Respiratory Medicine (2012) 106, 1192–1198

Available online at www.sciencedirect.com

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Major respiratory adverse events after laparascopic gastric banding surgery for morbid obesity

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Received 8 November 2011; accepted 10 May 2012
Available online 5 June 2012

KEYWORDS
Obesity;
Bariatric surgery;
Pulmonary complications;
Aspiration pneumonia;
Chronic cough;
Gastro-esophageal reflux

Summary
Background: Laparoscopic adjustable gastric banding surgery has become one of the most common restrictive surgical procedures for treatment of morbid obesity worldwide. Although short-term respiratory complications are well known, long-term data is scarce. We investigated the manifestations of major pulmonary complications showed at least six months after the procedure.
Methods: A retrospective cohort study was conducted at a tertiary university medical center in the five years period of 2006–2010. We included every patient who had had major respiratory complication who needed hospitalization, at least 6 months after laparoscopic adjustable gastric banding procedure. Demographic, pre-operative and post-operative clinical data were collected. We documented respiratory symptoms, results of physical examination, pulmonary function tests, and imaging as well as therapies given and outcome.
Results: Out of 2100 patients who underwent LAGB, thirty subjects, mean age of 45.7 (range 29–64) with an equal number of males and females were included. Mean interval between operation and onset of respiratory symptoms was 51.5 months (range 10–150 months). All had dyspeptic complaints which included: regurgitation, fullness after meals, dysphagia and food aspiration with esophageal dilatation. Major respiratory complications included aspiration

Abbreviations: LAGB, Laparscopic Adjustable Gastric Banding; GB, Gastric Banding; AP, Aspiration Pneumonia; ILD, Interstitial Lung Disease; CT, Computerized Tomography; ARDS, Acute Respiratory Distress Syndrome; PFT, Pulmonary Function Tests; OSA, Obstructive sleep apnea.

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0954-6111/$ - see front matter
doi:10.1016/j.rmed.2012.05.002

pneumonia (19) including pulmonary abscess (4) and empyema (2), exacerbation of asthma (3) and hemoptysis (1). Additionally we documented the emergence of chronic diseases such as interstitial lung disease (5) and bronchiectasis (3). One patient developed acute respiratory distress syndrome due to aspiration pneumonia and eventually died in the intensive care unit. The main mode of therapy was deflation of the gastric band. Those who refused to deflate or remove the gastric banding continued to suffer from dyspeptic and respiratory symptoms including recurrent pulmonary abscess.

Conclusion: Although laparoscopic adjustable gastric banding surgery has few short-term risks and is highly effective at achieving weight reduction, we found an increased risk for major respiratory complications in the long-term period. The obesity epidemic and the increased use of surgical techniques to treat obesity will most likely lead to an increase in the incidence of long-term post-operative respiratory complications. This entity is probably under-reported and needs further research into how to reduce its incidence and morbidity.

Introduction

Obesity and morbid obesity have become major health problems and are being recognized as global epidemics.[1] Severe obesity is a biological, psychological and social problem and the co-morbid conditions associated with obesity are life-threatening. Diabetes, arterial hypertension, obstructive sleep apnea, hypoventilation syndrome with respiratory failure, heart and joint problems — all increase in incidence with excessive weight. Primary prevention and the conventional treatment approaches of dietary restriction, exercise programs, and new pharmacological therapies - are almost always ineffective at achieving substantial long-term weight loss in the primary care setting. Therefore, surgical techniques are become increasingly accepted. Bariatric surgeries have been evolving over the past 50 years and since the introduction of laparoscopic bariatric surgery, they have been proven safe and effective with less complications, costs and pain than the existing open techniques.[2–5] Laparoscopic adjustable gastric banding (LAGB) has become the most widely used surgical procedure for treating morbid obesity in Europe, Australia and South America. While there is now abundant published literature describing the short complications of open and close surgical techniques, reports of long-term complications, and specifically respiratory complications, remain relatively scarce. This lack of data is surprising since follow-up studies have demonstrated a high incidence of late esophageal complications such as esophagitis, esophageal dilatation and esophageal obstruction.[6,7] Esophageal changes are well known to be associated with pulmonary sequelae, such as recurrent pulmonary infections, hemoptysis, bronchiectasis and fibrosis, but their association with LAGB is still not well described.[8] We sought to investigate late major pulmonary complications after LAGB in order to highlight the association between these two conditions.

Methods

Setup

This study was conducted at the internal medicine division and in the pulmonary clinic of the Soroka University Medical Center, which is the only hospital in southern Israel. The study was approved by the institutional ethics committee (REB number 10376). During the study period there were around 400 LAGB surgical procedures per year. Due to the fact that our hospital is the only medical center in southern Israel and the Negev area — all admissions and all pulmonary complications were documented. Therefore we were able to calculate the incidence of these events.

Data collection

We used electronic documentation from the hospital computerized record system and hard data from the outpatient surgery and pulmonary clinic charts. The results of the radiologic investigations were obtained from the radiology department. Demographic, pre-operative and post-operative clinical data were collected, including weight before and after surgery and any short-term complications. Documentation of respiratory events included — symptoms, results of physical examination, pulmonary function tests, and imaging as well as therapies given and outcome.

Study population

Two-thousands and one hundred patients underwent LAGB between January 2006 and December 2010. Thirty were hospitalized due to major pulmonary acute complications. All had their surgical procedure done at least six months before the acute event.

Definitions

Major pulmonary complications were defined as life threatening events or situations that caused significant respiratory impairment. In order to avoid short term adverse events, we defined long term as complication that emerged at least six months post surgery.

Results

Clinical background

All 30 patients were operated upon in Soroka University Medical Center. Patient' demographics, co-morbidities and