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Review

Complications of bariatric surgery – What the general surgeon needs to know

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ABSTRACT

Obesity is an important cause of physical and psychosocial morbidity and it places a significant burden on health system costs and resources. Worldwide an estimated 200 million people over 20 years are obese and in the UK the Department of Health report that 61.3% of people in the UK are either overweight or obese. Surgery for obesity (bariatric surgery) is being performed with increasing frequency in specialist centres both in the UK and Ireland and abroad due to the phenomenon of health tourism. Its role and success in treating medical conditions such as diabetes mellitus and hypertension in obese patients will likely lead to an even greater number of bariatric surgery procedures being performed. Patients with early postoperative complications may be managed in specialist centres but patients with later complications, occurring months or years after surgery, may present to local surgical units for assessment and management. This review will highlight the late complications of the 3 most commonly performed bariatric surgery procedures that the emergency general surgeon may encounter. It will also highlight the complications that require urgent intervention by the emergency general surgeon and those that can be safely referred to a bariatric surgeon for further management after initial assessment and investigations.

Introduction

Obesity as defined by the World Health Organisation is an abnormal or excessive fat accumulation that may impair health.[1] More objectively it is defined as a Body Mass Index (BMI) over 30 where BMI = weight in (kg)/height in (m^2).[2] However this is not a direct measurement of adiposity and NICE recommend that waist circumference is used in conjunction with BMI.[3] Worldwide an estimated 900 million over 20 years are overweight and 500 million people over 20 years are obese. In the United Kingdom the Department of Health suggest that 61.3% of UK adults are either overweight or obese[4] with 24% of males and 26% of females being obese.[5]

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Irish figures from the National Task Force on Obesity estimate that 39% of Irish adults are overweight and 18% obese.[6]

Obesity impacts physical, psychological and social heath and it is a major risk factor for death from ischaemic heart disease, diabetes mellitus and cancer. The economic burden is substantial with an estimated 2–4% of health budgets in the EU being spent on adult obesity.[7] Obesity cost the NHS £5.1 billion in 2006/7[9] and data from Ireland estimated a spend of €1.13 billion in 2009 on direct and indirect obesity related costs.[8] It has been reported that obesity costs the US economy over $100 billion annually.[2]

Lifestyle modifications form the basis of interventions for obesity with adjuvants such as pharmacotherapy and surgery being employed in selected individuals. Despite advances in health promotion initiatives and pharmacotherapy, surgery has been shown to be superior to non-surgical interventions in reducing weight.[10] Consequently there has been a trend towards an increase in surgical interventions targeting obesity and worldwide over 340000 bariatric procedures were performed in 2011[11] with 8000 performed in the UK in the same period.[12] These procedures are increasingly provided in specialist centres and there is a further group of patients who seek such interventions abroad where follow up and aftercare can be limited or even non-existent.

A morbidity rate of 2.4%–10% has been reported internationally depending on the type of procedure[13] and recently The National Bariatric Surgery Registry (UK) reported an overall complication rate of 2.6%.[14] Should complications arise many individuals may present to local and non-specialist centres. Therefore general non-bariatric specialist surgeons should have knowledge of the commonly performed procedures and associated complications in order to safely manage such patients.

This review aims to look at the common surgical procedures performed for obesity with a focus on the associated late complications and their management that can present to emergency general surgeons.

Bariatric surgery

Indications for surgery in adults include a BMI over 40 or BMI 35–40 in the presence of co morbidities such as type 2 diabetes mellitus, hypertension, sleep apnoea or polycystic ovarian syndrome that could improve with weight loss. Other criteria include a failure of diet and exercise provided the patient will receive intensive specialist management, they are fit for anaesthesia and that they will commit to long term follow up.[15] The British Obesity and Metabolic Surgery Society have detailed criteria that organisations should fulfil in order to provide bariatric surgery. These recommendations centre on facilities (equipment, imaging, and theatre), specialist staff (surgeons, physicians, nurses and dieticians) and care pathways (referral and assessment, follow up).[16]

Procedures for obesity are classified as restrictive, malabsorptive or both. Restrictive procedures include laparoscopic adjustable gastric banding or sleeve gastrectomy; malabsorptive procedures such as biliopancreatic diversion or combined procedures such as Roux-en-Y gastric bypass. This review will discuss the 3 most commonly performed procedures including laparoscopic adjustable gastric banding, sleeve gastrectomy and Roux-en-Y gastric bypass and their potential late complications.[12]

Laparoscopic adjustable gastric banding (LAGB)

Description

LAGB is a restrictive procedure involving the placement of an adjustable silicone ring below the gastro-oesophageal junction to create a pouch. It is connected to a port that is placed in the subcutaneous tissue and can be inflated or deflated to increase or decrease the degree of restriction. It is reversible and generally considered a safer procedure as the GI tract is not entered and there is no anastomosis.[17] Never the less late complications do arise and a reoperation rate of 10–20% has been reported.[18] Band slippage, pouch enlargement, band erosion and port site complications are the most common problems associated with LAGB (Table 1).

Complications

Band slippage resulting in gastric prolapse, occurs with cephalad prolapse of the body of the stomach or caudal movement of the band. Features suggestive of band slippage include acute dysphagia, vomiting, regurgitation and pain (epigastric, left upper quadrant and chest).[20,21] If left untreated the incarcerated stomach pouch may be at risk of ischaemia. Investigations that can help in the diagnosis of band slippage include plain radiographs of the lower chest/upper abdomen which shows a shift in the band from a normally angled 2 to 8 o clock position (see Fig. 1) to a 4 to 10 o clock position (see Fig. 2). The centre ring of the band may also be visible and there will be dilation and prolapse of the gastric pouch. An

Table 1 – Summary of gastric band complications including symptoms and treatment.

Complication	Symptoms	Treatment
Band slippage	i Acute dysphagia ii. Vomiting iii. Upper abdominal pain iv. Reflux	i. Deflate band urgently ii. If no improvement consider laparoscopy and band removal or unbuckling with/without resection
Pouch enlargement	i. Reduced satiety ii. Dyspepsia iii. Reflux iv. Chest pain	i. Full band deflation ii. Smaller portion sizes iii. Low calorie diet
Band erosion	i. No satiety ii. Gastrointestinal bleeding iii. Epigastric pain iv. Port site infection	i. Consider referral to bariatric surgeon for further management but if unwell may need intervention by general surgeon ii. Laparoscopy/laparotomy or endoscopic removal iii. Remove band iv. Excise any necrotic tissue v. Closure of gastrostomy