

Abdominal tuberculosis after removal of an adjustable gastric band – report of an unusual case

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Videosurgery Miniinv 2017; 12 (2): 186–188
DOI: <https://doi.org/10.5114/wiitm.2017.67137>

Abstract

Laparoscopic adjustable gastric banding (LAGB) is the third most popular bariatric procedure. Despite its reversibility and minimal invasiveness, band infection affects 1.2% of patients. We present a case of a 25-year-old, obese woman who was experiencing malaise and feverishness 3 years after gastric band placement. Due to port site infection the port was removed, which did not improve the patient's condition. After 2 years the band was removed via laparotomy with a minor surgical site infection reported. The patient returned 2 weeks after discharge with signs of sepsis. After ruling out pulmonary causes, an exploratory laparotomy was performed, revealing granulomatous peritonitis. Standard histopathological examinations, broncho-alveolar lavage culture and DNA tests along with microbiological cultures were inconclusive. Broad-spectrum antibiotics and antifungal and antiparasitic agents did not improve the patient's condition. *Mycobacterium tuberculosis* DNA was discovered in a greater omentum specimen. The patient was treated with isoniazid, rifampicin, pyrazinamide and streptomycin for four months.

Key words: bariatric surgery, infection, tuberculosis, case report, laparoscopic adjustable gastric banding, gastric band.

Introduction

Laparoscopic adjustable gastric banding (LAGB) is one the most popular restrictive bariatric procedures. It is fairly uncomplicated, fast and – what is most important for patients – reversible. Its long-term effects, however, are broadly discussed among bariatric surgeons. Some authors, such as O'Brien *et al.*, state that this method is highly successful [1], whereas others question its long-term effects [2, 3]. Despite this discussion, approximately 23% of patients require band removal due to various complications [4, 5]. In 1.2% of cases, band infection is the reason [6]. It may be caused by surgical technique, implantation of a foreign body or frequent band ad-

justments requiring saline injections to the subcutaneous port. The pathogens are mainly *Escherichia coli* or staphylococci. A few authors have reported several cases of mycobacterial infections after gastric banding, mainly by common pathogens or water contaminants. Yet we did not find a single report describing primary abdominal tuberculosis associated with LAGB [7–9]. Some of the symptoms presented by our patient may have suggested the correct diagnosis. Rapid formation of peritoneal adhesions with elevated levels of CA-125 may suggest ovarian cancer, but are also frequent in peritoneal tuberculosis (TB) [10, 11]. Ascites culture is mentioned as a gold standard, yet based on our case and the literature it has positive results in only 20% of cases and takes

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several weeks to achieve [12]. The Ziehl-Neelsen stain result is positive in only 6% of cases. Although abdominal TB is the most common sign of extra-pulmonary infection, a chest radiograph reveals signs of TB in only 33% of cases. In our case the diagnosis was far more difficult because of the negative genetic test of ascites and positive only from the omental specimen.

Case report

A 25-year-old woman with obesity (body mass index (BMI) 40.1 kg/m², 158 cm, 100 kg) with a history of polycystic ovary syndrome, iodine allergy and gastritis was admitted in 2005 to receive the LAGB procedure. The band was placed laparoscopically via the *pars flaccida* technique. With an uneventful post-operative course the patient was discharged on the third day. After several months and numerous adjustments of the band the patient's weight dropped to only 95 kg. The patient reported occasional malaise, feverishness, and recurrent upper respiratory tract infections. In 2008 she was readmitted to the surgery department because of fever and signs of port site infection. The port was therefore removed and the patient was discharged after a day. Occasional malaise and feverishness appeared after a few months with unknown origin. In October 2010 a gastroscopy did not reveal signs of a functioning band or its erosion. In January 2011 the patient was readmitted to another surgical department with a suspicion that the band infection may be the cause of the patient's recurring symptoms. A laparoscopy with conversion to laparotomy was performed and the band was removed. Bacterial culture revealed an *E. coli* band infection and proper targeted antibiotics were administered. During the postoperative follow-up minimal surgical wound infection was reported. On the 8th day the patient was discharged. After 2 weeks the patient returned with hectic fever, elevated levels of white blood cell counts (WBC) and C-reactive protein (CRP). An abdominal computed tomography (CT) scan revealed peritoneal adhesions, abdominal and mediastinal lymphadenopathy, and left pleural effusion. Despite the broad-spectrum antibiotics (cilastatin and linezolid) administered, the patient's condition did not improve. A chest CT scan showed increased parenchymal density which may have suggested pneumonia. Therefore the patient was referred to the pulmonology department

for further investigation. Elevated levels of Ca-125 antigen, CRP, WBC, γ -glutamyltransferase (GGTP), D-dimer, procalcitonin, hypoalbuminemia and IgA deficiency were found. Bone marrow biopsy revealed only reactive changes due to infection. No parasite infection was confirmed. Broad-spectrum antibiotics and antifungal agents were continued without improvement. Due to IgA deficiency immunoglobulin therapy was administered. The patient was prepared for surgery because of sudden abdominal pain and signs of septic shock. Urgent laparotomy revealed massive peritoneal adhesions with moderate ascites, swabbed for culture. The parietal and visceral peritoneum along with the greater omentum was covered in small nodules. Liver, omental and peritoneal surgical biopsy was performed, suspecting malignant neoplasm. A histopathological examination of the specimen ruled out cancer or lymphoma, yet revealed chronic granulomatous inflammation. Ziehl-Neelsen stain was negative. After the surgery the patient was transferred to the intensive care unit. Bronchial lavage and peritoneal effusion were tested for *Mycobacterium tuberculosis* DNA and it came out negative. Suspecting atypical mycobacteriosis (yet with negative peritoneal effusion culture), ethambutol, clarithromycin and amikacin were introduced along with antifungal (posaconazole) and antiparasitic agents. Due to severe malnutrition, total parenteral nutrition was introduced. The patient's status stabilized along with CRP and WBC levels. Persisting fever was lowered after administering corticosteroids. Enteral nutrition was introduced with a good effect, allowing the patient's discharge. The postoperative specimen (omentum fragment) was tested further genetically, revealing *M. tuberculosis* DNA. Corticosteroids were immediately discontinued, and isoniazid, rifampicin, pyrazinamide and streptomycin were administered for 4 months. After completion of the therapy an abdominal CT scan did not show any pathological findings. The fever and malaise withdrew. Nowadays the patient does not present any symptoms.

Conclusions

Abdominal tubercular infection and sepsis following a surgical procedure is extremely rare. There are no reported cases of tuberculous peritonitis after a bariatric procedure. By presenting this case we want to share the diagnostic difficulties regarding

the patient. We would also like to underline that a granulomatous peritonitis with fast forming adhesions and ascites, elevated serum Ca-125 level and immunodeficiency should always arouse suspicion of *M. tuberculosis*. It is crucial especially in regions where major population migration occurs.

Conflict of interest

The authors declare no conflict of interest.

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Received: 4.10.2016, **accepted:** 18.03.2017.