Bariatric surgery and psoriasis

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Obesity is associated with psoriasis and poses a significant obstacle to psoriasis management. Bariatric surgery is an effective procedure for weight loss, and some reports suggest that it may improve psoriasis. However, more evidence is needed before definitive conclusions can be drawn. Bariatric surgery procedures, in particular the Roux-en-Y gastric bypass, may one day be a viable option for obese patients with refractory psoriasis. (J Am Acad Dermatol 2014;70:774-9.)

Key words: bariatric; loss; psoriasis; surgery; treatment; weight.

Obesity, defined as a body mass index greater than 30 kg/m^2, is a national epidemic, affecting one third of adults in the United States.[1] The prevalence of obesity is higher in patients with psoriasis and correlates with psoriasis severity.[2,3] Overall, patients with psoriasis are 1.3 to 2.2 times more likely to be obese.[4,5] Whether obesity predisposes to psoriasis or psoriasis leads to obesity remains unclear, but strong evidence supports the former.[6] The association is thought to be linked to the proinflammatory milieu created by excess adipose tissue. Levels of tumor necrosis factor (TNF)-alfa, implicated in the pathogenesis of psoriasis, have been found to be increased in both the adipose tissue and serum of obese patients with psoriasis.[4] The proinflammatory adipose-derived hormones leptin, resistin, and omentin are also higher in patients with psoriasis.[7,8]

In addition, obese patients with psoriasis pose obstacles to effective psoriasis treatment. Higher body weight negatively affects the efficacy of medications, particularly those of the biologic class. Multiple studies have demonstrated obese patients are at higher risk for hepatic toxicity when treated with methotrexate. In obese patients, cyclosporine administration may lead to increased incidence of nephrotoxicity.[4]

The negative impact of obesity on psoriasis is clear and thus, strategies have emerged targeting weight loss in the psoriasis population. Initial weight loss management includes implementing lifestyle changes such as consuming a healthier diet and exercise. Studies exploring the effect of weight loss through diet on psoriasis have shown mixed results.[9-11] Bariatric surgery, however, provides another option for weight loss and has shown promise in the treatment of psoriasis. In this review, we will offer an overview of bariatric surgery, review the literature of the effect of bariatric surgery on psoriasis severity, and discuss its role in psoriasis management.

Abbreviations used:

AGB:	adjustable gastric banding
EWL:	excess weight loss
GLP:	glucagon-like peptide
RYGB:	Roux-en-Y gastric bypass
TNF:	tumor necrosis factor

BARIATRIC SURGERY AND OBESITY

Bariatric surgery procedures, including the laparoscopic adjustable gastric banding (AGB), standard Roux-en-Y gastric bypass (RYGB), and laparoscopic sleeve gastrectomy, have been found to be safe and effective treatments for weight loss.[12,13] The number of bariatric surgeries worldwide has increased significantly in recent years, from 5000 surgeries between 1987 and 1989 to an estimated 350,000 in 2008.[13]

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Traditionally, the procedures were thought to cause weight loss solely through mechanical means, either through decreased caloric intake and/or decreased absorption. Recent data suggest the procedures, particularly the RYGB and sleeve gastrectomy, may alter levels of gastrointestinal neuroendocrine transmitters, leading to decreased appetite, increased satiety, and delayed gastric emptying.[13]

Indications for bariatric surgery include body mass index greater than or equal to 40 kg/m^2 or body mass index greater than or equal 35 kg/m^2 with obesity-related comorbidities. The patient must adhere to postoperative care and management, and have failed nonsurgical attempts at weight reduction. Generally, at least 6 months of conservative medical weight management must be tried before the procedure is covered by insurance.[12] Relative contraindications include unstable coronary artery disease, end-stage lung disease, recent malignancy, cirrhosis, and severe heart failure. Preoperative evaluation is made in the setting of a multidisciplinary team, including medicine, surgery, a nutritionist, and psychology/psychiatry.[12]

CAPSULE SUMMARY

- Because obesity negatively affects psoriasis, weight loss has been targeted as a potential therapy.
- Limited evidence suggests bariatric surgery, particularly Roux-en-Y gastric bypass, may be associated with postsurgical improvement of psoriasis.
- More evidence is needed before definitive conclusions can be drawn about the effect of bariatric surgery on psoriasis.

The 3 most common procedures are the RYGB (47%), AGB (42%), and sleeve gastrectomy (5%). Ninety percent are performed laparoscopically. The choice of procedure is made depending on a number of factors, including surgeon expertise, patient preference, and the risk of each procedure.[13]

In RYGB, the upper stomach is divided and connected to the jejunum, thereby bypassing most of the stomach and upper small bowel (Fig 1). This leads to decreased stomach capacity and decreased absorption. In addition, the anatomic rearrangement produces changes in levels of neuroendocrine gastrointestinal hormones, which contribute to the weight loss. RYGB is a better choice for more obese or diabetic patients.[13] The AGB consists of placing a round silicone band with an inflatable cuff around the upper stomach (Fig 2). The band is tightened by injecting saline into a subcutaneous port connected to the cuff, leading to reduced stomach capacity and increased satiety. In sleeve gastrectomy, a narrow tubular stomach is created through resection of most of the stomach body and fundus (Fig 3). Because ghrelin, an appetite stimulator, is mainly secreted from the gastric fundus, sleeve gastrectomy works to lower appetite by removing the majority of ghrelin-secreting cells, and decreasing stomach capacity.[13]

Bariatric surgery procedures are considered safe and carry low perioperative morbidity and mortality. The incidence of major postoperative complications is 4.3%, an acceptable rate considering morbidly obese patients are at increased risk for surgical complications. Major complications include hemorrhage (1%-4%), pulmonary embolism (0.34%), and anastomotic dehiscence (0.5%-2.7%). Mortality varies by procedure and was lowest for AGB (0.01%-0.11%) followed by RYGB (0.09%-0.23%) and sleeve gastrectomy (0.19%). Higher mortality was found in patients who were male, older than 65 years, and superobese. The most common cause of death was pulmonary embolism. Overall, mortality is 0.28% within 30 days of surgery and 0.35% between 30 days and 2 years after surgery.[13]

Bariatric surgery is considered successful if excess weight loss (EWL) exceeds 50% as this benchmark is correlated with high patient satisfaction rates and decrease in obesity-related comorbidities. EWL is calculated as a percentage by dividing weight loss by preoperative weight minus ideal weight. Short-term mean EWL is 61.6%, 55.4%, and 47.5% for RYGB, sleeve gastrectomy, and AGB, respectively. Long-term studies have observed that patients tend to sustain weight loss years after surgery, though the exact amount varied by procedure. Mean EWL 14 years after the procedure was 50% and 15.6% for RYGB and AGB, respectively. EWL was 46% at 8 years after sleeve gastrectomy. Comorbid conditions such as hypertension, diabetes, hyperlipidemia, obstructive sleep apnea, and other obesity-related disease improve after bariatric surgery. According to a recent meta-analysis, 78.1% of diabetic patients who underwent bariatric surgery had complete remission of diabetes.[14] In addition, patients benefit from higher self-confidence and improved social function.[12]

BARIATRIC SURGERY AND PSORIASIS

Limited evidence suggests that patients with psoriasis who undergo bariatric surgery may experience improvement of psoriasis after surgery. This phenomenon was first described in 1977 after a patient underwent jejunoileal bypass.[15] The patient had