

Complications of Bariatric Surgery: What can IR do?

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Commentary

Obesity—defined as body mass index (BMI)>30— and overweight—BMI>25 are now estimated to involve more than 1.7 billion of people worldwide, with a prevalence that increase year by year [1,2]. In the United States, two third of population are overweighted, and according to Centre of Disease Control, no state had a prevalence of obesity lower than 20% in 2010 [3].

Overweight represents a major health problem with increases of type 2 diabetes, hyperlipidemia, hypertension, cardiovascular events, obstructive sleep apnea, asthma, back and lower extremity weight bearing degenerative problems, several forms of cancer (eg. Barrett's esophagus and gastric cancer, colorectal cancer, pancreas cancer, renal cancer, endometrial cancer, breast cancer and gall bladder cancer) and psychosocial stress [4].

These comorbidities are responsible for more than 2.5 million deaths/year worldwide [4].

Management of obesity includes medical, behavioral and surgical methods [3].

Conservative treatment has not been proved to achieve long-term weight-reduction.

However, there is extensive evidence that bariatric surgery is effective in reducing weight and obesity associated comorbidities and mortality; moreover, it seems to be attractive in term of long term cost-utility [5].

In 2008, 350000 bariatric surgeries were performed worldwide, with a seventy times increase compare to the number of procedures accomplished ten years before [6,7].

Meanwhile, 90% of bariatric surgeries have been performed laparoscopically [6].

The definition of “bariatric surgery” groups different procedures aimed to weight reduction because of gastric restriction (adjustable gastric bending (AGB), sleeve gastrectomy (SG)), malabsorbiment (biliopancreatic diversion (BPD/DS)), or both (standard en-Roux gastric BP (RYGB)).

Bariatric surgery has been claim to be safe with an overall mortality rate approximately 0.3%-such as laparoscopic cholecystectomy—however, it is not free of complications [8].

Pulmonary embolism is the leading cause of death after bariatric surgery with an incidence of 0.34% [9].

Anastomotic leak represents the second cause of death after bariatric surgery procedures; leak occurs in 1% after LAGB, in 0.5% to 5% after LRYGB, in 2.7% after SG, in 0.67% at the gastric staple line, and in 1.7% at the duodeno-ileal anastomosis after BPD/DS [8].

Bleeding has been reported in 1% to 4% of bariatric surgery procedures [9].

An international consensus for complications of bariatric surgery management has not been established. Looking to the literature,

revisional surgery had a mortality rate of 1.65%, and it rises up in case of male, super obese and elderly patients.

First report about Interventional Radiology (IR) procedure for bariatric surgery complications is dated 1988.

What can IR do?

Inferior vena cava (IVC) filter placement

Severe obesity is a known risk factor for Deep Venous Thrombosis (DVT) and Pulmonary Embolism (PE). Prophylactic placement of inferior vena cava filter in bariatric patients remains controversial. In literature, IVC filter prophylactic placement has been proposed in case of bariatric patients with previous history of DVT/PE, BMI>55-60, hypercoagulable state, chronic venous insufficiency, obesity hypoventilation syndrome/sleep apnea, truncal obesity (android build), contraindication to adequate prophylactic anticoagulation and expected prolonged immobilization [10].

However, a recent study report additional complications without any benefit bariatric patients with prophylactic IVC filter before gastric bypass [11].

Percutaneous drainage (PD): The first aid procedure in case of collection/abscess because of staple leak after bariatric surgery. Generally, PD is performed by CT/US guidance, in order to follow a safe pathway, and the drainage is placed as close as possible to the leak site. In our experience, PD has been the stand-alone procedure in more than half of our patient population [12].

Stent-graft (SG): It has been proposed for fistula site restoration. It is a new entry in the treatment of leak and it can be used before and after PD placement. In our series, SG was placed in case of incomplete resolution of abdominal collection (and underneath fistula) (N=5), or in case of non-drainage eligible patient (N=1). SG is generally placed under fluoroscopic guidance and removed endoscopically. Good results in term of morbidity and survival were showed in different series [13].

Embolization can be performed with different material (coils, gel foam, micro particle, Onyx) based on the bleeding origin site:

Balloon dilatation of strictures, late complication of RYGP (7%) and SG (<1%) has been reported to be effective, especially if repeated

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with different caliper of balloon. The use of cutting balloon has been described for neoplastic stricture with good results, but it can be used also in post-operative stricture after bariatric surgery [14].

To our best knowledge, no multicentric case-controlled studies have compared surgery and minimally invasive procedure in the treatment of bariatric surgery complications.

There are still some rooms for improvement and it is important to understand the surgical possibilities and the IR opportunities for complicated bariatric patients.

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