

Breast Abscess after Autologous Fat Transfer

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Abstract:- Augmentation mammoplasty using autologous fat transfer has been widely practiced. However, this procedure is not exempted from complications even after technique refinements. These complications include excessive bruising, edema, hematoma formation, infections, fat necrosis, oil cyst formation, and donor site complications. The development of infection and abscess formation deserve the most attention. In case of delayed infection, a high suspicion of unusual bacteria should be considered. **Case Presentation:** We report the case of a 32-year-old female patient underwent breast augmentation using autologous fat graft; the patient demonstrated delayed right sided breast abscess caused by a rare etiology identified by culture as *peptostreptococcus*. This anaerobic bacterium is commensal organisms in humans and under normal conditions does not cause postoperative infection, and its pathogenicity is low. The patient was treated properly and recovered fully with no complications. **Conclusion:** Abscess formation and infection development are not common complications in the breast after fat transfer, but deserve attention and emergent management. As all grafts including fat graft are non-vascularized during the first days postoperatively, these can be the host of unusual bacteria and cause severe infection. The sterile technique should be considered at all time. In case of delayed infection, a high suspicion for anaerobic *peptostreptococci* or other unusual bacteria should be considered.

Keywords:- Fat Graft; Fat Transfer; Breast Abscess; Anaerobic Infection; Breast Lipofilling; Peptostreptococcal.

I. INTRODUCTION

Autologous fat transfer is one of commonest plastic surgery procedures performed nowadays, due to the development of liposuction techniques and the autologous property of the fat as a typical biological soft tissue filler. [1]

The American Association of Plastic Surgery (ASPS) fat graft task force stated in 2009 that, '*Fat grafting may be considered for breast augmentation and correction of defects associated with medical conditions and previous breast surgeries, however, results are dependent on technique and surgeon expertise*'. [2]

Fat transfer can be employed to enhance the breasts' shape, volume, or symmetry. Fat grafting to the breast as a surgical procedure may accompany with some

complications such as excessive edema, excessive bruises, hematoma formation, fat necrosis, infection and abscess formation, calcifications, oil cysts, shape imbalance, and donor site complications. [3]

Infection and abscess formation are considered the most important complications because it may develop into severe septicemia and sepsis with high mortality, as well as the infection process kills the grafted fat cells and the results will be disappointing. [3]

In order to achieve successful fat grafting, and reduce the rate of complications, the technique used for fat harvesting, processing and inseting is the most important. Gentle manipulation of the fat graft, good selection to the donor area, instruments selection and minimize graft exposure to the air or surroundings.

II. CASE PRESENTATION

A 32-years-old female patient underwent liposuction for the abdomen and autologous fat transfer to the breasts 42 days ago in another hospital.

The patient is single with no past medical illnesses and not a smoker. Her body mass index is 26 kg/m² (length=158 cm, weight= 65kg).

The operation was done under general anesthesia with super-wet technique, about 800 ml of fat was harvested from the abdomen, after unknown fat processing, 230 ml of the fat was transferred to the left breast, and 225 ml to the right breast.

The patient visited that hospital one week prior to presentation to the emergency department with pain, edema, and redness of the right breast accompanied by fever. She said she had mild trauma on her right breast about 10 days ago when she was opening the door and then the pain started.

She received antibiotic treatment with Augmentin 1000mg (amoxicillin and clavulanate potassium) orally twice daily, but she did not improve.

At presentation, in the emergency department, she is dizzy, has pyrexia 38.5C, severe swelling, redness, and calor in her right breast. (Fig. 1).



Fig 1:- Preoperative photo findings, the right breast was swollen with redness.



Fig 2:- Ultrasound of the right breast shows an ill-defined complex cyst mass, linear specs are seen within the cyst, generalized edema of the parenchymal tissue.

Laboratory investigations revealed elevation in white blood cells count (17,400 cells/ μ L) and C-reactive protein level (12.52 mg/dL). The other results were within normal range.

Ultrasound of the right breast demonstrated an ill-defined complex cyst mass with heterogeneous internal echoes, linear specs are seen within the cyst, which possibly represents air, generalized edema of the parenchymal tissue around the cyst. (Fig. 2)

Emergency surgical treatment was performed under general anesthesia, the abscess was incised and drained using periareolar approach, about 300 ml of pus was drained which was a mixture of melted fat tissue and liquid discharges, yellow in color with no bad odor.

All drained necrotic tissue and pus were sent to pathologic analysis.

Empirically, gram-positive bacteria was suspected as the cause of infection, so intravenously Vancomycin (2000mg/day) was started immediately while waiting for the results of culture and sensitivity.

Interestingly, *peptostreptococcus* (an anaerobic bacterium) was detected by culture after 5 days. and it was sensitive to Vancomycin, which was continued for 10 days.

The general status of the patient improved at that time and the blood laboratory test became normal levels of white blood cells (8,100 cells/ μ L), and C-reactive protein (0.30 mg/dL).

III. DISCUSSION

Recently, the use of autologous fat graft as a soft tissue filler is increasingly prevailing and practicing in plastic surgery procedures due to its autologous nature, availability in even thin women, easy to harvest, inexpensive, and provide long term durability compared to the traditional fillers.[4]

Autologous fat grafting procedure goes through three steps, fat harvesting, fat processing, and fat inseting.

Autologous fat transfer to the breast can be considered for primary breast augmentation or for correction of breast asymmetry caused by congenital deformities or past surgery to the breast.[2]

Development of infection and abscess formation in the breast after autologous fat transfer is not common but deserve attention and emergent treatment.[3]

Generally, post-surgical infection and abscess formation in the breast is caused by *Staphylococcus aureus*, *S. epidermidis*, and *S. pyogenes*. [5]

These bacteria are known to be sensitive to Vancomycin; which was started empirically.

Interestingly, the bacterial culture revealed the presence of *peptostreptococcus*, which rarely causes postoperative infection in normal patients because of its low pathogenicity.

Peptostreptococcus is commensal bacteria existing in the skin, mouth, gastrointestinal and urinary tracts, and vagina, as well as it considered as a component of the gut flora. [6]

Peptostreptococcus is a gram-positive anaerobic bacterium and non-spore forming.[7]

Under special conditions, such as immunosuppression or trauma with necrotic tissues, these bacteria can become pathogenic, causing infection and systemic sepsis.

Peptostreptococcus can be the cause of lung abscess, liver abscess, breast abscess, and necrotizing fasciitis, also it can participate in mixed anaerobic infections.[8]

Peptostreptococcus species are sensitive to several antibiotics including beta-lactam. [9]

The diagnosis of a *peptostreptococcus* infection starts with a thorough clinical assessment. A detailed patient history, during which the physician must assess the presence of symptoms, their course, and progression, is highly important.

Once sufficient evidence is obtained and a presumptive diagnosis of an infection is made, microbiological testing is the cornerstone for identifying the underlying cause.

Because *peptostreptococci* are anaerobes, the use of swabs for obtaining a sample for evaluation can often yield a false-negative result.

Aspirates, tissue specimens, or blood samples are much better samples for the preservation of *peptostreptococcus* species during the process of microbiological identification. [10]

Despite the fact that *peptostreptococci* are commensals of the skin and the oral cavity, their presence must not be overlooked when other sites are involved in the infectious process, particularly if a polymicrobial infection is recognized.[11]

Additional methods to confirm *peptostreptococcus* are enzyme assays. The introduction of molecular methods such as polymerase chain reaction (PCR) has greatly improved the overall rate of the diagnosis.[12]

Peptostreptococcus is slow-growing bacterium with increasing resistance to antibiotics.[13]

On the 10th-day post-operation, the patient improved clinically and the laboratory parameters became within a normal range, and no additional antibiotic other than Vancomycin was administered.

IV. CONCLUSION

Development of infection and abscess formation in the breast after autologous fat transfer deserve attention and emergent treatment.

Once even low pathogenic bacteria contaminate the non-vascularized fat graft, it becomes the focus of infection.

Respecting of sterile technique during harvesting, processing, and inseting of the fat graft is highly recommended.

In case of delayed infection, a high index of suspicion should be considered for anaerobic or other unusual bacteria.

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The authors declare that all the procedures of this case respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008, as well as the national law.

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