Complications in Gluteal Augmentation

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KEYWORDS

• Buttocks • Gluteal augmentation • Autologous fat grafting • Complications

KEY POINTS

- Buttock augmetation.
- Buttock augmetation implant complications.
- Overview gluteal fat grafting complications.

Buttocks have always been important aesthetically to the overall torso aesthetics. Dating back to the first or second century BC, the Venus Callipyge statue is famous partly for the bare bottom. Since then, there has been a dramatic increase in the importance and allure of the attractive bottom. This has occurred primarily in the past 2 decades. The confluence of celebrity self-promotion, workout role models, and music videos that visually inspired millions have created a demand for beautiful bottoms.

Plastic surgery as a specialty has also played an important role. Until the past 2 decades, safe and consistent techniques were not well described or part of the mainstream of the specialty. With growing demand from patients and reliable techniques, buttock augmentation has become a staple procedure of many cosmetic plastic surgeons.

The popularity of buttock augmentation continues to rise. It continues to have one of the largest year-over-year increases of any surgical procedure. According to the American Society for Aesthetic Plastic Surgery (ASAPS) statistics, in 2013 there were 11,527 procedures buttock augmentation procedures. In 2016, there were 20,673 buttock augmentation procedures. Comparatively, the number of breast augmentation procedures in 2013 and 2016 were 313,327 and 310,444, respectively.[1,2]

Complications are also increasing. Unfortunately, the severity of the complications with buttock augmentation are significant and higher than in other common procedures in aesthetic plastic surgery.

BUTTOCK AUGMENTATION WITH FAT GRAFTING

Fat grafting for buttock augmentation has emerged as the primary technique used by a majority of plastic surgeons. In 2016, according to the ASAPS statistics, 92% of buttock augmentations were performed with fat transfer and only 8% with implants.[2] I think the explanation of the discrepancy between the number of cases between of the 2 main operations is that implant-based buttock augmentation is a more difficult operation with more immediate negative consequences. Fat grafting to the buttocks can be performed in a simpler fashion. Conceptually, it is not as daunting as implant surgery because there is not as great a worry about complications, such as implant migration, wound dehiscence, ptosis, palpability, and long-term reoperation.

Fat grafting for buttock augmentation began to take shape in the late 1990s and early 2000s.[3–6] It has been used for buttock contour and deformity correction as early as 1986 by Gonzalez and Spina.[7] Reports of complications, however, were lacking. Most of the early reports did not comment on complications or listed complications as "none." These early articles, however, usually included small numbers of patients, a small amount of grafted fat, or were often were used more for correction of deformity than for augmentation.[8,9] Restrepo[4] and Guerrerosantos[3] were probably the first to start reporting complications. Restrepo

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even reported 1 patient that developed sepsis but recovered well.[4]

After almost 2 decades of increasing popularity of the procedure, the notoriety of the procedure, and well-publicized complications, interest has shifted to meticulous documentation and understanding of the complications. There is a wide variation in the amount of fat grafted, graft preparation—high-speed centrifugation versus gravity versus low-speed centrifugation separation, and the anatomic location of the placement of fat.

Seroma

In a recent meta-analysis of all the studies to date, the seroma rate was 3.5%.[10] A seroma after fat grafting buttock augmentation usually occurs in the fat harvest site—the lumbosacral area. Specifically, the sacral triangle is most prone. Another literature review study by Oranges and colleagues[11] found the rate to be 3.1%. Both of these studies did not provide details on the use of suction drains or how aggressive the liposuction in the lumbosacral area was performed. To create the aesthetically pleasing shelf from the lower back to the upper buttock, aggressive liposuction needs to be performed in the lumbosacral area. From liposuction, it is known that seroma formation is dependent on the amount of fat left behind and the amount of denuded fascia. This is similar to the high rates of seroma from latissimus muscle flaps, which are already familiar. To help decrease and manage the impending seroma, some surgeons use a closed suction drain in this area. I now routinely use a closed suction drain and have not had a seroma since I started using a drain. The drain also helps give definition to the lower back upper buttock transition by decreasing the amount of fluid collection that happens in that area, which later seems to turn into fibrosis. Brunner and colleagues[12] looked at 261 fat grafting patients and found that after they started to use 2 drains (in the last 100 patients included in the study) they did not have any seromas.

Infection

Infection rates vary from 0.3% to 1.96% in the various studies published in the literature.[10,11] In 2 large meta-analyses, the infection rates were close to the 2% range.[11] Brunner and colleagues[12] were the first to describe fulminant sepsis with or without disseminated intravascular coagulation.[13,14] Brunner and colleagues reported an incidence of 0.4%. As expected, the most common bacteria were gram-negative (*Escherichia coli*, *Bacteroides fragilis*, Microaerophilic streptococci, *Pseudomonas aeruginosa*, and Enterococci). *Staphylococcus aureus* was one of the lowest, at only 1 of 150 patients. There were 1 patient with a slow-growing *Mycobacterium fortuitum chelonei* and 6 patients with an unknown pathogen.

A rare but consequential complication is the development of sepsis after fat grafting to the buttock. Most of the studies that discussed complications had small numbers of patients, which made it unlikely that sepsis was encountered. In their meta-analysis, Oranges and colleagues[11] found an incidence of 0.4% incidence. Restrepo and Ahmed[4] noted an incidence of 1 of 96 patients.

Bruner and colleagues[12] were also able to decrease the rate of infection from 13.3% initially to less than 2%. They believed this was due to the adoption of their protocol (**Table 1**).[12]

OTHER COMPLICATIONS

Due to the nature of fat grafting and the unpredictable nature of grafted fat resorption, there are a variety of complications that occur but are not quantifiable or measurable. Asymmetry and paraesthesia in the buttock skin and fat harvest sites are encountered. Various studies have put the incidence at 2% to 4%.[4,8,10–12]

FAT RESORPTION

One of the most frustrating aspects of fat grafting in the gluteal region is the amount of fat that does not survive and the lack of control over that process. Most surgeons seem to cite that 50% of the fat does not survive and, therefore, more than (double)

Table 1
Protocol used by Roberts and Bruner to help minimize infections

Preoperative	IV administration of ampicillin, gentamicin, and cefazolin
Preoperative	No shaving of pubic hair—only clipping
Intraoperative	Circumferential preparation
Intraoperative	Lap pad soaked in povidone/iodine placed in gluteal cleft
Intraoperative	Grafting cannula wiped with povidone/iodine before each syringe of fat is injected
Intraoperative	For each 200 cm^3 of fat harvested, add ampicillin 2g, sulbactam 1g, gentamicin 80 mg, and defazolin 2 g

Data from Bruner TW, Roberts TL, Nguyen K. Complications of buttock augmentation: diagnosis, management, and prevention. Clin Plast Surg 2006;33:449–66.

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