimate weight loss in our cohort. However, the R<sup>2</sup> and AUC analysis suggest reasonable correlation and reasonable utility as a prediction rule for success as defined by a %EWL of 50.0. Further studies are required before any prediction tool can be regularly used in clinical practice.

### PoD5

#### Exploring patient's motivations for bariatric surgery

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**Background:** Although bariatric surgery is an effective modality for managing obesity, only a small minority of the obese population will present to bariatric services. Relatively little work has been done to investigate patients motivations and expectations.

**Methods:** We asked consecutive patients presenting for the first time to bariatric clinic between October 2015 and April 2016 to complete a short questionnaire. The questionnaire explored their personal, social and medical motivations for pursuing a referral to the bariatric service and their reasons behind their desire to lose weight.

**Results:** 87 patients completed the questionnaire. 64.4% were women and median age was 45. The majority had been worried about their weight for greater than 5 years (66.7%). Respondents reported not considering surgery earlier because they thought they could lose weight by other means (43.7%) or were worried about the risks (23.0%). 83.9% reported a desire to improve their quality of life and 80.5% wanted to lose weight so as to improve other medical conditions. Respondents reported that they thought weight loss would improve their self-esteem (74.7%), leisure activities (70.1%), employment opportunities (25.3%), financial situation (16.1%) and personal relationships (34.5%). Men were more likely to be driven by a desire to improve physical fitness (51.6% vs 14.3%,  $p = 0.0003$ ) and expected surgery to improve their employment prospects (48.4% vs 12.5%,  $p = 0.0005$ ) whereas women were more likely to want to improve their appearance (69.6% vs 29.0%,  $p = 0.0003$ ) and expected surgery to improve their personal relationships (42.9% vs 19.4%,  $p = 0.03$ ).

**Conclusion:** This study demonstrates patients' motivations for surgery are multifactorial but they are overwhelming driven by a desire to improve their health and quality of life. Primary care physicians play a significant role in motivating patients to consider weight loss surgery. Failure to lose weight by other means and comorbidities are common factors behind seeking a referral.

## P06

### Joint Specialist Nurse and Specialist Dietitian Clinics- are they effective and useful?

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**Background:** After bariatric surgery, patients require outpatient follow-up with both Specialist Nurses and Specialist Dietitians. In 2010, the bariatric team set up a joint clinic, enabling patients to have both follow-up appointments in the same visit, and to improve information sharing and decision-making within the clinical team. Prior to this patients required separate appointments with the Nurse and Dietitian. Separate Dietetic drop-in sessions were also available. Since starting the joint clinics, anecdotal reports from patients have indicated these have been well received and are an effective use of both professional and patient time. A patient survey questionnaire was conducted to formally evaluate these views.

**Method** A questionnaire was completed after the joint consultation, gathering views on 13 questions (mix of tick-box & open question), anonymously in the waiting area. 100 questionnaires were completed over a period of 18 months, including gastric balloon, band, sleeve gastrectomy and gastric bypass patients (range 8 weeks to 14 years post-surgery).

**Results:** 98% (n = 98) of respondents found the joint clinics to be helpful with 90% (n = 100) wishing to continue to have joint consultation and 5% preferring separate appointments. 86% (n = 99) felt that the frequency of follow up met with expectations. 92% (n = 83) felt the standard of care met expectations. 83% (n = 100) felt that all their issues/questions had been addressed. 97.5% (n = 83) felt confident that they could access a member of the team, if needed. 95% (n = 90) had not used the Dietitians' drop-in session.

**Conclusions** Overall patients are happy with the current set up of joint post-operative follow up clinics, frequency of follow up and available support. The joint post-operative clinics will therefore continue, as the model has been shown to be effective with regards to resource allocation and patient satisfaction. The Dietitians' drop-in group will cease but extra capacity has been made within dietetic clinics to facilitate prompt appointments when needed.

## P07

### The impact of bariatric surgery on young women's quality of life, health behaviours and reproductive health

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**Background:** Bariatric surgery is increasing as a treatment for obesity in young women. Post-surgery female fertility is enhanced and women 18-25 years are at further risk of becoming pregnant due to a natural peak in fertility at this age. This has serious implications for both maternal and child health. In comparison with the general population, obese women have limited contraceptive choices because of obesity health related conditions. The aim of this study is to explore the impact of bariatric surgery on quality of life and health behaviours with an emphasis on contraception practices and pregnancy planning. It addresses changes in these factors after bariatric surgery and explores whether changes (improved) in quality of life may have a detrimental impact on reproductive health. This paper presents the results from a qualitative study which is embedded within a large scale cross sectional survey.

**Methods:** A qualitative semi-structured interview study using a purposive sample of women up to 2 years post bariatric surgery who were between 18-25 years at surgery. Data was collected via telephone interviews, transcribed verbatim and analysed thematically.

**Results:** Preliminary analysis reveal weight loss following surgery is accompanied by an increased sense of self-worth and body satisfaction, accompanied by changes in health related behaviours such as diet and exercise. A key behaviour change post-surgery relates to contraception, with those failing to change and/or adjust their contraceptive practices remaining at risk of an unintended pregnancy.

**Conclusion:** This is the first study to focus on and explore young women (18-25 years) at a 'niche' timeframe undergoing bariatric surgery and the impact this has on quality of life and health behaviours in relation to sexual reproductive health and contraception use.

## P08

### Contraception and counselling for women undergoing bariatric surgery: a qualitative pilot study of women's experiences and health care professional views

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**Background:** 24% of women are obese (BMI  $\geq 30$  kg/m<sup>2</sup>). Bariatric Surgery (BS) is an effective treatment for weight-loss with potential to improve female fertility. 80% of BS procedures in the UK are on women, the majority being of childbearing age (18-45 years). Pregnancy post-BS has been associated with both maternal/neonatal risks and currently a minimum 12 - 24 months surgery-to-conception interval is recommended. This pilot study explored contraceptive advice and information prior to BS and experiences of women who had become pregnant.

**Methods:** Data was collected via semi-structured interviews. Ten women were recruited via a 'closed' social media BS support group. Two women were excluded who did not fulfil the study criteria. Seven HCPs, from four leading UK BS centres, were purposively sampled to reflect different professional groups. Data were coded using NVivo10 and analysed thematically.

**Results:** The ten women (27- 41 years), reported a weight loss of 48 kg-65 kg post-BS. All had conceived naturally post-BS: three at one month, seven between six and twelve months; one at two years (in total 11 pregnancies and two multiple births). Three themes emerged from the data 1) BS care planning 2) Changes in reproductive health 3) Contraception. Only three women were using contraception post BS surgery. Narratives revealed the need to improve pre-BS contraceptive advice and uptake post-BS.

**Conclusion:** There is an absence of national guidelines on reproductive health/contraception for women undergoing BS. Professional collaboration between BS teams and contraceptive specialists will enable women to make informed contraceptive choices thereby optimising maternal and neonatal health outcomes.

## P09

### Rates of complications in patients undergoing weight loss surgery in patients with vitamin D deficiency

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**Background:** The association between vitamin D deficiency and obesity is well established. As is, the negative correlation of vitamin D levels and infection. However there has been limited investigation into the impact of vitamin D deficiency and post-operative complications. Our study aims to establish if there is an increased risk of post-operative complications for our patients with recorded vitamin D deficiency.

**Methods:** A retrospective analysis of 146 patients who underwent Laparoscopic Sleeve Gastrectomy or Roux-en-Y Gastric Bypass in 2015 was performed. Pre-operative 25-OH vitamin D levels and post-operative complications were recorded. Patients were categorised into severe deficiency, moderate deficiency and sufficient levels. Patients who did not have a recorded vitamin D level were grouped separately. The data was analysed using Chi-squared and T-tests.

**Results:** 101 out of 146 (68.2%) of our patients had a recorded vitamin D deficiency, with 12 (8.2%) having sufficient levels and 33 (22.6%) having no recorded vitamin D level. 25 patients (17.1%) developed post-operative complications within our series. The rate of complications in each group ranged from 15.2% - 19.2%. There was no significant difference between the number of complications between the groups ( $p=0.863$ ). There was no significant difference between the groups when comparing BMI ( $p=0.972$ )

**Conclusion:** Vitamin D deficiency is a common condition in the UK with a recorded prevalence of up to 50%. For obese patients the prevalence has been reported at 50-90%. Some studies have shown an inverse correlation between serum vitamin D levels and hospital acquired infections. Our cohort of patients showed an increase in vitamin D deficiency compared to the reported level in the general population, but this did not result in a significant increase in complications for these patients. This was also true when corrected for pre-operative BMI. Further analysis of a larger cohort of patients would be useful in verifying these findings. Comparing these findings to our non-bariatric surgical patients could give us further information on our patient population with regards to vitamin D deficiency and its impact on post-operative outcomes. Other factors affecting vitamin D levels within our population could also be explored.

## P10

### The role of high pressure Methylene blue leak test in reducing leak rates following bariatric surgery

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**Background:** Leak following bariatric surgery continues to be associated with morbidity and rarely mortality. With improvement in surgical techniques and stapler design, leak rates have reduced drastically. Intra-operative high pressure Methylene blue leak test (HPMB) is one of the techniques employed to confirm integrity of staple lines. Despite this, evidence for its use remains limited. We thus evaluated the role of HPMB in detecting and preventing leaks.

**Methods:** A consecutive cohort of patients who underwent primary Sleeve Gastrectomy (SG) or Roux-en-Y Gastric bypass (RYGB) between 2012 and 2016 were assessed. All patients had routine HPMB at the end of the procedure. All leaks were reviewed for the anatomical site and management of leak.

**Results:** 573 patients underwent bariatric surgery, 145(25.3%) SG & 425(74.7%) RYGB.

One HPMB was positive, which necessitated staple line reinforcement with a suture intra-operatively. This patient had an uneventful recovery. There were 4 postoperative leaks all of which had negative HPMB: 3 SG patients; and 1 RYGB patient (gastro-jejunosomy anastomotic leak). There is no statistical relationship between positive HPMB and anastomotic leak (chi square test;  $p=0.93$ ).

**Conclusion:** Despite the routine use of methylene blue dye test, there was only one positive result.

Whilst HPMB may demonstrate technical failure, this study suggests that there is no role for its routine use in primary bariatric surgery. Discontinuation of this practice would reduce patient risks of anaphylaxis to the dye; cost; and intra-operative time.

## P11

### The use of Facebook® as a means of patient education, information and support

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**Background:** The Integrated Complex Obesity Service (ICOS) is a secondary care delivered programme for severe complex obesity and provides a 6 month specialist multi-disciplinary pre-bariatric service (Tier 3) which includes personalised medical, dietetic, psychological and exercise support. On completion, the

patient is then passed onto specialist or surgical assessment which may include Bariatric Surgery (Tier 4), or back to Primary Care (Tier 2) with a personal treatment plan. We identified the need for ongoing patient education and support both during and post treatment. The use of social media is popular in this hard to reach often reclusive group of patients and it also appeared to be the most cost effective means of providing ongoing contact and engagement.

**Methods:** A closed secret Facebook® group was established, and all patients were invited to join. This abstract shows the findings and impact of the Facebook® group after 12 months. A thematic analysis was conducted of all posts, including comments. This revealed the main contact themes of posts as medical, psychological, food, patient-journey, diet (factual), support, administration and media.

A satisfaction survey (Survey Monkey®) was undertaken to find out how useful the Facebook® group was to the patients journey.

**Results:** Over 12 months, membership of the group has remained stable, with between 100-120 members at any one time. The average number of posts per week has risen from 6 to over 60, with comments on posts fluctuating from 8 - 30. Patient journey and support are the most popular post-themes. Queries are being responded to promptly with the average time taken per day to monitor the site is 30 minutes and therefore a reduced need for face to face consultations. 100% of patients stated that the Facebook® group is useful to them and to the outcomes of their patient journey, and 80% felt that our model could be utilized within other healthcare specialisations.

**Conclusion:** This use of social media has provided a well-received and popular means of support and education for patients. This has been time efficient and enabled on-going patient engagement which develops peer-support. It has allowed the patients to direct education and information to meet their needs. Social media provides a unique user-friendly means of healthcare support for those with long-term conditions and/or those who are socially hard to reach.

## P12

### An audit of patients with laparoscopic gastric band performance against the "Golden Rules of Eating & Exercise"

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**Background:** Fewer patients with laparoscopic gastric bands (LAGB) are being routinely reviewed in dietician led follow up clinics. This is in part due to it becoming a less popular bariatric operation and ever increasing pressures on the dietician service. We have always encouraged the observance of the 'Golden Rules' as defined by Prof. O'Brien. We analysed all patients with LAGB currently attending our service up until March 2016. Their behaviour and weight loss was recorded.

**Methods:** All patients listed as 'current' who were being reviewed with the bariatric service (nurse or dietitian) were taken as the sample. Notes were reviewed (20) and all patients were sent a questionnaire (12 returned) to specifically enquire about dietary habit and exercise.

**Results:** 100% of the group were adhering to 3 small meals per day (rule 1), avoiding calorie containing drinks (rule 5), and increasing exercise (rules 6 & 7). Half were regularly eating between meals and not eating slowly (rules 2 & 3) and one third (33%) were not following a healthy diet (as reflected by intake of fat and sugar)- rule 4. Weight loss was significantly better in those observing these rules. Rule 8 is for patients to keep in contact with their centre, 65% (13) were not seen by a dietician in the previous 12 months but weight loss was not significantly less in this group.

**Conclusion:** Despite no dietetic contact patients were following the rules 1,5,6 & 7. However the audit has presented the question: if patients were seeing a dietician regularly would there be better compliance on a healthier diet, reduction in snacking and eating more slowly (rules 2,3,& 4). The service is now reviewing the dietary advice given to patients and considering options of providing better dietetic follow up.

## P13

**Routine histological examination of laparoscopic sleeve gastrectomy specimens- a worthwhile exercise?**

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**Background:** Laparoscopic Sleeve Gastrectomy (LSG) is the second most common Bariatric procedure in the UK. At present, Bariatric Surgery departments differ in their protocols for pre and post operative investigation of gastric pathology: pre-operative Gastroscopy is not universally routine and histopathological examination of LSG specimens may be performed routinely or selectively. Our practice is to perform selective gastroscopy in patients with gastric symptoms and routine histopathology of LSG specimens. Here we present 10-year data on histopathology of SG specimens.

**Methods:** In this single-centre retrospective study, 866 consecutive LSG histopathology results were obtained by electronic medical records over 10-years (May 2006-November 2015).

**Results:** 866 patients underwent LSG procedures, of which histopathology results were available in 801 (92%): 281 (35%) specimens were normal, gastritis was found in 518 (64%) and 15% (79/518) of these were associated with Helicobacter Pylori infection. Incidental gastric tumours were found in 4 specimens only (0.5%): 2 Neuroendocrine tumours and 2 Gastro-Intestinal Stromal Tumours. Pre-operative OGD was performed in 18 patients (2%).

**Conclusion:** Gastritis was the most common pathological abnormality identified however the rate of tumour identification was only 0.5%. Whilst concerns may remain for missed pathology, this study did not reveal any tumour pathology in the residual specimen that would have been missed on visual inspection. This compelling data will change our practice to selective histological assessment of LSG specimens and has already changed one surgeon's practice.

## P14

**Quality of life following revisional bariatric procedure in a UK referral centre**

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**Introduction** Revisional surgery is a challenging but essential part of modern bariatric practice. The most common revisional operation is Laparoscopic Gastric By-Pass (LGBP). The aim of this study was to evaluate the safety, efficacy, weight loss outcomes and post-operative quality of life following revisional LGBP at a UK referral centre.

**Methods:** A prospective collected database of patients undergoing LGBP after complicated or failed primary bariatric procedure. Indications, peri-operative data and QOL were recorded. QOL was assessed using the Moorhead-Ardelt II (MAII) questionnaire. Values are expressed as median (range).

**Results:** Between May 2013 and October 2016, a total of 80 patients, age 46.0 (24.0-67.0) years underwent revisional LGBP. The time interval since the primary operation was 6.0 (1.0-26.0) years. The primary operations included Gastric Banding (n=66), Sleeve Gastrectomy (n=9), Gastric Bypass (n=1) and Vertical Gastroplasty (n=3) and Gastric Balloons (n=1). Indications for revision were: weight-loss failure (n=37), complication of primary procedure (n=33) and non-resolution of co-morbidities (n=10). No mortality or major complications were recorded. Body mass index (BMI) prior to primary procedure was 51.8(35.0-87.5) kg/m<sup>2</sup>. Associated maximum %excess BMI loss was 38.4(7.8-93.0) before dropping to a lowest of 23.0 (17.26-75.65) before the conversion. Postoperatively, %BMI loss increased to 49.5(13.0-175.7) at 8.0(1.0-36.0) months following LGBP. Post-revisional MAII score at that time-point was 0.8(-1.3-2.5), indicating "fair QOL".

**Conclusion:** LGBP is a safe and effective revisional bariatric operation that achieves good weight-loss and "fair QOL" outcome.

## P15

**Day 1 post-operative CRP is a good predictor of complications and length of hospital stay following bariatric surgery**

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**Background:** The National Bariatric Surgical Register (NBSR) has shown bariatric surgery done in specialist centres has a low complication rate. Studies have also shown that CRP can be a good predictor of post-operative complications in laparoscopic GI surgery. We examined if Day 1 CRP may predict complications, delayed discharge or readmission of patients undergoing laparoscopic Roux-En Y Gastric Bypass or Sleeve Gastrectomy.

**Methods:** A retrospective study was carried out at a single institute with 2 specialist Bariatric surgical consultants. Data from May 2015 to March 2016 was examined by looking through medical notes, PACS and laboratory results. The data was divided into 2 groups of Day 1 post-operative CRP <50 and CRP  $\geq$ 50. An analysis of all the patients with complications was also carried out.

**Results:** A total of 104 consecutive cases were reviewed. There was 78 cases with a day 1 CRP <50 and 26 cases of CRP >50. There was no statistical difference between the 2 groups in age, weight, BMI or Day 1 post-operative WCC. The total post-operative complication rate was 3.8%; with it being lower in the CRP <50 group (2.6% v 7.7% P=0.5). There was one case of post-operative leak and this occurred in the CRP >50 group. The rate of post-operative CT was also lower in the CRP <50 group (7.7% v 23%, p <0.05). The CRP <50 group showed a median post-operative discharge Day 2 compared to Day 3 in the other group (p <0.05). The readmission rate was slightly higher in the CRP <50 group at 5.3% v 3.8% in the CRP  $\geq$ 50 group (no statistical significance).

**Conclusion:** A postoperative Day 1 CRP of less than 50 is a good indicator of whether the patient will require post-operative imaging or prolonged hospital stay. It also shows a decreased risk of post-operative complication; however this was not statistically significant.

## P16

**Laparoscopic sleeve gastrectomy as a single stage bariatric procedure, long-term outcomes. A systematic review**

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**Background:** Laparoscopic Sleeve Gastrectomy has been proposed as a single stage bariatric procedure as short and midterm results have been promising. The aim of this review is to study the long-term ( $\geq$ 5 years) weight loss outcome of LSG and its effect on the major obesity related co-morbidities.

**Methods:** Following the RISMA 2009 guidelines, a systematic search of all published data till June 2013 in PubMed, The Cochrane Library and Web of Science was performed. Inclusion criteria were published English articles that include adults (> 18 yrs) who underwent LSG with a minimum follow-up of 5 years post operative.

**Results:** 11 studies, with a total number of 326 patients, were included in the review. Pre and post operative ( $\geq$  5 yrs) BMIs were 50 and 38 kg/m<sup>2</sup> respectively with the mean %EWL was found to be 60%. There has been improvement or complete resolution of most of the major co-morbidities.

**Conclusion:** The review demonstrates that LSG is a safe as well as an effective surgical option for obesity management. The long term results drawn have been similar to the promising short and midterm results published in the literature and were found to be acceptable and comparable to LRYGB and DS outcomes.

## P17

**Awareness of obesity and weight loss management programmes among junior doctors within a secondary health care setting**Jaideep Singh Rait, Surajit Sinha, Hannah Calderwood, S Andrews, Jo Ratford*South Devon Healthcare Trust, Devon, UK*

**Background:** Physicians and other health care professionals are in a unique position to motivate obese patients to raise the awareness of their weight status and its associated risks and to offer advice on weight management. Academy of Medical Royal Colleges (AMRC)<sup>1</sup> and the National Institute for Health and Care Excellence (NICE) guidelines<sup>2</sup> recommends that health professionals should discuss diet and exercise with all overweight and obese patients. This questionnaire study aimed to assess the awareness of obesity and weight management services in secondary health care.

**Methods:** A questionnaire with 10 questions relevant to obesity and weight management was sent out electronically to junior doctors in the surgical and medical directorate. Questionnaires were personally collected. Within the time period there were 25 responses.

**Results:** Although 44% participants knew of the referral criteria for level 3 care, only 12% were aware of existence of level 3 weight management services in the hospital. 88% participants never came in contact with the level 3 team and 84% said they do not know how to contact weight management services. In contrast 80% participants had cared for obese patients who they believe would have benefitted from weight management services. Finally, only 32% participants were aware of the different tiers of weight loss services. >60% felt regular staff educational presentation and ward based information would improve the awareness.

**Conclusion:** The study clearly showed there is a lack of knowledge about obesity and weight management services although the majority of them came across obese patients. Raising awareness of weight management services will improve the opportunity of obese patients to get an appropriate treatment and advice on first contact with physicians.

References: (1) Academy of Medical Royal Colleges. Measuring Up: The medical profession's prescription for the nation's obesity crisis. Academy of Medical Royal Colleges, 2013. (2) National Institute for Health and Clinical Excellence (NICE). Obesity: the prevention, identification, assessment and management of overweight and obesity in adults and children. NICE, 2006.

## P18

**Anastomotic ulceration post Roux-en-Y gastric bypass – Incidence and comparison of ante-colic and retro-colic roux limb orientation**

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**Background:** The rate of anastomotic ulceration post roux-en-y gastric bypass has been reported between 1 and 16%. The underlying aetiology is unclear. Retro-colic orientation is the shortest route for reconstruction with minimal tension. Ante-colic roux limb orientation has been suggested as a risk factor for anastomotic ulceration. In this study we compare the rates of anastomotic ulceration in 276 consecutive patients undergoing roux-en-y gastric bypass between April 2010 and August 2016. The aim of this study was to identify if limb orientation changes resulted in an increase in the rate of anastomotic ulceration.

**Methods:** A retrospective review of 276 consecutive roux-en-y gastric bypass operations between April 2010 and August 2016 was undertaken. Rates of post-operative endoscopy for any reason, endoscopy findings and rates of anastomotic ulceration were recorded on a database. Retro-colic orientation was performed for the first 105 cases, with subsequent change to ante-colic. All operations were performed with a stapled anastomosis with 2-0 monocryl closure of the enterotomy.

**Results:** Post-operative endoscopy was performed on 13/105(12.4%) of patients with retro-colic orientation compared to 20/171 (11.7%) of patients

with ante-colic orientation. Anastomotic ulcers were identified in 5/276 (1.8%). 3/171 (1.75%) patients in the ante-colic group developed symptomatic ulceration compared to 2/105(1.9%) in the retro-colic. There was no significant difference between the groups.

**Conclusion:** Ante-colic placement did not result in a higher rate of anastomotic ulceration compared to retro-colic nor increased incidence in the rate of post operative endoscopic examination

## P19

**Laparoscopic Roux-en-Y Gastric Bypass in a patient with Ehlers-Danlos Syndrome: the first case report and review of post-operative management challenges**Ioannis Gerogiannis<sup>1</sup>, Niall Dempster<sup>2</sup>, Richard Gillies<sup>1</sup>, Bruno Sgromo<sup>1</sup>

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**Background:** Ehlers-Danlos Syndrome (EDS) is a hereditary non-inflammatory connective tissue disorder that has gastrointestinal (GI) manifestations in over half of cases. There are no case reports or studies describing outcomes after bariatric surgery in patients with EDS.

**Methods:** We present the first case report of bariatric surgery in a patient with EDS and outline challenges in the management of patients with this syndrome.

**Results:** A 56-year-old man with type IV EDS and a BMI of 41.8 (137 kg) was referred to our Bariatric Centre for consideration of surgery for morbid obesity. His comorbidity included Type 2 Diabetes (present for over 10 years), hypertension, dyslipidaemia and obstructive sleep apnoea requiring Continuous Positive Airway Pressure (CPAP).

The patient underwent a laparoscopic Roux-en-Y gastric bypass (RYGB) and liver biopsy. His initial recovery was uneventful and he was discharged on the first post-operative day. He presented in our clinic 6 weeks later with 43.9% excess weight loss (112 kg at this time point) and improved glycaemic control. Three months post-operatively, however, he complained of dysphagia, regurgitation and postprandial pain. Barium meal and gastroscopy suggested the presence of an oesophageal diverticulum. A surgical exploration was planned. An intraoperative gastroscopy demonstrated an asymmetrical gastric pouch dilatation and therefore the pouch was refashioned laparoscopically. He recovered well with complete relief of his symptoms. Two months later he returned to clinic experiencing retrosternal pain and progressive dysphagia to solid foods. Endoscopic dilatation of the gastro-oesophageal junction with 20 mm balloon resolved his symptoms for 1 week. Subsequent dilatations have been performed for recurrence of symptoms.

**Conclusion:** Bariatric management of patients with EDS can prove challenging; an awareness that it is a systemic disease with associated sequelae including gastric diverticula, atony, ulceration and strictures, hiatus hernia, significant GI tract dilatation and extensive adhesions is essential. The bariatric team must be vigilant for symptoms suggestive of such GI pathology to ensure prompt investigation and appropriate intervention. It is equally important that patients are informed of these risks so that they are able to provide informed consent for bariatric surgery.

## P20

**Bariatric surgery in multiple sclerosis; A case series**

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**Background:** Multiple sclerosis (MS) is a demyelinating disease affecting the brain and spinal cord. It can present with isolated events (relapsing disease) or as continuously worsening symptoms (progressive disease). Ataxia, spasms, and musculoskeletal weakness can be debilitating especially in an obese patient. Bariatric surgery is a proven treatment for obesity but its role in patients with MS is unclear. We present a series of 4 obese patients with MS who underwent bariatric surgery.

**Methods:** Patients with MS who underwent bariatric procedures were identified by the audit department using ICD-9 codes. Data was collected using notes and a trust based data system. Patients were contacted via telephone follow up to assess progress.

**Results:** There were 4 patients with MS who underwent bariatric procedures.

Pt	Age (yrs)	Sex	Initial wt (kg)	BMI	Procedure	Follow up in months	Excess wt loss	Other comorbidities
1	47	M	154	46	Sleeve	24	27%	None
2	65	F	110	49	Sleeve	6	12%	Sleep apnoea
3	38	F	160	59	Bypass	36	60%	Diabetes
4	48	F	129	43	Balloon	3	5%	Diabetes

Patient with the intra-gastric balloon, was unable to tolerate device, and hence was removed at one week. There was resolution of diabetes in patient who underwent bypass.

Post-operative informal telephone follow up showed a patient reported improvement in mobility and hence quality of life.

**Conclusion:** There is a role for bariatric surgery in patients with MS. There is no evidence to show bariatric surgery clinically alters MS status, but does improve quality of life.

## P21

### Management of late gastrointestinal bleeding following complications of longitudinal revision sleeve gastrectomy

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**Background:** Gastric banding and more recently longitudinal sleeve gastrectomy (LSG) have revolutionised bariatric surgery; not a panacea though their complications can be life threatening and challenging to manage in an already complex patient population.

**Methods:** We present this unique case as a learning opportunity for the successful identification and management of a myriad of complications following bariatric surgery.

**Results:** Patient X a 59 year female, underwent a LSG for gastric band erosion having had gastric banding 5 years previously. This was complicated by a leak with peritonitis and subsequent formation of a fistula between the gastric staple line and colon at the splenic flexure that was managed with a covered stent. She re-presented one year later with significant gastrointestinal bleeding; CTA showed two sacular aneurysms at the mid-section of the splenic artery abutting the gastric fistula tract and a secondary pseudoaneurysm adjacent to the proximal aspect of the gastric stent. A rare complication that was successfully managed with angiographic embolization, removal of the gastric stent and a period of nasojejunal feeding, antifungal and antibiotic treatment. Follow up OGD showed resolution of the fistula tract and she has had no further GI bleeding.

**Conclusion:** Pseudoaneurysm secondary to a colo-gastric fistula is a rare but life threatening late complication of LSG to be considered in patients presenting with gastrointestinal bleeding. Our experience shows how this can be successfully managed with angiographic imaging and embolization primarily.

## P22

### Change in liver enzyme profile in biopsy-proven NAFLD and NASH in Bariatric patients

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**Background:** A High proportion of Bariatric patients have NAFLD. Non-invasive investigative modalities including LFT are unable to differentiate

Steatosis from more aggressive steatohepatitis (NASH) and fibrosis. The gold standard remains liver biopsy in such cases. We looked at enzymatic changes after a year post weight loss surgery.

A retrospective analysis of decrease in liver enzymes in biopsy-proven steatosis and steatohepatitis post bariatric surgery and comparison of enzyme profile in sleeve vs. bypass (Roux-en-Y Gastric Bypass).

**Methods:** Patients had prospective needle liver biopsies taken while undergoing bariatric surgery between June 2013 and October 2014. 12 of 14 demonstrated histological diagnosis of steatosis or steatohepatitis/fibrosis with 2 insufficient samples. The database was then retrospectively analysed for biochemical changes one year post-operatively (range 7-19 months).

**Results:**

Histologic diagnosis	Surgery	No of patient	ALT (mean)			AST (mean)		
			Pre-op	Post-op	% reductn	Pre-op	Post-op	% reductn
Steatosis	Sleeve	3	30.67	24.67	20%	26.67	24.33	9%
	Bypass	3	83.50	26.00	74%	76.00	28.00	68%
Steato-hepatitis	Sleeve	1	12.00	12.00	0%	14.00	14.00	0%
	Bypass	5	38.00	28.50	25%	24.00	24.67	25%

**Conclusion:** in patients with Steatosis, following bariatric surgery there is an improvement in the liver enzyme profile indicative of an improvement in NAFLD in LRYGB and LSG group. A similar improvement is seen in liver biopsy proven steatohepatitis (NASH) in Bypass group with no change observed in the single Sleeve patient. Though the sample size is small and statistically insignificant, it confirms a further obesity related co morbidity improvement.

## P23

### Novel method for closure of mesenteric defects in laparoscopic gastric bypass using IFA bond laparoscopic glue

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**Background:** Closure of mesenteric defects in laparoscopic gastric bypass has been a widely debated topic in the world of bariatric surgery. A recently published multi centered randomised trial has shown results supporting the routine closure of the surgically created mesenteric defects. IFA Bond glue is originally used in laparoscopic hernia surgery. Conventional closure of mesenteric defects using a variety of suture methods can sometimes be challenging and technically difficult. In particular, care must be taken to avoid any compromise to the mesenteric vasculature. Closure using IFA Bond glue provides an alternate method of closure.

**Methods:** IFA Bond glue was used to close mesenteric defects in a series of patients who underwent laparoscopic gastric bypass at our center.

**Results:** So far, no patients have had a return to theatre or emergency admission due to signs or symptoms of internal hernia. Diagnostic Laparoscopy performed in patients (due to other conditions) who had defects closed using IFA Bond glue during previous gastric bypass was found to have a completely and securely sealed defect space.

**Conclusion:** Although further follow up is required, we have shown in a series of cases that closure of mesenteric defects during laparoscopic gastric bypass using IFA Bond glue may be a suitable, alternative and safe method.

## P24

### Bariatric surgery and obesity related lymph-oedema

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**Background:** Bariatric surgery is being demonstrated as the only modality to provide significant weight loss in obese and morbidly obese patients, with resultant improvement and treatment of obesity related co-morbidities. The aim of this study is to analyse the impact of Bariatric Surgery on obesity related lymph-oedema.

**Methods:** The BMIs of a total number of 10 obese patients with lymph-oedema underwent stage bariatric procedures, specifically Intra-gastric Balloon insertion followed by Sleeve Gastrectomy, were measured pre and post intervention. The outcomes of these patients were compared with a cohort case match of 10 obese patients with lymph-oedema didn't undergo the same bariatric protocol.

**Results:** The mean BMI for the lymph-oedema patients group pre-intervention was found to be 74 (52.9-105), while the mean BMI post intervention was 62.4 (46.1-86.3). There was remarkable improvement in the lymph-oedema when compared with the non-intervention group, with the mean BMI of 61.8 (53-78).

**Conclusion:** This study indicates that bariatric surgery was found to improve lymph-oedema in morbidly patients as well as other co-morbidities as in the literature.

## P25

### Bariatric surgery in the presence of advanced non-alcoholic fatty liver disease: a case report and review of best available evidence

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**Background:** Non-Alcoholic Fatty Liver Disease (NAFLD) is present in over 90% of patients undergoing bariatric surgery and is the hepatic manifestation of the metabolic syndrome. It is a spectrum of disease ranging from steatosis to inflammation and fibrosis, and is rapidly becoming the leading cause of cirrhosis and indication for liver transplantation worldwide. In contrast to other metabolic diseases such as Type 2 Diabetes (T2D), it has been relatively understudied in the bariatric surgical population.

**Methods:** We present a case report illustrating challenges in the assessment and management of bariatric patients with advanced NAFLD. We then review the Best Available Evidence for pre-operative NAFLD staging using non-invasive biomarkers and the subsequent management of patients with NAFLD undergoing bariatric surgery.

**Results:** A 68-year-old man with a BMI of 48.5 and a history of compensated cirrhosis secondary to NAFLD (Child-Pugh Class A) was referred for consideration of bariatric surgery. Pre-operative LFTs were entirely normal. Co-morbidities included established T2D, ischaemic heart disease and dyslipidemia. After Multidisciplinary Team discussion, laparoscopic Roux-en-Y gastric bypass with liver biopsy was performed. Post-operatively, he lost 34 kg in four months and several dietetic consultations were arranged to address an inadequate protein intake. He subsequently exhibited signs of hepatic decompensation, developing ascites and encephalopathy. A gastrostomy tube was inserted to improve nutrition but, despite hepatology input and inpatient admission, he died three days later.

**Conclusion:** NAFLD is almost universally present in the bariatric population and LFTs are frequently normal even in the presence of advanced disease. They are, therefore, inadequate for disease staging and non-invasive biomarkers of NAFLD severity (such as Enhance Liver Fibrosis testing) are of value. Dietary support is especially important in bariatric patients with advanced liver disease,

since their reduced capacity for glycogen storage can result in protein-energy malnutrition and obese sarcopenia, which is associated with frailty and hepatic decompensation. No randomised or robust prospective study has assessed the effect of bariatric operations on advanced NAFLD; further research is required, with outcomes stratified by NAFLD severity and specific bariatric intervention.

## P26

### Ante-colic v retro-colic Roux-en-Y gastric bypass - a comparison of re-operation and internal hernia rates

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**Background:** Roux-en-Y gastric bypass has been proven to be a successful operative treatment for morbid obesity. Ante-colic roux limb orientation has been shown to reduce the risk of internal herniation. A recent RCT has confirmed this. The authors initial practice was for retro-colic roux limb, however this changed to ante-colic after 105 cases. Mesenteric defects were closed in all cases. The aim of this study was to assess the effect that this change had on internal hernia and re-operation rates.

**Methods:** A retrospective review of a prospective collected database 276 consecutive patients having undergone roux-en-y gastric bypass operations performed by a single surgeon over the period from April 2010 to August 2016 was undertaken. Re-operations and internal hernia identification at subsequent diagnostic laparoscopy were identified from patient records. The ante-colic and retro-colic group were then compared.

**Results:** All 276 cases were analysed. There were no anastomotic leaks in either group. Re-operation rates for abdominal pain were 6/105 in the retro-colic group (10.4%) compared to the ante-colic group 6/171 (4.6%)  $p=0.38$ . Internal hernias were positively diagnosed at operation in 5/105 (4.8%) patients in the retro-colic group (mixed mesocolonic/mesenteric defects) compared to 2/171 (1.2%) in the ante-colic group. However this difference did not reach statistical significance  $p=0.1$ .

**Conclusion:** Ante-colic orientation was associated trend towards lower rates of internal herniation. However statistical significance was not reached perhaps due to the power of this study.

## P27

### Should prophylactic cholecystectomies be performed routinely at weight loss surgery?

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**Background:** Obesity and rapid weight loss are both risk factors in the formation of gallstones. In some centres nationally and internationally, routine prophylactic cholecystectomies are performed during weight loss surgery, however variation in practice exists and arguments surrounding the potential morbidity and expense associated with either practice are contradictory.

**Methods:** A retrospective audit looking at gastric bypass patients who underwent a subsequent cholecystectomy between 2012 and 2016 was carried out to evaluate the incidence of symptomatic cholelithiasis requiring cholecystectomy.

**Results:** Evidence at our centre has shown that around 9% of patients undergoing gastric bypass have undergone a previous cholecystectomy. 210 cases of gastric bypass with gallbladder in-situ during the study period were included for analysis. 14 (6.7%) of these patients developed symptomatic gallstones requiring subsequent cholecystectomy. Mean time taken between gastric bypass and cholecystectomy was 269 days. The majority of patients presented acutely (10 of 14) requiring review by an on-call general surgeon. Of these, 6 had symptoms of biliary colic, 3 presented with acute cholecystitis and 1 patient presented with acute pancreatitis. The remaining patients were noted to be symptomatic during their gastric bypass follow-up appointments and appropriate imaging was initiated leading to diagnosis.

**Conclusion:** There were a small number of patients presenting with symptomatic gallstones following a gastric bypass in this study. The addition of a cholecystectomy, has the potential to cause morbidity (+/- mortality), prolong procedure time and add financial expense. We believe the results justify our practice of selective cholecystectomy prior to gastric bypass in patients with symptomatic cholelithiasis rather than performing routine cholecystectomy in all patients at the time of gastric bypass.

## P28

### To catch or not to catch?

**Sarus Jain, Salman Mirza, Amir Khan**

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**Background:** The demand for bariatric surgery has risen and laparoscopic sleeve gastrectomy (LSG) has become one of the most popular bariatric procedures performed worldwide. In a financially challenged climate this places an increasing burden on health service providers.

In our centre the Endo Catch™ (Covidien) pouch is used to extract the gastric remnant to prevent port site infection, however, it has not been established whether not using it can result in port site infection.

Our aim was to evaluate whether exclusion of the Endo Catch™ pouch resulted in port site infection and evaluate any potential financial gain.

**Methods:** Prospectively collected data from 100 consecutive cases of laparoscopic sleeve gastrectomy without using the Endo Catch™ pouch.

**Results:** 100 patients (77 females, 23 males) with a median age 47.5 years (23-71) and median BMI 47.7 (35-68). 9% were diabetics. No (0) patients experienced wound infection from the port site used for gastric remnant retrieval with no cases of inadvertent spillage of gastric contents. No (0) patients were lost to follow up. The cost saving was £12,988 (£129.88 per Endo Catch™ pouch)

**Conclusion:** Non-implementation of the Endo Catch™ pouch has not lead to post-operative port site infection and continues to be current practice in our centre. The potential financial gain is greater as patients did not require antibiotic treatment or hospital re-admission.

## P29

### Is there a need for immediate postoperative biochemical monitoring in patients undergoing bariatric surgery?

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**Background:** With all forms of bariatric surgery affecting nutritional intake, biochemical monitoring of these patients is vital. Despite this, there are no national guidelines available as to when such monitoring should begin immediately following surgery. As a result, individual centres adopt their own guidelines, including those involving immediate postoperative monitoring.

Our aim was to establish whether immediate postoperative blood monitoring detected any abnormalities that required correction.

**Methods:** All patients undergoing a gastric bypass or sleeve gastrectomy had full blood count (FBC), urea and electrolytes (U&Es) and bone profile taken on day one post operatively. The results were then reviewed against the pre assessment bloods.

**Results:** A total of 31 patients (30 female) were included in the 3-month study, 29 undergoing a gastric bypass. Haemoglobin values fell on average by 6% (range 0 – 20%) from preoperative recordings. Median pre-operative albumin was 40 g/L (range 33 – 51), falling to 38 g/L (range 31 – 45) postoperatively. Both urea and creatinine levels were lower post operatively in all patients than pre operative values.

**Conclusion:** Although long term monitoring of post bariatric surgery patient is important, immediate monitoring of these patients does not appear to detect any significant biochemical abnormalities that required correction. This suggests that it may not be routinely required in uncomplicated bariatric patients.

## P30

### Percentage excess weight loss with intragastric balloons; a single centre experience

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**Background:** Within the NHS bariatric surgery is considered for patients with a BMI >40 or BMI >35 with a serious health condition. Our unit uses intragastric balloons in morbidly obese patients as a bridge to bariatric surgery. Multiple studies demonstrate the safety and efficacy of intragastric balloons.

**Aims** To quantify weight loss after balloon placement, establish whether the primary aim of balloon placement was achieved and investigate the complication rate.

**Methods:** 50 patients identified, retrospective data collection, SPSS used for statistical analysis.

**Results:** Significant reduction in BMI and actual weight loss following balloon placement (P < 0.001 and P < 0.0001 respectively). Median actual weight loss, % excess weight loss (%EWL) and BMI reduction were 13 kg, 12.89% and 4.25 kg/m<sup>2</sup> respectively. 64% of patients reached their primary aim. 20% of patients had complications requiring re-admission, of these 70% had balloon removal and 60% failed to reach their primary aim.

**Discussion** Results from first balloon placement are encouraging and comparable with a recent meta-analysis. Second balloon placements do less well. Re-admissions and low %EWL are predictors for poor outcome.

**Conclusion:** Intragastric balloons as bridging therapy are successful and safe. Sequential intragastric balloons are not recommended.

**Key Words** Intragastric balloon, morbid obesity, weight loss

## P31

### Why do patients regain weight after bariatric surgery?

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**Background:** Bariatric Surgery remains the single most effective method of producing significant and sustained weight loss in morbidly obese patients. Despite standardised approaches to the pre- and post-operative work up and the surgical approaches, some patients will still gain weight after surgery. The reasons for this are not clearly defined.

**Methods:** Consecutive patients who underwent laparoscopic sleeve gastrectomy (SG) or Roux-en-Y Gastric Bypass (RYGB) between 2009 and 2015 were followed from 12 months following surgery to see if they had subsequently regained ≥ 10 kg from their lowest recorded weight.

**Results:** Over this 6-year period, 836 patients underwent surgery. Of those patents in whom follow up data was available, 23 patients were found to have regained weight after 12 months. Median weight gain was 14 and 15.9 kg after SG and RYGB, respectively. In all 23 patients, some form of dietary non-compliance was reported. In addition, two suffered from pregnancy-related issues and four had a concurrent physical illness associated with immobility which perpetuated their weight gain. Four patients had weight gain attributed to psychological factors such as depression. Environmental triggers such as family bereavement or employment-related stresses were identified in five patients. Surgical factors were identified in 3 patients in whom enlargement of the gastric sleeve had been detected.

**Conclusion:** A greater understanding of the reasons why patients regain weight following bariatric surgery will help improve perioperative counselling and patient selection. Emphasis should be placed on managing patient expectations, dealing with illness, pregnancy, and maladaptive eating behaviours, and this should be maintained during long term follow up.

## P32

## Cholecystectomy in the obese

## CholeS Study Group

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**Background:** Cholelithiasis is a common problem in the obese and it is often assumed patient habitus hampers cholecystectomy, leading to a reluctance to operate, or referral to bariatric team for cholecystectomy. Therefore the effects of obesity on cholecystectomy were assessed.

**Methods:** A prospective national database of cholecystectomies (CholeS) was interrogated. Chi square and Mann-Whitney were used for categorical and continuous data respectively.

**Results:** Some 8499 operations were recorded over a 2-month period where the patients' body mass index (BMI) was known. Of this 3678 (43%) were classed as obese (BMI  $\geq 30$ ); 1600 (19%) were Class II, and 31 (0.36%) were Class III. Overall 3993 (47%) of patients presented electively, with no variation in presentation between class.

There was no difference in conversion rate (3.4%) despite an increased intra-operative difficult grade with increased obesity class (Nassar classification  $\geq 2$  - BMI  $< 30$ , 57%; Class I, 62%; Class II, 64%; Class III, 76%  $p < 0.001$ ). Median operation time was longer in those classed as obese, (60 min v 65 min;  $p < 0.001$ ). There was no difference in median length of stay or day case rates (52% of elective cases) in the obese group.

There was no difference in intraoperative or overall 30-days complications, although obese patients were at higher risk of post-op wound infection (2.6% v 1.8%;  $p = 0.019$ ).

Obese patients were no more likely to be operated on by UGI specialists, or to be managed in centres with bariatric specialists. Conversion rates were lowest in UGI surgeons in bariatric units (2.5%) compared to non-UGI surgeons (7.2%).

**Conclusion:** There is no evidence that bariatric patients need to be managed in a different way to others requiring cholecystectomy.

## P33

## Comparative study of the short term outcomes of RYGBP AND MGB

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**Background:** RYGBP is the standard procedure for obesity and metabolic syndrome in many bariatric units all over the world. Mini Gastric Bypass (MGB) is gaining increasing acceptance by bariatric surgeons due its simplicity and comparable outcome to known procedures.

**Methods:** The data of 183 RYGBP and 77 MGB are collected and compared retrospectively. BMI, EWL, morbidity resolution and the mortality are reported.

We performed 273 SAGBs during May 2014-May 2016. Age: 19-68 years, median age 44 years. 186 women and 87 men, BMI: 33-78, median 48.1 [Weight: 96-235 kg, mean 123.4 kg]. 36% of patients had BMI above 50. 21% were diabetic. Sleep apnoea incidence was 6%, 19% were hypertensive and 31% had arthritis. We selected the data of 77 patients who completed 18 months of follow up and compared them to 183 patients who completed same period of follow up. These 183 RYGBP patients had the following features; age of 43(36.2-51.9), 77.1% were females and the initial weight was 141.83 kg, excess weight was 72.47 kg (61.2-79.9), BMI of 51.16(47.4-54.1). They have comorbidities of T2DM in 35.1%, OSA of 15.1%, hypertension of 42.8%, dyslipidaemia of 31.4%, asthma of 19.2% and GORD of 17.3%.

**Results:** The EWL was 33.8 (+9.3) and 76(+27.4) in RYGBP and MGB respectively. The T2DM remission was 62% and 83% in RYGBP and MGB respectively. The resolution of hypertension was 31% in RYGBP and 61% in MGB, while OSA remission was 65.8% and 100% in MGB.

**Conclusion:** Both RYGBP and MGB are effective procedures for diabetes and metabolic syndrome, however the MGB showed superior short term outcomes.

## P34

## Reversal of Roux-en-gastric bypass: indications and outcomes. One unit's experience

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**Background:** RYGB is a lifelong treatment for obesity, health improvement and life expectancy. The procedure is technically reversible and under exceptional circumstances patients may require a reversal. This study analyses indications, management and outcomes in our cohort of patients following reversal.

**Methods:** Retrospective review in a high volume bariatric unit, covering nearly 10 years of practice and over 1000 procedures performed.

**Results:** Between August 2007 and November 2016, 8 patients underwent a RYGB reversal either open or laparoscopically. All were female with a median age of 44 (range 29-56). Median number of years between index surgery and reversal was 2 (1-5).

Indications could be summarised in four main groups with significant overlapping: anatomical (n = 1) (twisted Roux limb), psychological (n = 1) (substance abuse, anorexia and suicide attempt), functional (n = 2) (unexplained intractable pain and nausea) and nutritional (n = 4) (bacterial overgrowth, pain, diarrhoea and severe weight loss requiring total parenteral nutrition). In the anatomical and functional groups more surgical procedures were undertaken prior to the reversal.

After reversal, nutritional concerns were mostly resolved; improvement but no complete resolution of other issues was recorded. Stable healthy weight at follow up was noted in 5 patients whereas weight regain was observed in 2 (1 functional, 1 nutritional). A further 3 patients are currently being considered for reversal for functional (1) or nutritional (2) reasons.

**Conclusion:** Reversal of RYGB is rarely performed (less than 1%) as last resource in complex cases with multiple problems. Nutritional and functional concerns are the most common reason.

## P35

## Recurrent delayed leak after sleeve gastrectomy

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**Background:** Staple line leak is a challenging complication of laparoscopic sleeve gastrectomy (LSG). The plethora of treatments described in the literature and lack of guidelines or consensus are testament to the complexity of leak management post-LSG.

**Methods:** Between 2010 and 2016, we identified three LSG with recurrent leak. Information on demographics, intra-operative findings, management and follow up was extracted from electronic patient records.

Results 3 female patients (31-44 years) who had a LSG and developed a type I leak, one early and the other two delayed at 4 weeks and 5 months were initially treated with relaparoscopy then endoscopic clips (patient 1), relaparoscopy and washout (patient 2) and antibiotics (patient 3). Follow-up imaging confirmed healing in all 3. Endoscopic findings in patients 1 and 3 showed a sinus tract on the staple line which closed at follow up endoscopy.

All represented at 4 years with recurrent leak confirmed on imaging and endoscopy. Patients 1 and 2 had peri splenic abscesses, patient 2 a GCF and patient 3 a gastropleural fistula within a hiatus hernia.

Attempt at laparoscopic fistulectomy led to recurrence in patient 2. Following upper GI MDT discussion all had a completion gastrectomy.

On most recent follow up all three patients were progressing well.

**Conclusion:** All cases had signs of a maturing or epithelialising fistulous tract at 4-6 weeks which were associated with quiescent leaks which represented years down the line, proved very difficult to treat and often posed a surgical dilemma. We postulate from our experience that aggressive treatment in the form of a completion gastrectomy on evidence of tract maturation at 4-6 weeks is the most definitive and effective option in this situation.

**P36****Weighing the hospital: BMI and obesity-related co-morbidity census in a UK tertiary-care centre**

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**Background:** Current trends show the UK population as a whole is increasing in weight. This is also reflected in the burden of obesity and its related co-morbidities on a hospital population. This has relevance as it impacts upon resource allocation, equipment costs and patient prognosis. The aim of this study was to evaluate the weight and obesity-related co-morbidities of inpatients across a tertiary care centre.

**Methods:** All patients presenting as an inpatient through a tertiary care hospital were included in this study. Exclusion criteria included patients who were admitted to the Emergency Department and the Intensive Care Unit. Patient demographic information included age, sex, weight, height, BMI and ethnicity. In addition, obesity-related co-morbidities included hypertension, diabetes, hyperlipidaemia and sleep apnoea was collected.

**Results:** A total of 478 patients (M:F Ratio, 1.13:1) were included in this study (mean age 66, range 19-100). Within the study group, 52% (249/478) were overweight (BMI >25) and 25.3% (121/478) were defined as obese (BMI >30). Of note, 50% of the study group have a diagnosis of hypertension and hyperlipidaemia, 18% have a diagnosis of type II diabetes mellitus and 1% of patients have a diagnosis of obstructive sleep apnoea.

**Conclusion:** During this study period, a half of hospital inpatients are overweight with one quarter being defined as obese. As a consequence, hypertension and hyperlipidaemia are prevalent in 50% of the inpatient population. As hospital practitioners, we need to appreciate the prevalence of obesity and its related co-morbidities in our hospital population and manage resources appropriately in order to mitigate this significant epidemic.

**P37****Gastric bypass vs. Sleeve gastrectomy – a national audit**

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**Introduction** Publications stating stabilisation of the obesity epidemic in the UK led to a national review of gastric bypass and sleeve gastrectomy over the last five years. The Hospital Episode Statistics (HES) includes all procedures pan speciality in the NHS annually.

**Methods:** HES data from 2011 to 2015 was used to establish procedure type, number of admissions, waiting time, length of stay and patient age.

**Results:** The average age of patients undergoing a sleeve gastrectomy and gastric bypass were 46.4 and 58.6 respectively ( $p < 0.0001$ ). Rates of gastric bypass versus sleeve gastrectomy decreased over the time period from 51 to 45%, with an overall decrease of gastric bypass and increase of sleeve procedures over the 5 years ( $p = 0.02$ ). There is an associated significant increase in the annual waiting list total ( $p = 0.0002$ ) and median time waited for sleeve gastrectomy ( $p = 0.0077$ ).

**Conclusion:** There is a national increase of sleeve gastrectomy with a concurrent decrease in gastric bypass surgery. This may have led to the increase in waiting list time and the total. The decrease in the use of gastric banding may be an element of this increase, however does not explain the decrease of gastric bypass surgery.

**P38****Pregnancy after bariatric surgery: a single-centre retrospective cohort study of maternal and fetal outcomes following Roux-en-Y gastric bypass and sleeve gastrectomy**Janine Makaronidis<sup>1</sup>, Andrea Pucci<sup>1</sup>, Sean Manning<sup>1</sup>, Wui Hang Cheung<sup>1</sup>, Helen Kingett<sup>2</sup>, Grainne Buckley<sup>2</sup>, Amy Kirk<sup>2</sup>, Kayon Carr-Rose<sup>2</sup>, Anita Tshiala<sup>2</sup>, Andrew Jenkinson<sup>2</sup>, Mohamed Elkalaawy<sup>2</sup>, Majid Hashemi<sup>2</sup>, Marco Adamo<sup>2</sup>, Pat O'Brien<sup>2</sup>, Yana Richens<sup>2</sup>, Rachel Batterham<sup>1</sup><sup>1</sup>Centre for Obesity Research, Division of Medicine, Rayne Institute, University College London, London, UK, <sup>2</sup>University College London Hospital Bariatric Centre for Weight Management and Metabolic Surgery, University College London Hospital, London, UK

**Background:** The majority of people undergoing bariatric surgery are women of child-bearing age. Fertility and conception are major motivators for obese women with associated infertility to undergo bariatric surgery.

**Methods:** A single-centre, retrospective cohort study of pregnancies following Roux-en-Y gastric bypass (RYGB) and sleeve gastrectomy (SG) was performed. Surgical and maternity records were reviewed and anthropometric data were collected. Maternal and fetal outcomes were investigated as were post-pregnancy weight changes.

**Results:** 97 pregnancies in 69 women; 41 post-RYGB and 28 post-SG were recorded in eight years. Mean age at pregnancy was  $31 \pm 0.7$  years and the mean interval from surgery to pregnancy, where known, was 23.4 months. RYGB and SG women were comparable in terms of pre-operative and pre-pregnancy BMI and time from surgery to pregnancy; however RYGB exhibited greater weight loss in the surgery to pregnancy interval. 32 pregnancies (31%) occurred within the first post-operative year. Year 1 pregnancies were associated with a higher miscarriage rate compared to pregnancies after year 1 (50% vs 30.4%,  $p < 0.05$ ). No differences in miscarriage rates were seen between RYGB and SG. 18 women gave fertility as a reason for having bariatric surgery; 72.2% of these had a live birth in their first pregnancy and 95% a live birth since surgery. With regards to maternal complications, 2 patients developed gestational diabetes (1.9%), 3 post-partum haemorrhage (2.9%); no women had gestational hypertension. With regards to fetal outcomes, mean birth-weight was  $3.11 \pm 0.1$  kg and mean gestational age at birth  $39.5 \pm 0.4$  weeks. 2 cases of severe fetal developmental abnormalities and 2 cases of intrauterine growth restriction were noted. Mean percent weight change from pre-pregnancy weight was  $0.7 \pm 3.3$  at 6 months,  $14.3 \pm 6.3$  at 12 months and  $0.3 \pm 5.2$  at 18-24 months post-partum. There were no significant differences between mean pre-pregnancy weight and weight at 6, 12 or 24 months from pregnancy.

**Conclusion:** Pregnancy after bariatric surgery is safe, however is preferably avoided in the first post-operative year, due to an increased miscarriage rate. Bariatric surgery may be an efficient treatment modality for women with obesity-associated infertility.

**P39****Secondary weight gain following sleeve gastrectomy – where can we improve?**Aruna Munasinghe, Lydia Jenkins, Ellana Griffin, Renol Koshy, Ashwin Krishnamoorthy, Jenny Abraham, Neha Shah, For Tai Lam, Vinod Menon  
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**Background:** Despite the effectiveness of bariatric surgery in achieving sustained weight loss and improvement in comorbidity, weight regain remains a complex issue with no clear mechanism identified. The aim of this study was to identify reasons for secondary weight gain during long term follow up.

**Methods:** Consecutive patients who underwent sleeve gastrectomy (SG) between 2009 and 2014 at a single regional bariatric surgical centre in the United Kingdom were followed up for up to 5 years following surgery. Patients who were found have a secondary weight gain of  $\geq 10$  kg were analysed as a subgroup and the reasons for this weight regain were explored.

**Results:** 119 consecutive patients underwent SG over this 5-year period. Median BMI at the time of surgery was  $48.3 \text{ kg/m}^2$  and median weight loss was 32 kg. 17 patients were found to have secondary weight gain of at least 10

kg. 7 (41.2%) were male and the median weight regain in this group was 16 kg. Reasons for weight regain were varied. The commonest reason was poor dietary habits in 11 (64%), followed by psychological reasons in 5 (58.8%). 4 (23%) had coexistent medical issues such as trauma or needing to undergo surgery for cancer. Poor lifestyle and lack of exercise was identified in 3 patients and two patients felt that they had lost enough weight already.

**Conclusion:** Secondary weight gain remains a problem following SG surgery, and the reasons appear to be multifactorial. While no specific surgical issues were identified, the importance of ongoing dietary and psychological support remains crucial to achieving the best possible outcome for this complex group of patients.

## P40

### Gastric balloon insertion for the management of obesity: a single bariatric centre experience over 16 years

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**Background:** Intra-gastric balloon insertion involves an endoscopically placed deflated balloon. It is then inflated to aid weight loss by a reduction in gastric volume. It is most commonly used as an aid to weight loss prior to consideration of a definitive bariatric procedure. In this unit, balloon insertion is also used to assess whether selected patients will cope with the physical and psychological impact of bariatric surgery.

**Methods:** Data was analysed from a prospectively maintained database of balloon insertions between July 1999 and June 2016. A total of 788 balloon insertions were recorded during this period.

**Results:** Of the 788 patients, 211 were male and 577 were female (ratio 1:2.7). Age range 19–69 years old at time of insertion. 78 balloons (9.9%) were removed early, predominantly due to intolerance. Data was reviewed for the remaining patients who managed to complete the balloon insertion period (6 months).

Median balloon insertion weight: 151.9 kg.

Insertion BMI range: 29.5 – 96.3; median 55.2; St Dev 10.8

Median balloon removal weight: 136.2 kg

Removal BMI range: 25.2 – 96.9; median 49.8; St Dev 10.7

Weight loss (kg) range: –31 – 62.3; median 13; St Dev 10.2

**Conclusion:** About 1 in 10 patients in our experience required early balloon removal. Median BMI reduction was noted at 5.3 points. Although the median weight loss was noted at 13 kg, there was a wide range from 62 kg loss to 31 kg gain. Overall our experience that intra-gastric balloon insertion has been a valuable adjunct to the practice of the unit in reducing weight prior to definitive surgery, and aiding selection of those patients suitable to proceed. We believe this to be one of the largest single centre series of balloon insertions in the UK.

## P41

### A higher Modified Montefiore Obesity Surgery Score (m-MOSS) may predict a higher risk of acute kidney injury and infections after bariatric surgery

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**Introduction:** It has been suggested that m-MOSS scores can be used to determine the level of immediate post-operative care in patients undergoing bariatric surgery. However the relationship between m-MOSS and risk of post-operative complications (POC) and length of hospital stay (LHS) has not been examined. This study aimed to examine if m-MOSS predicted risk of POC and LHS.

**Methods:** A cohort of 148 patients who underwent a sleeve gastrectomy (SG) or gastric bypass (GBP) were analysed for m-MOSS scores, POC and LHS.

**Results:** Patients were stratified on their m-MOSS scores – 49(33%) had scores of 1-2 (group 1), 72(48%) had scores of 3-4 (group 2) and 26(17%) had scores of 5-7 (group 3). GBP patients had significantly higher risk scores ( $p < 0.00001$ ) compared to SG. There was no difference in complication rate (12%) between groups 1 & 2. Group 3 had a higher (25%) complication rate – 50% developed acute kidney injury (AKI) and 33% developed an infection – the remaining 17% were miscellaneous complications, of which none were serious complications. There was no significant difference in the LHS between the groups.

**Discussion:** Our study suggests that a higher m-MOSS score of 5-7 may predict an increased risk of post-operative complications, mainly AKI and infection. Therefore using m-MOSS score to stratify risk may enable us to identify patients at a higher risk and adopt measures to reduce incidence of these complications. A larger study is necessary, however, to validate these findings.

## P42

### Sleeve gastrectomy in type 2 diabetes: can we improve case selection?

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**Background:** Whilst bariatric surgery remains the most effective way of achieving weight loss and improvement in diabetes and other comorbidities, there remains significant variation in the selection of patients amongst care providers internationally. With increasing numbers of patients undergoing surgery, the aim of this study is to try and demonstrate which patient groups will benefit the most from surgery in the context of improved glycaemic control.

**Methods:** Patients with type 2 diabetes mellitus who underwent sleeve gastrectomy (SG) at a regional tertiary surgical unit between 2011 and 2015 were studied. Follow up HbA1c levels were compared across different age groups and preoperative body mass index (BMI) measurements.

**Results:** 91 patients with type 2 diabetes underwent SG during this period. Overall, reductions in HbA1c levels were observed at 12, 24, 36 and 48 months following surgery of 17.3%, 12.2%, 11.2% and 6.1%, respectively. The greatest reductions were seen in patients <50 years of age in whom HbA1c levels continued to fall for up to 48 months. In older patients, HbA1c levels fell initially, but after 36 months, levels were seen to climb again. Patients with a lower initial BMI of <45 had a large initial fall in HbA1c of 24% in the first 12 months, but this effect does not appear to be maintained as the levels are seen to rise beyond 36 months. In patients with higher initial BMIs, a sustained reduction in HbA1c level is seen that persists up to 48 months, which is most notable in patients with a BMI of 55-59.

**Conclusion:** Sleeve gastrectomy remains an effective metabolic surgical procedure to help improve glycaemic control in the majority of patients. This is most marked in younger patients, with moderate to severe obesity in whom long-term remission of diabetes may be achieved.

## P43

### Early weight regain following bariatric surgery

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**Background:** Early weight regain (EWG) and plateau is a frustrating problem for bariatric surgeons. A proportion of patients will not achieve predicted weight loss target weights within 2-10 years following bariatric surgery. The reasons for EWG (<2 years post operatively) are less well studied. We aim to see if there is a relationship between preoperative weight fluctuations, suggestive of 'yo-yo' dieting and preoperative eating behaviour on EWG to see if this patient group can be identified in either the preoperative or early post-operative phase.

**Methods:** 22 patients with early post-operative (within 24 months) weight regain following either laparoscopic sleeve gastrectomy (SG) or gastric bypass (RYGB) were identified from clinic records. Age, sex and operation specific matched controls were selected. Baseline demographics, preoperative/post-operative weights, psychiatric history and eating habits were recorded from review of case notes. Chi squared and paired T-tests were used.

**Results:** 59% were female. The median age was 50 (range 32-63). 59% had a SG in each group. Mean BMI was 50 v 46 ( $p=0.0663$  95% CI -0.26 - 7.53). Mean follow up was 22 months for both groups. 27% vs 18% had preoperative weight fluctuations ( $p=0.72$ ). The difference in mean percentage excess body weight loss at 3, 6 and 12 months was statistically significant between the two groups: -18.4 95% (CI -28.0 to -8.6  $p=0.0005$ ), -26.6% (95% CI -55.8 to -34.2  $p=0.0001$ ), -32.5% (95% CI -43.6 to -21.4  $p=0.0001$ ), respectively. 50% of patients began regaining weight between 12-18 months following surgery. There was no statistically significant difference in history of binge eating (40% v 18%  $p=0.185$ ), referral to eating disorders assessment service (40% v 32%  $p=0.75$ ) or previous psychiatric history (40% v 23%,  $p=0.3$ ) between the groups. However, there was a significant difference in comfort eating, 59% v 18%  $p=0.012$ .

**Conclusion:** No significant relationship between preoperative weight fluctuations or eating habits and early weight regain was demonstrated with this relatively small sample size. However, we established that patients may be able to be identified as early as 3 months post operatively that are likely to regain weight. Patients identified early should be enrolled in a weight management programme.

## P44

### The effect of metabolic surgery on type1 diabetes. Meta-analysis

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**Background:** Metabolic and bariatric surgery has definite role for management of obese patients with Type 2 Diabetes Mellitus (T2DM). There is also evidence of improvement in Type1 Diabetic (T1DM) patients. The aim of this paper is to explore the effect of metabolic and bariatric surgery on T1DM.

**Methods:** A comprehensive search of PubMed and Google Scholars was made to identify the relevant papers reporting metabolic and bariatric surgery effects on T1DM. Statistical analysis is applied after data synthesis. Forest plot and Pearson correlation are calculated.

**Results:** 567 papers have been identified, 558 articles did not fulfill the inclusion criteria and therefore were excluded. Nine studies reporting 78 patients were selected for this meta-analysis. There was improvement in HBA1c ( $p$  value =0.40), Insulin dose ( $p$  value = 0.0001) and BMI ( $p$  value =0.00001) after surgery. The improvement in the HBA1c didn't reach statistical significance. There was weak correlation between postoperative insulin dose and BMI change after surgery ( $r = -0.177$ ). There was negligible correlation between HBA1c and BMI change after operations ( $r = -0.01$ )

**Conclusion:** Current metabolic/bariatric surgery is improving T1DM in obese and morbidly obese patients. This is not exclusively related to the Excess Weight Loss (EWL) as previously thought. There is therefore a role for other factors, which are potential players to reproduce the same effect in non-obese T1DM patients.

## P45

### Reflux disease after single anastomosis gastric bypass is it a real problem? Our experience with 273 SAGB

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**Background:** There is more or less a consensus that in the presence of reflux disease a Roux enY (RYGBP) rather than Single anastomosis Gastric Bypass gastric bypass (SAGB) should be offered to the eligible bariatric patients.

**Methods:** Since the beginning of our series, we have followed our own practical screening mechanism. Patients with established history and diagnosis of gastro-oesophageal reflux are given a gastroscopy. For all other patients we enquire about heartburn more than twice a week not related to overeating. If the answer is yes then they will be submitted to gastroscopy also. Our contraindications for SAGB are:

1. More than 5 cm hiatus hernia
  2. Grade II oesophagitis and more
  3. Heartburn that is not relieved by regular maximum proton pump inhibitor
- All other patients with symptoms that are relieved by proton pump inhibitor, hiatus hernia less than 5 cm and Grade I oesophagitis we consider as candidates for SAGB.

In this series we performed gastroscopies for 91 patients and only 9(9.8%) were not suitable according to our criteria.

**Results:** We performed 273 SAGBs during May 2014-May 2016. Age: 19-68 years, median 44 years. 186 women and 87 men, BMI: 33-78, median 48.1 [Weight: 96-235 kg, mean 123.4 kg]. 36% of patients had BMI above 50. 21% were diabetic. Sleep apnoea incidence was 6%, 19% were hypertensive and 31% had arthritis. In our series we only needed to convert one patient from SAGB to RYGBP. 143 patients completed one year follow up, 77 patients completed 18 months follow up with no clinical problem of reflux after SAGB.

**Conclusion:** With appropriate patient selection criteria, reflux disease is a negligible problem after SAGB. There is good body of evidence to support reinforcement in current literatures, however statistical analysis showed no significant difference.

## P46

### Influence of patient choice on outcome of bariatric surgery. A single centre experience with postoperative 2-5 years' follow-up

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**Background:** The "perfect" bariatric procedure remains the topic of debate. Laparoscopic Roux-en-Y Gastric Bypass (LRYGB) is the gold standard of the bariatric procedures in many institutions, but Laparoscopic Sleeve Gastrectomy (LSG) is gaining wide acceptance. The aim of this study is to compare the safety and outcome of LRYGB to LSG and band in a single centre amongst those patients, who made their own choice in advance which procedure they prefer.

**Methods:** Retrospective analysis of the prospectively developed departmental database was performed. All patients were given a 60 minutes video-presentation about the surgical procedures. After our multi-disciplinary team's assessment, the patients could make their own choice of procedures (self-selected- SS), unless medical/surgical conditions limited this (medically restricted - MR). All consecutive primary bariatric procedures were reviewed, between June 2010 and Sep 2014, allowing at least 2 years' follow-up. The primary outcomes included 30-day complication and readmission rates and excess weight loss (%EWL) and co-morbidity resolution at 12 and 24 months postoperatively.

**Results:** A total of 303 patients were included in our analysis and 271 of them made their own choice regarding the weight loss procedures (SS:90%). 183 patients choose LRYGB (60.4%) and 57 underwent LSG (SS: 45 and MR: 12, overall 18.8%), with the initial BMI of 50.7 and 52.5 kg/m<sup>2</sup>, respectively. Sixty-two patients (20%) underwent gastric banding. Thirty-day complication rates for LRYGB and LSG were (10.2% and 2.9%,  $p < 0.05$ ), and the thirty-day readmission rates were 4.7% and 2.9%, respectively. %EWL for LRYGB was significantly higher than LSG at 24 months (67.8% vs SS:43.9% and MR:47%). The complete diabetes remission was achieved 31/50 patients in the LRYGB group (62%), and 2/9 patients (22%) in the LSG group.

**Conclusion:** LSG appears to have a better safety profile in the short-term compared to LRYGB. However, at 2 years, LRYGB patients achieved a significantly higher %EWL compared to LSG patients (vs. both SS and MR), and the comorbidity remission rate in the LRYGB group supersedes the LSG rate. Our suggested weight loss method remains the LRYGB.

## P47

**Comparison of Haemoglobin and haematinics in a matched cohort of patients who underwent one-anastomosis gastric bypass and Roux-en-Y gastric bypass**

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**Background:** There is some concern over prevalence of Iron deficiency anaemia (IDA) following gastric bypass. It is suggested that IDA might be more common following One-anastomosis gastric bypass (OAGB) compared to Roux-en-Y gastric bypass (RYGB). We aimed to compare the incidence of anaemia in a matched cohort of patients who underwent OAGB and RYGB.

**Methods:** From our prospectively maintained database, we identified 200 patients who underwent OAGB from October 2012 to October 2015, and 200 patients who underwent RYGB that were matched to OAGB patients based on age, sex, body mass index (BMI), and time of surgery. We compared the Haemoglobin (Hb), Mean corpuscular volume (MCV), Iron, Ferritin, Vitamin B12, and Folic acid levels pre-operatively and then at 6, 12, 18, and 24 months after surgery in the two groups.

**Results:** Age, Sex, BMI, and pre-operative blood results were comparable between the two matched groups. The number of patients with anaemia was similar between the two groups - OAGB (5.5%) vs RYGB (6.1%) at baseline ( $p=0.82$ ), and 16.6% vs 12.7% at 24 months after surgery ( $p=0.55$ ). In the OAGB group, there was a significant reduction in Hb levels at each time point compared to baseline. Mean pre-operative Hb was 141.6 gram/litre, which dropped to 131.7 gram/litre ( $P < 0.001$ ) at 24 months. In the RYGB group, there was a gradual reduction in Hb levels that reached statistical significance only at 24 months. Mean pre-operative Hb was 140.2 gram/litre that reduced to 134.8 gram/litre ( $P < 0.001$ ). There was a significant increase in the levels of Vitamin B12 in both groups after surgery at all time points.

**Conclusion:** A reduction in level of haemoglobin is seen following OAGB as well as RYGB. However this drop is to a similar extent and is not magnified for patients who undergo OAGB. OAGB patients do not have a higher incidence of anaemia than those undergoing RYGB.

## P48

**Patient information for bariatric surgery; are we providing a good service?**

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**Background:** There is little literature describing the clinical-effectiveness and cost-effectiveness of perioperative education interventions for bariatric patients. This study aims to review the effectiveness of different educational interventions on the bariatric surgical patients.

**Methods:** A systemic review of pre&post-operative education and its effects on postoperative patient outcomes was undertaken. A PubMed search by two researchers was conducted using keywords; "Patient education", "outcomes in surgery", "pre-operative education", "post-operative education" and "bariatric surgery". Pre-/post-operative educational interventions where post-operative outcomes were evaluated were included.

**Results:** Fifteen papers were retrieved, 5 were excluded for not directly evaluating the individual education interventions used. Three systematic reviews of education modalities used in surgery were evaluated: a review of 12 RCTs involving 3944 patients evaluating education of post-operative outcomes, A review of 13 studies evaluating the effectiveness of 950 articles used for patient education and a review of 26 trials, 20 of which were randomised, exploring the effectiveness of multimedia computer based education in health care. Three individual RCTs were also evaluated, 1 prospective cohort study evaluating the timing of educational interventions in bariatric patients, as well as 2 further studies of the effectiveness of written educational materials. One patient survey elicited patient perceptions of both pre-operative written material and post-operative

education. Key findings were, Single multidisciplinary pre-op educational interventions are poorly attended and do not improve post-operative outcomes. One RCT showed increase in post-op hospital stay in the intervention group. Conversely, nurse-delivered short frequent messages in patient's home and/or pre/post-operative multimedia presentations show significant improvement in outcomes (length of hospital stay, need for further care, pain perception and overall satisfaction). Pre op Bariatric educational interventions were poorly attended comparing to post op sessions (43%Vs100% and 14%Vs91% respectively).

**Conclusion:** There is further need to evaluate the effectiveness of patient education in bariatric surgery. Our review identified that short frequent interventions using multimedia and/or home sessions by nurse specialists may improve outcome in this group of patients.

## P49

**Surgery for diabetes to tackle the NHS funding gap**

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**Background:** Diabetic management currently accounts for 10% of the NHS budget. Bariatric surgery has clearly been shown to be cost saving. NICE now recommend bariatric surgery as a treatment option for patients with Type II diabetes and a body mass index over 30 Kg/m<sup>2</sup>. This study presents the outcomes of patients with type II diabetes following bariatric surgery in an NHS unit.

**Method** All patients with type II diabetes who underwent surgery between October 2011 and April 2016 were identified from a prospective database. Age, sex, weight at operation, BMI, procedure type, pre-operative HbA1c, latest HbA1c and diabetic therapy were recorded. American Diabetic Association criteria for remission were used.

**Results:** 455 patients had bariatric surgery during the study period, 22% (n = 102) had Type II diabetes. Complete data was available for 85 patients. 67% (n = 57) were female & median age was 52(25-69) years. Median weight before surgery was 129(91-208) Kg and median BMI was 46(35-60) Kg/m<sup>2</sup>. 63% (n = 54) had a gastric bypass, 37% (n = 31) had a sleeve gastrectomy. Median pre-operative HbA1c was 51(36-104) mmol/l and median HbA1c 6+ months after surgery was 39(32-93) mmol/l. 57% (n = 48) are in complete remission & 22% (n = 19) are improving. Of the remaining patients 12% (n = 12) have similar control and 7% (n = 6) have worse control.

**Conclusion:** Our results demonstrate the majority of diabetic patients achieve complete remission or improved control in the short to medium term following NHS bariatric surgery. We believe improved access to bariatric surgery could contribute to closing the NHS funding gap by tackling the £1.5 million per hour spent by the NHS managing diabetes.

## P50

**Aetiology of Leaks following sleeve gastrectomy. A review of current evidence**

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**Background:** Leaks are the most serious complications of sleeve gastrectomy with an average incidence decreasing to 1.1%. Although the aetiology is a multifactorial, there are still areas of controversies. The aim was to study the cause of leaks following sleeve gastrectomy

**Methods:** Pubmed was searched during January 2016 for publications reporting leak after sleeve gastrectomy. Two hundreds and five publications were identified and 27 papers were selected.

**Results:** There was weak correlation between the method of staple line reinforcement in the included studies and leak rate on multivariate analysis. Correlation coefficient was 0.042. On univariate analysis, Leaks were caused by different mechanisms; the most important are ischemia, iatrogenic injuries and

damage to the vascular anatomy, and the use of inappropriate staple cartridge. There were suggestions that gastric wall thickness is an important issue and a cause of leak if inappropriate staple height is applied.

**Conclusion:** The aetiology of leaks is a multifactorial; anatomy of the stomach, blood supply and gastric wall thickness is a new focus on the aetiology of leaks if no reinforcement is applied. With reinforcement and sound operative technique these factors are of negligible clinical importance.

There is good body of evidence to support reinforcement in current literatures, however statistical analysis showed no significant difference.

## P51

### The role of blood investigations in predicting early leaks following bariatric surgery

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**Background:** WCC and CRP are markers of inflammation post-surgery. The role of CRP has been described in colorectal and oesophago-gastric surgery as a predictor of anastomotic leak. The aim of this study was to evaluate the utility of Day 1 blood parameters as predictors of post-operative leak/ staple like breakdown following bariatric surgery.

**Methods:** A retrospective review of all bariatric patients who had undergone primary Sleeve Gastrectomy (SG) or Roux en Y Gastric bypass (RYGB) was carried out. Day 1 post-operative blood investigations were analysed in cases where they were available. Mann Whitney U test was performed for non-parametric comparison of means.

**Results:** 573 patients underwent a primary bypass/ sleeve gastrectomy at our centre since 2012. 4 patients were diagnosed with a leak post-operatively. Mean WCC and CRP were higher in patients who were diagnosed with leak (WCC: 13.8 vs. 11.1,  $p=0.039$ ; CRP: 107.5 vs. 45.3,  $p=0.05$ ). The highest WCC and CRP recorded on post-operative day 1 were 18.36 units and 223 respectively (these patients were not diagnosed with a leak). No 90 day mortality was reported in any of these patients.

**Conclusion:** Despite WCC and CRP reaching statistical significance for prediction of leak, we feel early post-operative blood investigations are a poor marker of postoperative complications. In most practices, clinical evaluation continues to be the mainstay for instigating the diagnostic algorithm for leaks. The role of trends in these laboratory parameters needs to be further elucidated.

## P52

### Very low calorie diet (VLCD) in bariatric surgery ... our experience!

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**Background:** Bariatric surgery is increasing worldwide. Patients are encouraged to demonstrate personalised weight loss targets and are routinely placed on a very low calorie diet (VLCD) prior to surgery. In our Level 4 bariatric centre the bariatric dietician offers two types of diet, VLCD A (food diet- 800 kcal/day) and VLCD B (milk & yogurt diet -750 kcal/day). Pre-operative VLCD is shown to be effective<sup>1</sup> but few studies measure the efficacy of VLCD B<sup>2</sup>. There is also no consensus regarding the most effective VLCD<sup>2</sup>. This study aims to determine the efficacy of VLCD in aiding preoperative weight loss.

**Method** Analysis of a prospective dietetic database of patients who underwent bariatric surgery from November 2015 to November 2016 was performed.

**Results:** A total of 67 patients (16 males, 51 females) were identified. 66% (44/67) of patients achieved their target weight. 9.1% (4/44) did not maintain target weight prior to surgery. 33% (22/67) were diabetic. The median BMI was 47.1. The median weight loss for diabetic patients on VLCD A and VLCD B was 1.2 kg and 1.7 kg respectively ( $p=0.337$ ). Other findings are tabulated below:

	VLCD A	VLCD B	P value
Number	44	23	
Duration, days	21	21	
Overall median weight loss, kg (range)	3.45 (-12.8 to 14.2)	4.4 (0 to 10.6)	0.385

**Conclusion:** Most patients achieve and maintain their personalised weight loss targets. Although our numbers are small, there is no significant difference in overall weight loss between VLCD A and VLCD B. Furthermore VLCD B did not appear to improve weight loss in diabetic patients. Does this pose the question that all patients should be commenced on a single type of diet...?

## References

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## P53

Withdrawn.

## P54

### The protector band: improved outcomes with a modified gastric band

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**Background:** Laparoscopic adjustable gastric band (LAGB) insertion has reduced over the years due to high complication rates in some centres. A new modified version of the LAGB (Protector Band) has a soft silastic mesh attached to the superior border of the band. This has been designed to support the gastric pouch, and thus restrict pouch dilatation and slippage.

**Methods:** A feasibility study was conducted to examine the early weight loss and complications associated with Protector band insertion. From June 2015, adult patients eligible for standard LAGB insertion were offered enrolment into the present study utilising the modified band. Following insertion, gastro-gastro sutures were not utilised for fixation although three sutures were used to fix the mesh to the hiatal margin. Post-operative care was unchanged and the follow up program consisted of x-ray guided band adjustments (3 and 6 months) and routine dietetic led review.

**Results:** To date, 25 Protector Bands have been placed (84.0% females, mean age 45.2 years). The mean baseline weight and BMI was 128.4 kg and 47.9 kg/m<sup>2</sup>. There were no intraoperative complications and 88.2% patients were discharged same day. The excess % weight loss was 25.7% at 3 months (n=20), 27.9% at 6 months (n=15) and 32.3% at 12 months (n=11) respectively. No pouch dilatations or erosions have been noted.

**Conclusion:** Protector band patients lost a mean 8.9% more excess weight loss at 6 months compared to a contemporary cohort of patients undergoing LAGB at our centre. There were no early complications related to the change in band design. Protection of the gastric pouch with a silicon mesh may improve weight loss outcomes by providing increased satiety and reduce long term complications related to pouch dilatation.

## P55

### Laparoscopic reversal of Roux-en-Y gastric bypass

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**Background:** Roux-en-Y gastric bypass (RYGB) is the most common bariatric procedure in the UK. It is one of the most effective operations to combat obesity and related metabolic disorders. However, a small fraction of patients can develop serious complications necessitating reversal of gastric bypass. The indications, technique, and outcomes of reversal of gastric bypass are not well reported.

**Methods:** To date three patients have undergone laparoscopic reversal of RYGB in our unit. Two of these were for excessive weight loss and malnutrition, and the third for recurrent ulcer at the gastro-jejunal anastomosis. We discuss the significant steps of our technique for laparoscopic reversal of RYGB.

**Results:** Adhesions from the previous operation were divided to mobilise the gastric pouch, gastric remnant, and Roux limb. The gastric pouch was transected above the gastro-jejunostomy with an Endo-GIA tri-staple linear stapler (purple reload). A small opening was made in the 'new' pouch and gastric remnant, and a side-to-side functional anastomosis was fashioned with an Endo-GIA tri-staple linear stapler (purple reload). The defect was closed with 2/0 polyglactin 910 in two layers. The Roux limb was left in-situ without any entero-enteric anastomosis.

**Conclusion:** Reversal of gastric bypass may be indicated for several life-threatening reasons, and laparoscopic reversal of RYGB is feasible and well tolerated. The Roux limb may be left in-situ without any long-term complications as it empties with the peristaltic movement.

## P56

### The effect of bariatric surgery on patients with HIV infection: a literature review

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**Background:** Obesity among HIV infected individuals is on the rise and it is believed that the highly active antiretroviral treatment (HAART) is an independent risk factor for central obesity. Bariatric procedures such as Roux-en-Y gastric bypass (RYGB) and sleeve gastrectomy (SG) alter the GI tract. Whether this alteration has any impact on the absorption of HAART, thus affecting HIV disease markers such as CD4 cell count or viral load, is not yet known. We conducted this review to look into the outcomes of bariatric surgery and its effects on the CD4 cell counts, viral load and HAART therapy.

**Methods:** Two independent reviewers searched the literature using pubmed and google scholar using terms 'bariatric surgery and HIV', 'Obesity surgery and HIV', 'Gastric bypass and HIV' and 'Sleeve gastrectomy and HIV'.

**Results:** Of the 49 papers retrieved, only 8 were relevant to our search terms including 6 reporting RYGB and 2 reporting SG outcomes in HIV individuals. The total number of patients reported in these studies was 32. In all the studies the reported weight loss was comparable to general population. The reported outcomes in CD4 cell counts and viral load did not lead to any progression in HIV status.

**Conclusion:** Data is limited, however, based on the available data bariatric surgery is safe in HIV infected individuals and does not have any adverse impact on HIV disease progress. Additionally, there was no difference in HIV related outcomes between SG and RYGB.

## P57

### First 100 laparoscopic mini gastric bypass (MGB) matched with Roux-en-Y Gastric bypass (RYGB) - A single centre UK Experience

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**Background:** MGB is a promising bariatric procedure with multiple apparent benefits. Our unit is the first unit within the National Health Service of United Kingdom performing this procedure. Thousands of this procedure has been performed throughout the world since Rutledge performed the first procedure in 1997. It has a slow uptake in bariatric society in UK. The aim of this study was to compare our first 100 MGB patients with matched RYGB patients.

**Methods:** We published our experience of retrospectively analysed, prospectively collected data of first consecutive 100 LMGB procedures performed in a single centre in the UK since Oct 2012. For this study, we matched these patients for date of operation, sex, age and Body Mass Index (BMI) with RYGB performed in our unit. Standard statistical methods were used for comparison.

**Results:** 74% patients were female. There was no significant difference between the mean age, mean weight and mean BMI and co-morbidities between the 2 groups. The operating time for MGB was significantly less than that for RYGB. Mean postoperative hospital stay was same between the two groups. 19 patients in MGB group needed postoperative gastroscopy compared to 13 in the RYGB group. 4 marginal ulcers were diagnosed in both groups. Both group had 4% re-operation rate. One MGB patient needed conversion to RYGB. Leak rate and mortality was 0% in both groups. Resolution of co-morbidities was comparable. MGB patients achieved significantly higher Excess and Total Weight Loss at 12, 18 and 24 months follow up.

**Conclusion:** This study demonstrates early safety and efficacy of Mini Gastric Bypass in a carefully selected British obese population in a high volume centre. MGB is quicker and yields better weight loss outcomes in comparison to RYGB. Long term results in a larger number of patients need to be confirmed.

## P58

### Fast track bariatric surgery facilitates safe early discharge and improves efficiency

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**Background:** Lack of inpatient hospital beds was attributed to 11 out of 12 bariatric procedure cancellations in 3 months in our hospital. Applying the principles of fast track surgery, which is based on reduced operative time and early mobilisation leads to quicker recovery and early discharge of bariatric surgery patients. The aim of this quality improvement project was to effectively utilise short stay beds for bariatric surgery and improve theatre time utilisation.

**Methods:** A change in practice was implemented that incorporated alterations in patient expectations of hospital stay, quicker standardised surgery and anaesthetics, more rapid turnaround and the utilisation of monitored recovery beds to allow for 23 hour stay fast track model.

**Results:** 16 patients were analysed before implementation of fast track, and 30 following; 8 and 14 LRYGB (Laparoscopic Roux en Y gastric bypass) and 8 and 12 LSG (Laparoscopic sleeve gastrectomy) respectively. There was no difference between gender and BMI between pre and post fast track groups.

After the changes were implemented, anaesthetic time was reduced (18.5 mins to 12 mins,  $p = 0.01$ ), median operative time was also reduced in both groups (LGRYB 135 mins to 95 mins ( $p = 0.01$ )) and LSG 85 mins to 53 mins ( $p = 0.03$ ), and overall time of the patient in theatre was reduced from 159 mins to 111 mins ( $p < 0.001$ ) allowing for an extra case to be added to the list. Rates of discharge

after an overnight stay were increased after fast track was introduced (19% to 65%,  $p = 0.003$ ) resulting in reduced cancellations.

**Conclusion:** Fast track bariatric surgery in selected group of patients helps improve theatre time utilisation and efficient use of hospital resources by early discharge.