

Original article

# Fifty consecutive patients with the GaBP ring system used in the banded gastric bypass operation for obesity with follow up of at least 1 year

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**Abstract**

**Background:** The premanufactured GaBP ring system can be used in the banded gastric bypass operation instead of a surgeon-fashioned ring or band in current use.

**Methods:** The GaBP ring system was used in 50 consecutive patients, and the outcomes were reviewed after 1 year of follow-up. Data were kept prospectively.

**Results:** The GaBP ring system was used in 50 patients undergoing gastric bypass surgery, 9 with an open procedure and 41 with a laparoscopic approach. Placement took an average of < 5 minutes, and there were no GaBP ring system-related complications at the 1-year follow-up. The outcomes in terms of weight loss and resolution of comorbidities are similar to those previously reported for banded gastric bypass.

**Conclusion:** The GaBP ring system provides a premanufactured standardized ring for use in the banded gastric bypass operation. © 2005 American Society for Bariatric Surgery. All rights reserved.

**Keywords:**

Banded gastric bypass; GaBP ring system; Surgeon-fashioned ring or band

The banded gastric bypass (BGBP) operation for obesity is a serendipitous evolution from the Mason gastric bypass (GBP) and vertical banded gastroplasty (VBG) operations [1,2]. Between 1983 and 1989, numerous failed VBG and silastic ring-banded gastroplasty (SRVG) operations that were anatomically intact were converted to GBP with the gastroenterostomy distal to the band because it was unsafe to remove the Marlex mesh band [3]. Leaving the band above the gastroenterostomy was observed to provide better and more sustained weight loss in more patients than had been observed with either the primary GBP or VBG operation [4–7]. This prompted the performance of the first primary stapled BGBP operation in 1989 [8]. This was modified

to the transected BGBP with a temporary gastrostomy tube (GTT) and a GTT site marker, commonly called simply BGBP (Fig. 1) [9,10]. The band used in this operation (6.0 to 7.0 cm) is longer than that used in the gastroplasty operation (4.2 to 5 cm) and thus provides for larger stomas and less solid food intolerance than in the gastroplasty operation.

The bands or rings used in these operations are typically fashioned by surgeons from various materials (e.g., linea alba, fascia lata, Gore-Tex, Marlex, Silastic tubing, porcine and bovine grafts). Silastic ring tubing is the most commonly used material [11].

The GaBP ring system is a premanufactured set consisting of a prosthetic auto-locking band (GaBP ring) and a radiopaque marker (gastrostomy site marker) that can be used instead of surgeon-fashioned bands or rings (Figs. 2–4). The radiopaque GaBP ring is made from implant-grade silicone rubber. The ends of the band have a plastic one-way locking mechanism, with a removable disposable GaBP ring intro-

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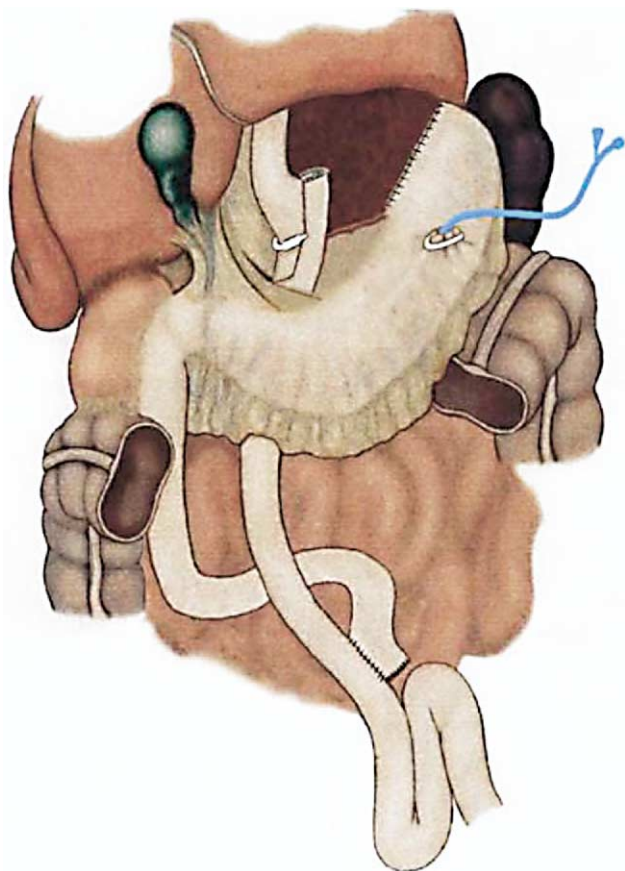


Fig. 1. The BGBP operation.

ducer component affixed to the female end of the locking mechanism and a disposable protective latch cover over the prongs of the male end [12]. The band can be placed in both open and laparoscopic operations.

A premanufactured band provides for better standardization and quality control than surgeon-fashioned bands or rings. Fifty consecutive patients who have had this system implanted and have been followed for at least 1 year are presented and discussed in terms of ease of placement, complications, and long-term outcome.

## Methods

Candidates for weight loss surgery who meet the appropriate criteria for the surgery are evaluated by a multidisciplinary team and offered a BGBP operation (Fig. 1), either open or laparoscopic. (If the patient does not have a particular preference, the surgeon chooses the technique.) The preoperative evaluation includes blood chemistries, radiologic evaluation, and other tests deemed necessary by the surgeon and consultants. The patient is informed as to the operation, the use of a ring, and the possible outcome and complications. Use of both the customary surgeon-fashioned ring and the GaBP ring system has institutional review board approval.

The patient is admitted the morning of the operation and is usually hospitalized for 2 to 4 days. After discharge, the patient is seen at 10 days, 6 weeks, 3 months, 6 months, 12 months, 18 months, 24 months, and yearly thereafter. Follow-up is by office visits, phone contacts, reports from patient physician, and mail or Internet communication. Data on the patients are collected during these contacts.

Data have been kept prospectively on all patients who undergo BGBP using the GaBP ring system. We reviewed data for 50 consecutive patients who had the operation between April 1, 2003 and July 5, 2004 with at least 1 year of follow-up. These data included age, sex, race, weight, height, body mass index, comorbid conditions, type of approach, open versus laparoscopic procedure, intraoperative problems, early and late postoperative complications, GaBP ring system-related problems, weight loss outcome, and resolution of comorbid conditions.

## Results

Fifty patients underwent BGBP using the GaBP ring system between April 1, 2003 and July 5, 2005. There has been 100% follow-up of all 50 patients. Seven patients have had a 2-year follow-up, 16 have had an 18-month follow-up, and all 50 have had a 1-year follow-up. Nine cases (18%) were done with an open technique, and 41 cases (82%) were done with a laparoscopic technique. The 50 patients comprised 11 (22%) men and 39 (78%) women ranging in age from 16 to 68 years (average age, 40 years). The initial weight ranged from 202 to 509 lb (91.4 to 230.3 kg), with an average of 301.6 lb (137.1 kg), and initial body mass index (BMI) ranged from 35.27 to 82.18 kg/m<sup>2</sup>, with an average of 47.34 kg/m<sup>2</sup>. Preoperative comorbidities in-

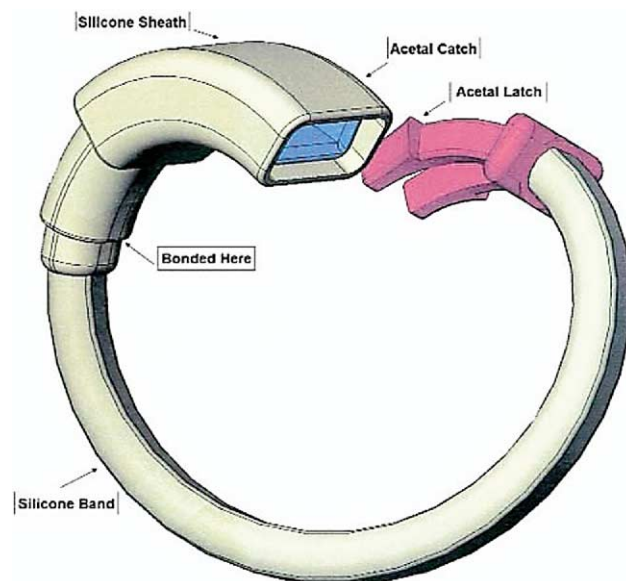


Fig. 2. The GaBP ring auto-lock.

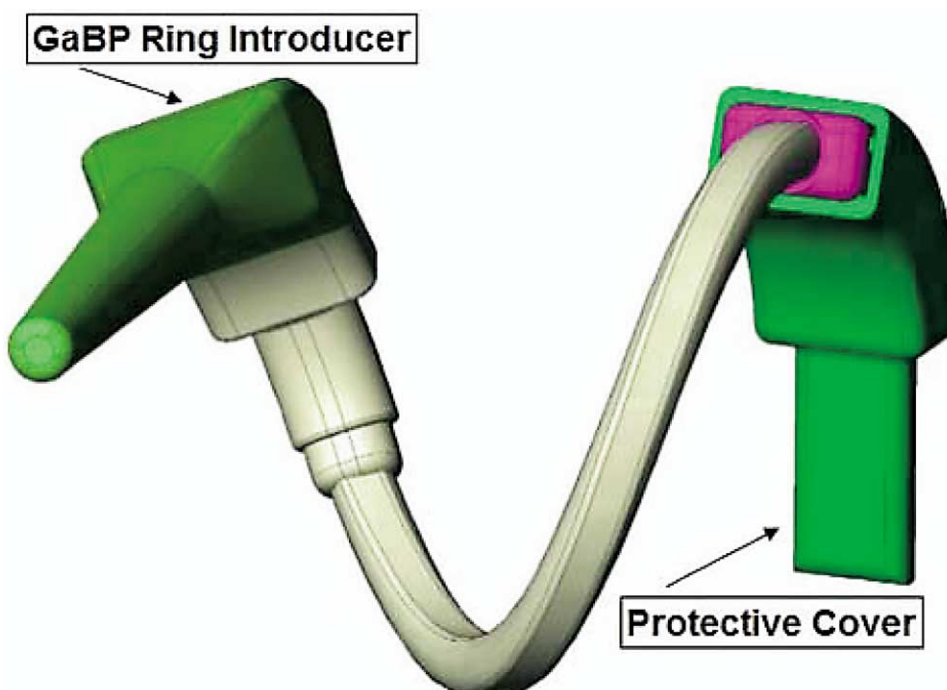


Fig. 3. The GaBP ring.

cluded diabetes in 12 cases, sleep apnea in 18 cases, hypertension in 18 cases, gastroesophageal reflux disease in 25 cases, and arthritis of the weight-bearing joints in 30 cases. Forty patients (80%) had undergone a previous non-weight-loss surgical procedure. Concurrent operations included five cholecystectomies, four panniculectomies, and one incisional hernia repair.

The time for GaBP ring placement (i.e., time from introduction into the peritoneal cavity to locking the device) ranged from 2 to 5 minutes in the open cases (average, 3 minutes) and from 3 to 11 minutes in the laparoscopy cases

(average, 5.6 minutes). In two laparoscopic cases the introducer separated prematurely as the GaBP ring was passed through the lesser omentum, necessitating the use of another GaBP ring. All patients had a contrast X-ray study of the pouch and outlet performed before hospital discharge.

Three patients had postoperative leaks, two at the staple line and one at the gastroenterostomy anastomosis. Two of these patients needed reoperation, and one was treated non-surgically (because of a drain that decompressed the leak spontaneously). The GaBP ring was removed in one of the cases with a leak due to gross contamination by the leak. One of the patients with a leak went home on the fifth postoperative day, and the other two went home on the seventh postoperative day with gastrostomy tube feedings. One patient had a deep venous thrombosis (DVT) 5 days after discharge from the hospital and was admitted to another facility for 5 days. The hospital stay ranged from 3 to 7 days (average, 3.38 days), 3 to 7 days in the laparoscopic cases (average 3.1 days) and 4 to 5 days in the open cases (average, 4.2 days). Three patients required endoscopic dilatation for outlet stenosis distal to the ring, one early and two late. The patient with the early stenosis had a complication with jejunal perforation at the time of dilatation, requiring an open repair of the jejunal perforation. Her subsequent recovery was uneventful. This patient and the patient with DVT were the only ones readmitted in this series.

The average percentage excess weight loss (%EWL) was 74.98% at 12 months, 83.94% at 18 months, and 78.69% at



Fig. 4. The gastrostomy site marker.

24 months. Only two patients (with %EWLs of 43.95% and 46.99%) (4%) had < 50% EWL at the 1-year follow-up. At 1 year there was resolution of diabetes in 11 of 12 patients (92%) (with improvement in the remaining patient); resolution of sleep apnea in 15 of 18 (83.3%); resolution of hypertension in 11 of 20 (55%), with improvement in 6 (30%) and no change in 3 (15%); resolution of gastroesophageal reflux disease in 18 of 25 (72%); and resolution of arthritis in 24 of 30 (80%). Fifteen patients have had X-ray evaluation to evaluate the pouch and outlet at the 1-year follow-up. The radiopacity of the ring and the marker was confirmed in all of the postoperative x-rays. There has been no mortality in this series.

## Discussion

This study corroborates the outcome of more weight loss in more patients, obese, superobese, young, and old, after banded gastric bypass operations for obesity using “surgeon-fashioned” rings or bands [5,6,10–12]. The patient characteristics in this study are similar to those reported in other series. The hospital stay, perioperative complications, and late complications are within the ranges reported in other series. The only problem related to the GaBP ring system has been premature separation of the introducer from the GaBP ring in the passage through the lesser omentum, necessitating the use of another GaBP ring. There have been no cases of either ring erosion or ring migration. The amelioration of comorbidities is similar to what has been reported in other series of weight loss operations [5,6,10,13–17].

Subjectively, the auto-locking GaBP ring system makes banding the gastric bypass operation and placing the marker easier, faster, and more standardized. Consequently, it is recommended over surgeon-fashioned rings or bands used in gastroplasty and gastric bypass operations.

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