Case Report

Intermittent Obstructive Jaundice following Gastric Band Placement

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Complications of laparoscopic adjustable gastric banding occur in 10 - 20% of patients. However, hepatobiliary complications of this procedure are very rare. We report a unique case of gastric band misplacement around the hepato-duodenal ligament. The patient developed obstructive jaundice several months after the gastric band placement and suffered recurrent episodes of obstructive jaundice and cholangitis that were initially erroneously attributed to fatty infiltration of the liver. Further diagnostic work-up demonstrated the presence of the gastric band in the hepatic hilum. Exploratory laparotomy confirmed the diagnosis, and the band was removed. Jaundice reversed and hepatic function was restored following removal of the occluding band.

Key words: Morbid obesity, bariatric surgery, laparoscopic gastric banding, obstructive jaundice, band misplacement complication

Introduction

Laparoscopic adjustable gastric banding (LAGB) is a well established bariatric procedure that is characterized by its safety, simplicity of performance and satisfactory long-term results.¹⁻³ Band-related complications such as band slippage, leak, intolerance, infection of the port-site, outlet obstruction, prolapse, erosion of the stomach and misplacement of the device are infrequently encountered, but may be potentially life-threatening and must be promptly addressed. In our report, a misplacement of an adjustable gastric band around the hepato-duodenal ligament is presented and the clinical manifestations, diagnosis and treatment are discussed.

Case Report

A 36-year-old male with weight 155 kg and height 180 cm (BMI 47.8 kg/m²) was initially admitted to another hospital with a diagnosis of morbid obesity in order to undergo LAGB. The patient had no major co-morbidities and no history of previous abdominal operations. According to the surgeon’s report, due to inadequate laparoscopic exposure, the procedure was converted to open and a gastric band was placed through a small supra-umbilical midline incision. The patient’s postoperative course was reported to be uncomplicated, and he was discharged on the second postoperative day.

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However, during the ensuing months, he experienced a rather unexpected postoperative course; his appetite, feeling of satiety, and weight were never influenced by the operation. Seven months later, the patient developed jaundice, itching, dark urine and fever up to 38.5°C, and was admitted to a second hospital with a diagnosis of acute cholangitis. The patient had no factors predisposing to liver disease (alcohol consumption, hepatotoxic medication, viral hepatitis, etc). On admission his liver function tests were abnormal: total bilirubin 23.9 mg/dL, conjugated bilirubin 19.2 mg/dl, alkaline phosphatase 219 U/L, γ-GT 92 U/L, ALT 86 U/L and AST 104 U/L. Abnormal laboratory values also included anisocytosis (MCV >100 fl, RDW 16.2%), INR 1.25, ESR 68 mm, albumin 2.7 g/dl and a CA 19-9 of 228.2 U/ml. Tests for HAV, HBV, HCV and autoantibodies (SMA, AMA, ANA, LKM1&2) were negative. His total cholesterol was 224 mg/dl and triglycerides 629 mg/dl. After his admission, the balloon of the gastric band was deflated. Ultrasound of the liver and abdominal computed tomography demonstrated a fatty liver, without dilatation of intraduodenal bile ducts and no evidence of cholelithiasis. The gastric band was identified out of place, in the pyloric region. Gastroscopy showed narrowing of the first portion of duodenum from external pressure and multiple linear ulcers with a normal ampulla. An endoscopic ultrasound confirmed the absence of dilatation of the biliary tree (CBD <0.4 cm), revealed a 2.4-cm lymph node in the hepatic hilum, and described a normal papilla of Vater. No stones or other intra-ductal lesions could be detected. Finally, liver biopsy showed microvesicular steatosis and cholestasis. According to the laboratory and imaging work-up described, an initial diagnosis of fatty infiltration of the liver was made. The patient was treated with broad-spectrum antibiotics and after 10 days his cholestatic syndrome resolved, and all his laboratory values returned to normal.

During the following 4 months, the patient experienced two more similar episodes of cholangitis which were treated with antibiotics. During those episodes, he consulted several hepatologists and surgeons, some of whom recommended removal of the gastric band – an operation that the patient initially refused. The patient was then referred to our hepatobiliary department for further evaluation and treatment.

On admission, the patient had elevated AST (350 IU/L), ALT (196 IU/L), bilirubin (total 4.2 mg/dL, conjugated bilirubin 3.2 mg/dL), alkaline phosphatase 328 U/L and γ-GT 593 U/L. Our imaging investigation consisted of a new abdominal CT scan, in which the gastric band was clearly demonstrated to reside in the hepatic hilum causing mild stenosis of the portal vein and entrapment of the common bile duct (Figures 1 and 2), a finding that was confirmed by magnetic resonance imaging of the upper abdomen.

With a diagnosis of a misplaced gastric band occluding the hepato-duodenal ligament, we proceeded with an exploratory laparotomy through a midline incision. Re-laparotomy findings were remarkable: the liver had a cholestatic appearance and the gastric band was found to completely encircle the hepato-duodenal ligament, causing partial obstruction of the portal vein and common bile duct, while hepatic artery pulses were poorly detected. Inflammatory adhesions of the “ring” to the ligament were dissected, and the gastric band was transected and removed. Following removal of the band, normal flow in the portal vein and hepatic artery was restored and confirmed with intraoperative Doppler ultrasonography. No other liver or biliary lesions were detected.

The patient’s postoperative course was uneventful, and all liver function tests returned to normal within the first month. During the following 6

![Figure 1. CT scanogram showing the gastric band in abnormal location.](image-url)
months, the patient has remained symptom-free with normal liver biochemistry apart from mild elevation of AST and ALT, and resumed his efforts to reduce his weight with diet.

Discussion

In recent years, LAGB has emerged as an effective bariatric operation with better results and fewer side-effects compared to other restrictive procedures such as vertical banded gastroplasty. However, some serious LAGB-related complications have been reported. Band-related complications occur in 10-20% of the patients and include gastric prolapse (5%), gastric pouch dilatation (6.6%), erosion of the band (0.3%) and migration into the stomach (1%), leaks from the band, port or connecting system, gastric perforation, intolerance, port-site infection or hemorrhage (3%) and insufficient weight loss. Rarer complications have been published and include detachment of the connecting tube from the port and migration of this tube into the jejunal wall, as well as penetration of the tube into the colon. Introduction of the pars flaccida technique yielded prolapse rates <5%, erosions in <1%, port-related complications in 2-6% and band removal in <3% of patients. Even in studies with long-term follow-up, very few hepatobiliary complications of bariatric procedures have been reported, the most serious being postoperative portal vein thrombosis – a lethal complication usually associated with intraoperative injury and repair of the portal vein. Only one case of postoperative portal vein thrombosis has been reported in association with LAGB. In another case report, septic thrombophlebitis of the portal vein and multiple liver abscesses were induced by intragastric migration of an adjustable gastric band.

Partial occlusion of the hepato-duodenal ligament by a gastric band has not been previously reported. Migration of a tightly locked band to this position seems impossible. We therefore speculate that this life-threatening complication resulted from failure of the initial surgical technique. It is possible that the small midline incision by which the initial laparoscopic operation was converted, could not provide adequate exposure for a safe band placement. “Blind” insertion of the band may have resulted in misplacement around the hepato-duodenal pedicle instead of the gastroesophageal junction. The clinical picture of intermittent obstructive jaundice and cholangitis can be explained by the pressure exerted on the bile duct by the band. Deflation of the gastric band during the patient’s hospitalization partially reversed the obstruction. However, the chronic presence of the band and the resulting inflammatory reaction around the portal structures re-established the patient’s obstructive symptoms.

In conclusion, the analysis of this unique case of gastric band misplacement around the hepato-duodenal ligament highlights the importance of ade-
quate exposure for the safe performance of bariatric surgery either via a laparoscopic or an open approach. It also shows that LAGB can be a technically demanding procedure that requires training and the surgeon’s commitment to bariatric surgical practice, in order to achieve improved results and avoid serious complications.

References


(Received August 17, 2006; accepted September 28, 2006)