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Original contribution

Outpatient laparoscopic sleeve gastrectomy: first 100 cases☆,☆☆

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Abstract
Study objective: The development of outpatient surgery was one of the major goals of public health policy in 2010. The purpose of this observational prospective study was to evaluate the feasibility of laparoscopic sleeve gastrectomy (SG) in an ambulatory setting.
Design: Study design was a prospective prospective observational, nonrandomized study, registered (ClinicalTrials.gov identifier: NCT01513005), with institutional review board approval and written informed consent.
Setting: Amiens University Medical Center.
Patients: Patients undergoing SG who were preselected by inclusion ambulatory criteria.
Interventions: All patients operated on for obesity by laparoscopic SG, from May 2011 through July 2013.
Measurements: We collected outcomes data on 100 patients including incidence of postoperative nausea and vomiting, maximum and average pain scores, and the overall satisfaction rate.
Main results: Of the 100 obese patients, 93% were women. The mean age was 36 years (22-55 years). The mean preoperative body mass index was 42.4 kg/m^2. The mean operating time was 60 minutes (range, 30-95 minutes). The overall satisfaction rate was 93% (n = 93). When leaving the postoperative care unit, 94% of patients felt no or mild pain. Eighty-two percent had no postoperative postoperative nausea and vomiting, and 7 patients needed treatment using ondasetron.
Conclusions: Laparoscopic SG in an ambulatory setting is feasible with a dedicated anesthesiological approach and an expert surgical team. Appropriate patient selection is important for ensuring safety and quality of care within the outpatient program.

1. Introduction

Obesity is a metabolic disorder that is on the rise worldwide as well as in France [1]. There is a directly proportional relationship between excessive weight and morbidity-mortality

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linked to cardiovascular disease, diabetes, obstructive sleep apnea (OSA) syndrome, and some types of cancer [2,3]. The relation between weight loss and reduction of these complications is well demonstrated. Bariatric surgery increases life expectancy by correcting the comorbidities associated with obesity [4], improves quality of life [5], and is associated with reduced morbidity and mortality [6].

With the use of ambulatory anesthesia, the patient stays less than 12 hours in the care facility before he or she returns home [7]. The reasons for developing ambulatory surgery are that it allows one to reduce hospital costs, enables staff to devote more time to hospitalized patients requiring more demanding care, and reduces the incidence of nosocomial infection.

Bariatric ambulatory surgery was initially performed in cases of gastric banding [8,9]. Among bariatric procedures, sleeve gastrectomy (SG) has become very popular due to its relatively short and simple procedure, with a mean operating time of 100 minutes [10–13] and low postoperative complication rates [14]. We think that this type of surgical procedure responds to all the criteria necessary for ambulatory care. The purpose of this prospective observational single-center study was to evaluate the feasibility of laparoscopic SG in an ambulatory care setting.

2. Methods

This was a prospective, nonrandomized study of a group of patients undergoing day-case SG from May 2011 through July 2013. The study was part of a local research protocol registered as "Feasibility of Laparoscopic Sleeve Gastrectomy in Day Case Surgery (GASTRAMBU)" (ClinicalTrials.gov identifier: NCT01513005). The study was approved by the local investigational review board (*Comité de Protection des Personnes Nord Ouest II*). During a preoperative consultation, patients were given a study information sheet and a drug prescription for the days after surgery. All patients provided their informed, written consent to participate in the study.

The indication for bariatric surgery was confirmed in accordance with French national guidelines and the conclusions of a multidisciplinary obesity staff meeting [15]. All patients attended a surgical as well as a nutritional and dietary consultation and underwent pulmonary, endocrine, and psychological assessments.

2.1. Inclusion and exclusion criteria for ambulatory SG

The inclusion criteria were body mass index (BMI) between 35 and 60 kg/m^2, the absence of a relevant medical history (cardiovascular and/or pulmonary diseases, no previous history of abdominal surgery), and approval by a multidisciplinary obesity staff meeting [15], being considered a treatment-compliant patient aged between 18 and 60 years living within an hour's drive of a hospital and with an on-site support person available for the night after surgery, access to a telephone, and an American Society of Anesthesiologists score of II or III stabilized [16]. Patients were excluded if they had heart disease (history of myocardial infarction, heart rhythm disorder) or OSA syndrome, poorly controlled diabetes, a prisoner, or were thought to be poorly compliant [17].

2.2. Preoperative management

The first step was surgical consultation where the indication for bariatric surgery in an ambulatory setting was decided. The second step was to evaluate the feasibility of an ambulatory anesthesia during the preanesthetic consultation.

During the preoperative surgical consultation, patients were given a drug prescription for the days after surgery. The prescription was for oral analgesics (acetaminophen, 1 g, QID, and tramadol, 100 mg, TID), an antiemetic (metoclopramide 10 mg, PO, TID) and an anticoagulant (subcutaneous enoxaparin, 40 IU, BID, for 10 days, in accordance with French national guidelines [18]), and a proton pump inhibitor (omeprazole 40 mg, PO, QD).

The patient was reminded of the instructions (preparation for the surgery) by a phone call the night before the surgery. On the day of surgery, the patients were prepared by the nurse in the ambulatory surgical unit at 7:15 AM, and the induction of anesthesia began at 8:00 AM.

2.3. Surgical procedure

All surgeries were performed by the same surgical team that specialized in bariatric surgery. A laparoscopic SG using the technique described by Dhahri et al [19] using an open celioscopy technique for obese patients [20]. Before deflation of the pneumoperitoneum, the surgeon used a catheter to instill 20 mL of ropivacaine (2 mg/mL) under the left and right diaphragmatic domes. During wound closure, an infiltration of the trocar openings with 20 mL of ropivacaine (7.5 mg/mL) was done. The nasogastric tube was removed at the end of the surgery, and there were no drains left in the abdominal cavity.

2.4. Anesthesia protocol

The anesthesia protocol was a specific standardized protocol for ambulatory SG surgery. All patients received treatment with cimetidine (400 mg), and premedication with hydroxyzine (1.5 mg/kg) was done 30 minutes before anesthesia for anxious patients. Compression stockings were put on the patient the night before surgery.

In the operating room, pressure points were verified and secured during the positioning, and antibiotic prophylaxis with cefazoline (4 g) was done followed by 5 minutes of preoxygenation at 100% oxygen concentration in a head-up position. General anesthesia was induced with propofol (2.5 mg/kg), sufentanil (0.5 μg/kg), and rocuronium (1 mg/kg) to facilitate tracheal intubation. Anesthesia was