



Unexpected Complication of a Hybrid Breast Augmentation: A Case Report

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Abstract

Breast Augmentation (BA), though one of the most performed cosmetic surgeries in the world, is associated with a few complications both common and uncommon.

The skill and expertise of the operating surgeon are still the foremost parameter regarding the safety and success of the surgery. However, there is a potential of some uncommon safety concerns and complications to emerge.

Here we present a case of hybrid breast augmentation in a woman, who experienced an unexpected complication of iatrogenic puncture of silicone implant with fat, during her hybrid fat grafting procedure. The case was salvaged with removal of implant and washout. The correction of asymmetry was later performed. This is to highlight to the operating surgeon to be aware of the potential complication and we recommend a 10-point safety protocol.

Keywords: Breast augmentation; Hybrid breast augmentation; Silicone implants; Breast fat grafting; Iatrogenic complication

Introduction

Breast Augmentation (BA) retains the reputation for being one of the most common surgical procedures performed by plastic surgeons [1], the American Society of Plastic Surgeons (ASPS) reported that approximately 19,300 individuals underwent the procedure in the USA in year 2020 [2]. The breasts are enhanced using either implants (most commonly Silicon-filled) [4], *via* fat transfer or a hybrid of both. Albeit rare, various complications do arise from such a procedure, and these include infection, scarring, breast asymmetry, seroma and hematoma formation, pain, loss or change in breast or nipple sensation, poor cosmetic outcome, implant displacement, deflation or rupture and capsular contracture [6]. This case-report aims to discuss an early complication of hybrid breast implantation that to our knowledge has been introduced rarely in the literature, and it is the sequelae of inadvertently injecting the implant with fat tissue.

Case Presentation

Patient presentation and history

A 28-year-old woman came to our hospital emergency department. Her chief complaint was severe pain in her right breast region along with swelling and changes in shape for the past 2 weeks.

She had concurrent purulent discharge from an inframammary incision pertaining to a bilateral hybrid breast augmentation along with a peri-areolar breast lift procedure she underwent 24 days ago. She underwent a simultaneous liposuction of the abdomen and flanks and arms, fat transfer to both breasts and bilateral Silicon-based BA *via* the subfascial plane. She otherwise is free of other symptoms such as fever, vomiting or shortness of breath. The procedure she underwent was done in a different hospital by another primary surgeon. Figure 1 shows leakage of purulent discharge from right breast with swelling, cellulitis and inflammation. Further details such as her operative notes and other medical records, could not be retrieved. The patient denied the presence of any chronic diseases, she is not on any drugs and has no known allergies.

Physical examination and investigations

Upon admission, the patient's vitals were all stable. On breast examination, the patients right breast appeared greater in size, red and significantly inflamed compared to the left side with leakage of a purulent discharge from a gaping inframammary surgical incision. The left breast and

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Figure 1: Upon presentation to the Emergency Department. The left breast is inflamed and is oozing a seropurulent discharge.



Figure 2: The implant emphatically showing a foreign substance within it, confirmed to be adipose tissue and pus.

trunk appeared unremarkable. Her blood work came back with a slight and insignificant raise in inflammatory markers. No imaging was done. Our preliminary diagnosis was breast implant infection. Further, the patient was admitted to the surgical ward and given 1 g IV Pan- Cefazoline. The patient was consented, counselled about the outcomes and complications of surgery and she was subsequently sent to the operation theatre urgently.

Operative procedure and observations

The surgery for implant removal and washout was performed by Senior Author (AK). With the patient under general anesthesia, an incision was made over the previous surgical incision and observed was a round and microtextured 265cc, silicone implant in the subglandular/subfascial pocket. The implant was taken out, it showed needle track marks, multiple pores that leaked fluid upon squeezing and was infiltrated with fat tissue and pus (Figure 2 and Video 1).

Video 1: <https://youtu.be/U1gBlxnAco8>

After removal of the implant, the pocket was washed with a triple antibiotic solution, debrided where needed and wound was closed leaving only a 15 French silicone drain. The patient was significantly better in terms of pain and her clinical condition improved. The drain was removed 2 days later. The patient was discharged on IV antibiotics for 48 h twice a day postoperatively. She subsequently received oral amoxicillin and clavulanate antibiotic course for a duration of 5 days empirically and a pain relief medication.

Follow up

She was called in for follow up 2 weeks later and the suture line looked clean without any sign of infection and is in the process of healing. Redness and swelling have almost completely subsided. There was gross asymmetry in the size of her breasts as her implant



Figure 3: Final follow-up picture after the re-symmetrisation procedure, 5 months after the first presentation.

was not replaced yet. The patient did undergo the symmetrization procedure with her primary surgeon.

Five months later, the patient visited us in the plastic surgery clinic to discuss her postoperative scars. Examination was unremarkable with good symmetry in the two breasts, Grade 2 ptosis and no palpable lumps or swellings in breast or axilla. Figure 3 is the final photograph taken of her breasts displaying her current status.

Discussion

BA is achieved via silicone implants most frequently, A much less commonly performed autologous fat grafting alone is also used in select number of patients giving satisfactory results. A third option which is recently in vogue is the hybrid of both techniques of using implants in combination with autologous fat. Fat grafting is generally performed in the upper and medial pole to smooth out its contour, conceal the implant edges, and give a better cleavage line. The premise of this technique is to overcome some of the inherent shortcomings of both previous techniques.

In the Senior Author's (AK) practice, the first step of the hybrid BA technique, would be fat tissue harvesting *via* syringe liposuction and fat separation. This is generally followed by pocket dissection and inserting the breast implant, most typically through an inframammary incision. After securing meticulous hemostasis, all pockets are sealed, and incisions are closed. The autologous collected fat transferred to smaller 1 ml to 2 ml syringes and is injected in the preoperatively marked areas of the breast after inserting the implant or sizer, with the patient in the sitting position, putting a greater emphasis on the upper pole and cleavage areas with a fat volume of approximately a quarter to a third of the implant volume concealing the implant borders [9]. A 15 cm long, 16 to 18-gauge (1.6 mm to 2 mm) cannula with a single pore can be used for the fat grafting [10]. In most instances when a hybrid breast augmentation is performed, the implant is usually placed in dual plane or submuscular plane. The fat is placed in the subcutaneous plane.

As with other surgical procedures, this technique can come with complications, and Bonetti et al. highlighted the most commonly encountered ones in his systematic review, which included 12 studies comprising a total of 753 breast reconstructions in 585 patients undergoing mastectomy or demolitive breast surgeries. They analyzed that overall, the complications occurred in 7.9% of the patients, of which only 2.5% required implant removal. The most common complication was cystic fat necrosis (1.9%), then infection

mandating implant removal (1.6%), followed sequentially by seroma (1.3%), dehiscence (0.9%), mastectomy skin necrosis (0.8%) with some requiring implant removal, implant malposition (0.3%), minor pneumothorax (0.1%) and finally rupture of the implant in 0.1%). The rate of capsular contracture could not be accurately concluded by this study [11]. The complication rate for breast fat grafting was 17.2%, according to Groen et al. systematic review of 35,000 patients. They discovered that induration (33% of all complications) was most frequent. The predicted sequela of induration or oedema (without hematoma) would not necessitate going back to the operation room and often goes away over the course of 4 to 6 months [12].

Our thorough investigation of numerous medical sources and libraries led us to the notion that this iatrogenic complication has been encountered rarely. In an article by Agrawal, Nikhil et al. [13], and by Batiukov et al. [14], shed some light on the topic. Due to the hybrid method's recent development and ongoing experimentation and research, there is also very little literature available on potential complications. By reporting this clinical case, we seek to recommend 10 precautionary measures to avoid this complication.

We recommend the following 10 points for safe execution of the procedure

1. When possible, after completion of fat harvest, fat transfer can be done before insertion of the implant – this step would directly eliminate the complication.
2. Implant should preferably be placed in a dual plane or submuscular plane for added safety.
3. When we are doing implant exchange or have significant asymmetry, requiring the use of a sizer, we leave this in place and fat graft around the sizer. If there is inadvertent damage, it is to the sizer only, finally placing the implant as the last portion of the operation.
4. Patient should be made to sit up at 45 degrees for better visualization of implant borders and circumventing the implant pocket with the cannula. The assistant can help to apply gentle pressure on the implant in downward direction, while the surgeon is placing fat in the upper pole of the breast.
5. Fat should be transferred in a subcutaneous plane and no attempt must be made to go deep.
6. Entry at the superior border of the nipple areola complex gives excellent access to the superior and medial poles of the breast, which are the areas we most commonly fat graft.
7. Introducing the cannula at parallel angles to the implant, rather than perpendicular can also help.
8. Blunt canulae with 16 G or 18 G should be used and fat injected in a retrograde fashion.
9. Avoid the use of smaller fine canulae as this may increase chances of implant perforation.
10. An intraoperative ultrasound can be used to be sure the plane of fat transfer.

We believe that this complication is rather rare and a few diligent steps for the safe execution of this surgery can avoid such a complication completely.

Conclusion

Despite the complication of inadvertent injection of breast implants with adipose tissue being a rare complication of hybrid breast augmentation, certain precautionary measures must be undertaken to prevent such a direful and potentially fatal mistake from occurring.

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