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Original article

Worthy or not? Six-year experience of revisional bariatric surgery from an Asian center of excellence

Anirudh Vij, M.D.[a], Kirubakaran Malapan, M.D.[a], Ching-Chung Tsai, M.D.[b], Kuo-Chung Hung, M.D.[c], Po-Chi Chang, M.D.[a,d], Chih-Kun Huang, M.D.[a,d,*]

[a]*Bariatric and Metabolic International Surgery Centre, E-Da Hospital, Taiwan, Republic of China*
[b]*Department of Pediatrics, E-Da Hospital, Taiwan, Republic of China*
[c]*Department of Anesthesia, E-Da Hospital, Taiwan, Republic of China*
[d]*Department of General Surgery, E-Da Hospital, Taiwan, Republic of China*

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Abstract

Background: Revisional bariatric surgery (RBS) is increasing. The various primary operations with their distinctive complications make this group of patients quite heterogeneous, and treatment has to be individualized. There are concerns regarding the safety profile and efficacy of these procedures. The objective of the present study was to analyze the indications, safety, and efficacy of RBS at a high-volume Asian center and provide insight into the different treatment options.

Methods: Of a total of 1578 bariatric surgeries from July 2006 to June 2012, 52 patients underwent revisional bariatric procedures. The primary operations included 6 different procedures. The indications for surgery were grouped into weight loss failure (n = 21) or complications related to the primary operation (n = 31). The revisional operations performed were conversion to another procedure (n = 22), revision of existing anatomy (n = 29), or reversal to normal anatomy (n = 1).

Results: 96% of revisional surgeries were performed laparoscopically. The median operating time was 72 minutes (25–240 min), and the median duration of hospital stay was 4 days (3–25 d). The mean body mass index for weight loss failure decreased significantly from 36.3 to 29.6 kg/m^2 after 1 year of revisional surgery ($P < .01$). However, revision of RYGB was only associated with a body mass index loss of 3.2 kg/m^2 and percentage of excess weight loss of 31.8%. More than 90% of the patients with complications had complete resolution of their preoperative symptoms. There were 3 major complications with an overall morbidity rate of 5.8%. There was no mortality.

Conclusions: RBS is well-tolerated, with satisfactory early outcomes, in high-volume centers. However, larger studies with longer follow-up periods are needed to determine the long-term efficacy of these procedures. (Surg Obes Relat Dis 2015;11:612–620.) © 2015 Published by Elsevier Inc. on behalf of American Society for Metabolic and Bariatric Surgery.

Keywords: Revisional surgery; Bariatric; Morbid obesity

There is a global pandemic of obesity [1]. Bariatric surgery has proved to be the most effective treatment for clinically severe obesity and its associated co-morbidities [2]. The number of bariatric surgeries has increased almost 10-fold over the past decade in the Asia Pacific region because of the increased demand and acceptance of these procedures [3].

Most primary bariatric surgeries (PBS) are successful. However, a revisional surgery rate of 5%–50%, depending

*Correspondence: Chih Kun Huang, M.D., No.1, Yida Road, Jiaosu Village, Yanchao District, Kaohsiung City, Taiwan 82445 Republic of China.
E-mail: dr.ckhuang@hotmail.com

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on the primary procedure performed, has been described in the literature [4]. Weight loss failure (WLF) is a common indication for revisional surgery, which is often observed for all procedures [5]. Patients may also require revision for complications unique to the initial surgery. For instance, band and port site–related problems are often observed after laparoscopic adjustable gastric banding (LAGB), whereas reflux, staple line dehiscence, and stomal stenosis are common after vertical banded gastroplasty (VBG) [6,7]. Laparoscopic sleeve gastrectomy (LSG) may lead to gastrointestinal reflux disease (GERD) and stricture [8,9], whereas complications of gastrojejunal anastomosis are commonly observed after laparoscopic Roux-en-Y gastric bypass (LRYGB) [10–12]. With the increased number of bariatric surgeries, surgeons in Asia are increasingly encountering such problems.

Because this is a heterogeneous population, it is appropriate to mention that their treatment has to be individualized. WLF or complications related to restrictive procedures have had good outcomes after conversion to RYGB [13] or biliopancreatic diversion with duodenal switch (BPD-DS) [14]. Other studies have described band replacement in cases of band/port site complications after LAGB or resleeving for weight regain after LSG [15]. Anastomotic complications after RYGB may require revision of gastrojejunostomy, whereas WLF may be addressed by either augmenting restriction by pouch/stoma reduction or increasing malabsorption with limb lengthening [16–18].

The dense adhesions, scarring, and ischemic tissues that result from multiple stapler lines make revisional bariatric surgery (RBS) technically challenging and increase patients' predisposition to complications; the outcomes of RBS are generally inferior to those of PBS [4–7]. The objective of the present study was to analyze the indications, safety profile, and efficacy of RBS performed over the past 6 years at an Asian center of excellence to provide an insight into the different treatment options.

Methods

The bariatric surgery database at the authors' institution was retrospectively reviewed. A period of 6 years spanning July 2006 to June 2012 was chosen for the analysis. The indications for PBS were based on the Asian Pacific Bariatric Surgery Society Guidelines: BMI >32 kg/m^2 with associated co-morbidity and BMI >37 kg/m^2 with or without co-morbidities. The preoperative workup included assessment of psychiatric condition, diet, percentage of excess weight loss (%EWL), nutritional deficiencies and changes in anatomy by upper gastrointestinal (UGI) endoscopy, diatrizoic acid (Gastrografin) study, and computed tomography (CT) of the abdomen, as required. Adhesions encountered during surgery were tackled by sharp dissection with scissors and electrocautery hook. Stapling was usually done using green loads (Covidien–Endo GIA; staple height 4.8 mm) and, more recently, black cartridges (staple height 5 mm) to minimize the incidence of leak in the thickened tissues. Drainage tubes were usually used, and a Gastrografin study was not routinely performed after surgery.

Particular mention is made of the surgical technique for 2 patients with intractable anemia after primary RYGB who were converted to sleeve gastrectomy. This was a complex procedure performed by first disconnecting the roux limb from the gastric pouch by linear stapler. The previous jejunojejunal anastomosis was taken down, followed by a side-to-side anastomosis between the biliopancreatic and alimentary limbs, restoring intestinal continuity. This was followed by gastrolysis of the remnant stomach and a sleeve gastrectomy over a 36F bougie. Lastly, a hand-sewn gastrogastric anastomosis was completed between the gastric pouch and the newly created sleeve of stomach.

The patient data included demographic characteristics and investigations, operative parameters, postoperative events, and overall outcomes including weight loss and resolution of complications. The %EWL was calculated with the standard formula, using an ideal BMI equal to 22 kg/m^2 as per Asian standards. The patients undergoing RBS were grouped by surgical indication into 2 groups: (1) weight loss failure (WLF), defined as excess weight loss (EWL) of $<50\%$ at 2 years or weight gain $>15\%$ from baseline after PBS; and (2) complications, defined as those causing chronic intractable (but not life-threatening) symptoms not amenable to medical management and impairing the patient's quality of life.

Only those patients with a follow-up period of >6 months after RBS were included for analysis. Patients who underwent emergency reoperation for life-threatening complications, such as leaks, abscesses, perforation, or hemorrhage, and patients who underwent reoperation for internal/incisional hernias after PBS were excluded from the study.

Statistical methods

Patient data were entered into the BMI Surgery Centre Clinical database, which is a customized computer database (built using Access [Microsoft Inc., Redmond, WA]). Descriptive results for continuous variables are presented as mean $\pm$ standard deviation. The categorical data are presented as counts and percentages.

Results

A total of 1578 PBS, including restrictive and combined procedures, were performed at the authors' center during the 6-year study period. Fifty-two RBS patients were identified, 43 of whom had undergone PBS at the authors' center and 9 of whom were referrals from outside hospitals. The primary surgeries performed were RYGB (n = 25), SG