

A Staged Approach to Gastric Bypass Reconstruction (GBRx™)

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Background: As the percentage of Americans who are obese continues to increase, the demand for bariatric procedures is steadily following this trend.⁴ Postoperatively, patients tend to lose massive amounts of weight leaving unwanted sagging skin around the torso, and extremities and a need for body contouring surgical intervention. This article attempts to describe an approach to body reconstruction in the bariatric patient using a staged approach.

Conclusion: Using three separate stages to approach the body contouring concerns in the bariatric patient allows all surgeries to be completed within three 6 hour blocks. This limits the amount of anesthesia, reduces the risk of DVT, and prevents problems with nerve compression injuries.⁹ This approach also aids the patient in allowing the financial obligation to be spread out over a greater time period.

Many patients who have undergone bariatric surgery or massive weight loss through medical regimens have found that the inelasticity of their skin and the large amounts of excess skin are equally as distressing as what led them to undergo bariatric surgery in the first place.⁴ The face deflates, and the person may actually look more aged after massive weight loss. The arms have tremendous amounts of excess skin and it can be embarrassing to wear short sleeve clothing. The breasts and chest wall sag and lose their volume. The abdominal wall is possibly the area that is affected the most, and skin can be found hanging over the pubic region and sometimes to the middle of the thighs.⁵ The thighs themselves can be tremendously disfigured and have large volumes of excess skin, which can be both a functional and cosmetic problem. In the end, the whole body appears to need an overhaul in order to improve the cosmetic, functional and psychological aspects associated with massive weight loss.

To help remedy these problems, our practice has devised the GBRx™ method for reconstructing the body. GBRx™ is a staged surgical approach to remove the unnecessary excess skin and provide a more contoured shape. The patients who undergo these procedures are usually at least 15 months out from their gastric bypass procedure and have come to a

plateau with their weight loss. The "consult" usually starts in a support group-type setting with a question such as "Is there any way that exercising will tighten up the skin?" Ultimately the patient makes an appointment in the office to discuss his or her concerns in private and prioritize the approach; whether it be the abdomen, extremities, or face. The following is illustrative of the typical patient who undergoes GBRx™.

During the first office consultation the patient is given a form which addresses the basics of his or her journey so far. Their starting weight, their current weight, their goal weight, and their current BMI are all very important specifics.⁷ Any ongoing comorbidities, medications, including oral contraceptives, and the priority list of areas they wish to address must also be addressed. Utilizing this information, I address the patient's specific goals and their readiness for surgery. Detailed consideration is given to certain medical problems such as diabetes or poorly controlled hypertension. If these factors are present, I will coordinate the surgery with an Internist on board for the preoperative and postoperative management. For the small number of patients on Coumadin for atrial fibrillation or Plavix for heart stents, I work with their hematologist to wean the patient off of the blood thinners prior to proceeding. I have also elicited the

help of the bariatric surgeon, pain control specialists and psychiatrists prior to proceeding with surgery if the situation warrants. Finally, there is always a subjective component to my evaluation; if the patient seems unrealistic or non-compliant I do not operate on them.

While there are certain commonalities between these patients, such as their desire to "look and feel better" about themselves, there is considerable difference between their expectations. Also, there has been shown to be an increased risk of postoperative complications with increasing BMI before body contouring surgery.¹ This increased risk along with the patient's expectations have to be set and reinforced during the preoperative appointments. There are at least 2-3 preoperative visits before surgery. During these visits, patients and I discuss their goals and expectations. If both the physician and patient are not upfront about realistic goals and expectations, then both may face disappointment. I ALWAYS discuss the potential for some relapse of their skin postoperatively. No matter how much tightening is done during surgery, at about 6-12 weeks there is some relaxation of the skin, whether it be in the arms, neck or abdomen.⁸ Therefore, at the consult I show pictures of patients that are 6-12 months out of surgery and the degree of relapse expected. The resulting scars are also shown. Also discussed in the preoperative visits is the timeline for recovery and potential complications.⁸ If both the patient and I feel that the goals are realistic, then consideration is given to move forward with surgery. GBRx™ is not considered unless the patient is at least 1 year from bariatric surgery and has 3 consecutive months of stabilized weight.^{1,2} Patients who have had Lap bands typically take 2 years to be considered.

Preoperatively, the patient's blood work is checked and an EKG is performed. Patients are also given information on how to prepare themselves nutritionally before surgery. We make sure they are taking their multivitamins and increase their protein intake to 1.5 gram/kilogram body weight two weeks before surgery and after surgery for at least 6 weeks post-operatively. The day prior to surgery the patient is brought in for marking, which can take up to 30-45 minutes. This saves time the following day. The anesthesiologist typically calls the patient the evening before surgery and meets them in the preop waiting room.

On the day of surgery, the room is warmed prior to taking the patient back. In the operating room, the patient is placed on a warming blanket, compression stockings are applied and any dentures and jewelry are removed. Any GBRx™ staged reconstruction

procedure is expected to last less than 6 hours to reduce the complications associated with longer anesthesia times.⁹ Heat loss, nerve compression injuries, blood loss and blood clots in the lower extremities are the intraoperative complications which the surgeon and anesthesiologist work hard to avoid. Non-exposed areas are kept under a Bair Hugger (a device used to keep the patient warm), compression stockings are used and all bony prominences are kept adequately padded. In addition, the circulating nurse moves the extremities every 45-60 minutes. The blood loss is minimized by utilizing excellent surgical technique. In my patient population, only one patient has required a transfusion despite the global presence of anemia in this patient population, and there has been no incidence of DVT (blood clots in the legs) thus far in over 270 patients. Generally, the reported incidence of DVTs in this patient population is about 2.9%.³ After surgery the patient is transferred to an overnight stay for observation. I utilize an OnQ pain pump as well as pain medication and the patient is given antibiotics during their overnight stay.^{1,2,3} Patients are also encouraged to use an incentive spirometer to minimize pulmonary complications as well as ambulating the night of surgery and started back on a diet. Current therapy does not include the use of enoxaparin (Lovenox), 1 mg/kg unless there is evidence of a symptomatic DVT.³ As of October 2006, No studies have looked at the safety of low-molecular-weight heparin in cutaneous surgery.¹⁰

The following morning the patient is discharged and is expected to follow up with me at day 3 postoperatively. (See table for all follow up visits) At the postoperative visit the patient's dressings are removed and additional compression garments are applied.

Post operative Day 3	<ul style="list-style-type: none"> Dressings are removed Additional compression garments are applied and instruction to use at all times. Permission to shower
Post operative Day 7	<ul style="list-style-type: none"> Remove drains Check wounds
Post Operative Day 14	<ul style="list-style-type: none"> Any remaining drains are removed
3-4 weeks	<ul style="list-style-type: none"> Lymphatic drainage check
Monthly	<ul style="list-style-type: none"> Follow-ups
6 Months	<ul style="list-style-type: none"> Minor touch-ups

The patient is given permission to shower, but is instructed to keep the compression garments on at all other times. The patient is then seen at day 7 postoperative to remove drains and to check wounds. The patient is seen again at 2 weeks postoperatively and any remaining drains are removed. For my thigh lift and facelift patients, lymphatic drainage by a

certified massage therapist is instituted at this time and continues for 3-4 weeks. The patient then sees me on a weekly or every other week basis for the next 6 weeks. After that patients see me on a monthly basis for the next 6 months. Invariably there is some relapse and I wait until at least 6 months to do any minor touch-ups.

While the surgical challenges and techniques in the massive weight loss patient continue to evolve, the GBRx™ staged reconstructions offer tremendous hope and benefit for patients who opt to undergo cosmetic and reconstructive procedures after massive weight loss.^{1,6} Our staged approach, as described below, allows for nearly all of the reconstructive procedures to be done in three stages. All of these stages can be completed within six hours, thereby limiting the amount of anesthesia, keeping the risk of deep venous thrombosis (DVTs) to a minimum, preventing problems with nerve compression injuries, and allowing typically for just one overnight admission with less downtime.

GBRx™ Stage 1

Stage 1 typically involves addressing the abdominal and chest wall regions. Almost invariably, the loose skin and abdominal wall weakness with bulging are the primary concerns for the patient. An extended abdominoplasty is planned. The surgical incisions are designed such that there is an elevation of the pubic region as well as the medial thighs and the portions of the lateral thigh. In female patients, the breasts are most often done at the same time, whereas in male patients' chest wall contouring can be done. On occasion, stage 1 in both male and female patients can be combined with an arm lift.

As always, a preoperative evaluation of each individual patient will help determine the safest and most beneficial options for any given patient. I opt to do the "front" of the body including the abdominal wall, breasts and chest as one stage rather than doing a complete body lift. The main reason for this approach is that a complete body lift does not allow for as extensive a tightening as staging the front and back separately. With the complete body lift, it is very difficult to flex the patient on the surgical table at 45 degrees without causing significant stress on their back wound.² The reason for flexing the patient at 45 degrees on the surgical table is to remove as much of the skin as possible from the anterior abdominal wall. The excess skin of the abdominal wall is removed and several layers of muscle tightening are done in order to flatten the abdominal wall. In addition, any hernias

that may be present in the abdominal wall are addressed at this time. Finally I will incorporate liposuction in areas that require further deflation. On the whole, liposuction has not been a very rewarding technique in the post-bariatric surgery patient.

The breasts most likely require both a lift and augmentation. I prefer to use silicone implants in my practice, as I feel they give a much more natural feel and shape to the breast. Usually the implants are placed under the muscle and the lift and augmentation are done at the same time. As mentioned earlier, depending on the complexity of the case, I will often do an arm lift at the same stage. Drains are placed in the arms and the abdominal wall. I do not use drains in the breasts. In addition, a pain pump catheter is placed along the muscle plication of the abdominal wall to control postoperative pain. An abdominal binder is worn as well as a surgical bra, and the patient spends one night in the recovery facility and is discharged the following morning. Typically, within one week, the arm drains are removed. Typically, in 7-10 days, the abdominal drains are removed. An abdominal binder is required for three to four weeks and massage of the breasts is implemented as early as one week. It usually requires six to eight weeks between stages if a second stage is planned.

GBRx™ Stage 2

The second stage addresses the laxity of the upper and lower back, the buttocks, and the medial thighs. I address the upper folds of the back through an incision that is made along the side of the chest pulling the upper back skin forward and excising it. This results in a scar on the side of the chest which is camouflaged with the arms down. The lower back folds are addressed as part of the back and buttock lift. Both of these areas are addressed with the patient placed face down on the surgical table. The upper back and lower back generally takes 2-3 hours. Afterwards, the patient is then turned onto his or her back and the medial thighs are addressed.

The thighs are typically done through a vertical incision that starts in the groin crease and can extend all the way down to the knees. This appears to be the most effective way to get rid all of the excess skin and still leave a scar in an area which is not obvious. Drains are placed along the chest wall, the lower back, and medial thighs. Once again, the stage is completed within a six-hour time frame, and the patient is sent to an overnight recovery facility. The following morning, the patient is assisted in getting out of bed and walking

and is typically discharged to home. The thighs are perhaps the most difficult recovery for patients in that there is a higher incidence of forming seromas lymphoceles (small pockets of fluid) and prolonged swelling.^{1,2,3} I often implement lymphatic drainage postoperative in order to allow the swelling to dissipate faster.

GBRx™ Stage 3

The third, and usually the final stage, addresses the aging and deflation of the face. At this stage, a facelift, neck lift, brow lift, and upper and lower blepharoplasty is planned. This procedure typically takes 5 ½ - 6 hours and perhaps has the most dramatic impact on the patients’ sense of wellbeing and their overall psychological outcome. Once again, an overnight stay is required not so much for pain control, but to monitor for any bleeding from the facelift procedure overnight. Contrary to popular belief, facelifts are not very painful procedures and this is perhaps the easiest recovery for the patient.⁸

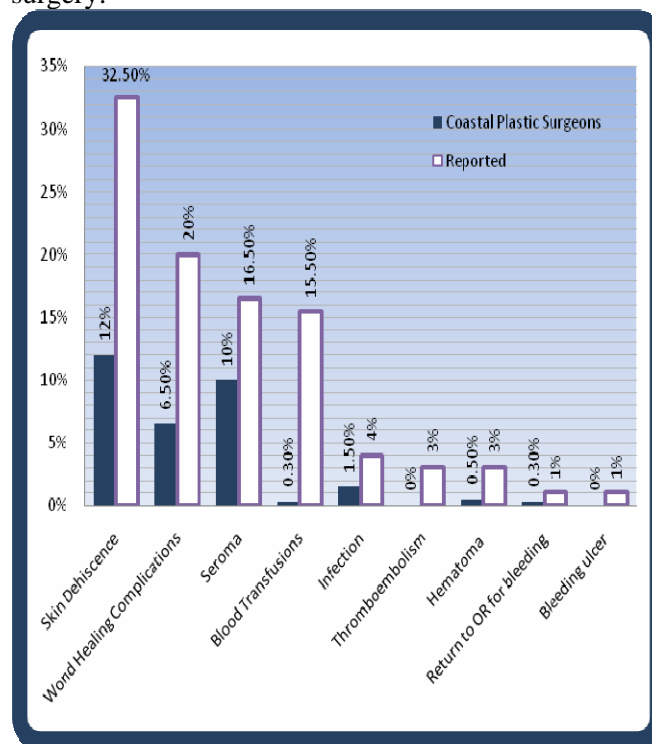
While the majority of patients undergo GBRx™ Stage 1, about 50% will go on to inquire about the next stage and this can be undertaken as early as 6 weeks depending on their recovery. Only about 20% of the patients in our practice will go on to have all three stages. This may be a reflection of the financial implications as well as their self image. Insurance unfortunately does not see these as reconstructive procedures rather as cosmetic procedures. We, however, always submit the procedures for insurance coverage along with photographs. The only procedures covered on a regular basis are the panniculectomies. The patient then pays for any additional work that may be done at the same time. In descending order, the most common areas to be addressed are abdomen, breast and chest, arms, thighs, back and buttocks, and face and neck.

The GBRx™ staged approach limits not only the amount of recovery in the hospital for the patient, but also the financial obligations due to multiple procedures being performed at each individual stage. Foremost, a surgical team invested in body contouring for the massive weight loss patient is a prerequisite in order to get these multiple procedures completed in a six-hour time frame in a predictable fashion. In our practice, typically two surgeons or a surgeon and our physicians assistant is involved at both stage one and stage two, while only one surgeon is required at stage three. Further, as any surgeon whose practice primarily takes care of reconstructive surgery for

massive weight loss patients will tell you, there is always a degree of relapse of the skin with any of these procedures. There have been several patients who required further tightening of the arms at the second stage or the abdominal wall at the second stage.

Complications

Our practice has employed these reconstructive options in over 200 patients at this time without a single incidence of deep venous thrombosis, and only one patient requiring blood transfusion after a GBRx™ surgery.



*Reported cases from References 1,2,3

There has been approximately a 10% incident of seroma of the abdomen, and 13% incident of seromas of the thighs. Overall, our patients’ satisfaction rate has been extremely high and over 87% of our patients have reported that they have been either very satisfied or extremely satisfied with their outcomes.

These patients comprise the most satisfied and realistic patients in my practice. They tend to be a very tight knit and thoroughly researched group of patients also. They are for the most part extremely grateful as evidenced by their loyalty to the practice and their referral of other members of the support group.

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