



# Small bowel obstruction secondary to adipose tissue herniation through gastric band tubing loop.

## An unusual case presentation



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### Small bowel obstruction secondary to adipose tissue herniation through gastric band tubing loop. An unusual case presentation.

**BACKGROUND:** Laparoscopic adjustable gastric band complications like oesophageal dilatation, intractable nausea and vomiting, band migration, late slippages, and port problems with a cumulative rate of 19.2%. Rarely, LAGB complications may be related to the connection tube system and in this case the clinical presentation and the effects of the problem can generate difficulties in diagnosis.

**METHODS:** A 47 years old woman who had a LAGB placed 2 years before the symptoms was admitted in our centre with nausea, vomit, leukocytosis and distended abdomen with a generalized tenderness. Computed tomography images showed an anomalous course of banding tube and a contemporary compression of a small bowel tract secondary to the traction exerted by an adipose tissue band attracted by the tube.

**Results:** A laparoscopic exploration of the abdominal cavity showed a tight loop of LAGB tubing causing a small bowel obstruction with an ischemic damage, so surgeons provided to LAGB removal and a 50 cm ileum resection

**CONCLUSIONS:** Small bowel obstruction resulting from LAGB tubing is an uncommon complication which was reported in few cases. Although bariatric surgery currently represents the best treatment option for morbid obesity and its related-diseases, peri- and post-operative complications have always to be taken into account.

**KEY WORDS:** Adjustable gastric band complications, Bariatric surgery, Bowel obstruction, CT scan, LAGB tube

### Introduction

Since its introduction in the early 1990s, laparoscopic adjustable gastric banding (LAGB) was considered an effective restrictive procedure for the treatment of morbid obesity and was the first bariatric technique

performed by laparoscopy. It was perceived as a safe, minimally invasive, fully reversible and adjustable procedure<sup>1,2</sup>.

Currently, LAGB has been abandoned in most bariatric centers, particularly for its poor results in the long-term follow-up and for the spectrum of its complications which varies from band slippage and pouch dilation to band degeneration and obstruction<sup>3,4</sup>.

The diagnosis of these complications is recognized by clinical history and standard investigations such as endoscopic and radiological exams. Rarely, LAGB complications may be related to the connection tube system and in this case the clinical presentation and the effects of the problem can generate difficulties in diagnosis.

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## Case Report

Here we present the case of a 47 years old woman who had a LAGB placed 2 years before the symptoms. She arrived in our Centre of Excellence for Bariatric Surgery at University "Federico II" of Naples (Italy) with abdominal pain started 5 days before, referring nausea and vomit. Laboratory tests demonstrated leukocytosis (white blood cell [WBC] = 20.000 cells/mm<sup>3</sup>) accompanied with neutrophilia and an elevated C-reactive protein (CRP) level. Clinical examination exposed a distended abdomen with a generalized tenderness. Given the typical clinical symptoms and signs suggestive of peritonitis and the history of gastric banding, a computed tomography (CT) was realized and images showed an anomalous course of banding tube and a contemporary compression of a small bowel tract secondary to the traction exerted by an adipose tissue band attracted by the tube placed in an anomalous location. (Fig. 1 A, B) CT also demonstrated an over-distension of the stomach and duodenum with a traction on the parietal peritoneum. (Fig. 1 C, D, E)

The subcutaneous port was deflated (7.0 mL filling volume) and removed with the patient under general anaesthesia; an urgent laparoscopic exploration showed a tight loop of LAGB tubing causing a small bowel obstruction with an ischemic damage, so surgeons provided to LAGB removal and a 50 cm ileum resection. The patient started a liquid oral intake on post-operative day (POD) 3, a solid diet on POD 5 and was discharged on POD 7.

## Discussion

The epidemic of obesity now affects the majority of

developed and developing countries and bariatric surgery has proven to be one of the most effective therapy for morbid obesity<sup>5,6</sup>.

LAGB was considered an effective treatment for morbid obesity, with a lower mortality rate in comparison with other bariatric procedures: this technique was favored by both patients and surgeons because of its advantages in terms of short hospital stay, its easily reversibility and because of it does not require significant surgical modifications of the gastrointestinal tract.

Despite that, LAGB is experiencing a loss in confidence from many surgeons for its high failure long-term rate so band removal is the most commonly performed revisional surgery. Causes for failed LAGB procedure include, primarily, inadequate weight loss (BMI>35 or %EWL<50%) but also complications like oesophageal dilatation, intractable nausea and vomiting, band migration, late slippages, and port problems which may lead a cumulative rate of complications of 19.2%<sup>7</sup>.

Complications may be classified as follow: band (intra-gastric migration or slippage), port (mechanical problems, infection) or tube complications (leakage) with an overall rate ranging between 4.3% and 24%<sup>8</sup>. Moreover, another insidious problem are deficiencies which may result in irreversible neurological problems<sup>9</sup>.

Today, more than 100,000 patients have undergone gastric banding around the world as first bariatric approach to morbid obesity but, despite this very large experience, small bowel obstruction resulting from LAGB tubing is an uncommon complication which was reported in few cases in current literature: Chittleborough et al<sup>10</sup> described a case of small bowel infarction after herniation through gastric band tubing loop which required LAGB removal and small bowel resection. Similarly, Hashemzadeh and colleagues<sup>11</sup> reported a case of the



Fig. 1: A) Scout-view: abnormal and elongated course of the band tube; B) compression of the jejunal loop secondary to traction exerted by an adipose tissue band attracted by the catheter; C, D) over-distension of the stomach and duodenum; E) traction on the parietal peritoneum.

connecting tube found to be looped around the mesentery and a loop of small bowel was incarcerated between the tube and the mesentery with a contemporary gastric perforation adjacent to the band.

Suter described an emergency laparoscopy for a 52-year-old woman with a LAGB placed for 2 years, which revealed that the port connection tube had formed dense adhesions to the jejunum causing an obstructive band<sup>12</sup>. Also Agahi demonstrated that connecting tube of the LAGB system was a main causative factor of the bowel obstruction in 56-year-old woman with a band placed 2 years before<sup>13</sup>. A recurrent small bowel obstruction caused by the LAGB connecting tube was described by Zappa et al<sup>14</sup> which found the tube producing the obstruction by rotating and angulating a jejunal loop with a recurrent volvulus. Finally, Blouhos<sup>15</sup> described a case of eroded band with contemporary eroded transverse colon from the connecting tube, a gastrocolic fistula along the course of the tube and a right lower quadrant phlegmon.

As suggested by our reported case, although bariatric surgery currently represents the best treatment option for morbid obesity and its related-diseases<sup>16</sup>, peri- and post-operative complications have always to be taken into account<sup>17</sup>. In these cases it is necessary to be able to correctly orient the diagnosis with clinical and radiological evaluation in order to plan the best therapeutic approach<sup>18</sup>. Some bariatric surgery complications have found resolution in the evolution of pre-operative prophylaxis protocols such as the use of antiplatelet drugs which were administrated as previously stated<sup>19 20</sup>; in some other cases surgical revision remains the only possible approach.

In conclusion, general practitioners and emergency departments must be aware of the management of reported symptoms in patients with LAGB and a consultation with specialist practitioner in bariatric surgery have to be requested to avoid delayed diagnosis.

## Riassunto

Al giorno d'oggi, il bendaggio gastrico regolabile laparoscopico (LAGB) sta assistendo ad un progressivo declino nella maggior parte dei centri di chirurgia bariatrica; questo è principalmente dovuto ai suoi scarsi risultati, nel follow-up a lungo termine, in termini di riduzione dell'Indice di massa corporea (IMC) e all'ampio spettro delle sue complicanze. Quello che viene presentato è un raro caso di complicanza da LAGB correlata al suo tubo di collegamento con il port di regolazione esterno; nel dettaglio, il decorso anomalo del catetere del dispositivo ha determinato una compressione di un'ansa digiunale per trazione esercitata da una banda di tessuto adiposo attratta dal catetere stesso.

La presentazione clinica e gli effetti delle complicanze legate al bendaggio gastrico possono generare difficoltà

nella diagnosi e nel trattamento; per tali motivi risulta fondamentale, quando le condizioni cliniche lo permettono e la diagnosi non sia chiara, richiedere l'intervento di uno specialista in chirurgia bariatrica.

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