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Fat Cyst Excision Followed by Breast Implant as Management of Complications of Lipotransfer for Breast Augmentation: A Case Report

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Case Report **Abstract:** **DOI:**

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Autologous fat grafting is widely used in breast augmentation and reconstructive breast surgery. Coleman has detailed the fat grafting surgical procedure. After centrifugation and refining, the fat is melted through small parts using blunt infiltration cannulas. With each cannula removal, the grafted tissue is deposited in tiny aliquots. To obtain an aesthetically acceptable breast shape, fat should be stacked into multiple layers from the chest wall to the skin. However, if not conducted properly, autogenous lipotransfer can result in problems such as fat necrosis, calcification, the creation of encapsulated fatty lumps (cystic lesions), lymphadenopathy, deformity of breast contouring, hypersensitive breasts, and itchy nipples. Six months after autologous fat grafting for breast augmentation elsewhere, a 36-year-old female patient came with several palpable cystic lesions, disturbed breast contouring, asymmetry, heightened sensitivity, and discomfort upon palpation. The patient had ultrasound and MRI screening, which showed of several bilateral cysts in the breast tissue. The big lesions were surgically removed, and the specimens were sent for pathology and cytology evaluation. Breast augmentation with silicone implants was performed a few months after surgical excision of these lesions and after symptoms decreased. It was possible to obtain an aesthetically acceptable outcome while also relieving the patient's initial symptoms. Evidence Level: Level II: Evidence derived from well-designed controlled studies that were not randomised therapeutic Study.

Keywords: Autologous fat grafting, Breast Augmentation, cystic lesions, fat necrosis, complications of fat transfer/grafting.

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INTRODUCTION

Breast augmentation via autogenous lipotransfer may result in complications such as fat necrosis, calcification, the formation of encapsulated fatty masses (cystic lesions), infection, lymphadenopathy, disfigurement of breast contour, hypersensitive breasts, and itchy nipples if not performed correctly. Coleman has detailed the fat grafting procedure. Several points must be remembered during the procedure in order to produce good outcomes.

Fat is harvested using a 10-ml syringe attached to a two-hole Coleman harvesting cannula. Following centrifugation and refining, blunt infiltration cannulas are inserted to inject fat. With each cannula movement fat is deposited in tiny aliquots. To obtain an aesthetically acceptable breast shape, fat should be injected into multiple layers from the chest wall to the skin. Blunt cannulas allow more dispersion of the grafted tissue in small aliquots and also reduce the chance of intravascular injection. Sharp needles for injection into the breast should be avoided. Shaping of the breasts can be accomplished by layering the fat into different levels until the desired contour is achieved. In most of the cases, the largest portion of the fat is infiltrated into the pectoralis major muscle, followed by the retro pectoral and pre pectoral spaces. Subcutaneous injection into the superficial planes can be used to shape the breast. Injection into the breast parenchyma should be minimized. However, it can be done to improve projection if required.

It is very important however that the execution of the technique should be done precisely. The end outcome can be influenced by both the right method of execution and the surgeon's expertise. The technique must ensure fatty tissue survival by limiting stress during harvesting and refining, as well as depositing the fatty in tiny aliquots rather than big clumps. The proportion of surface area of contact between the grafted fat and the recipient tissue, can be maximized by grafting fat in small aliquots. Fat necrosis and calcification in a later stage, can be avoided by increasing the fat survival rate, which can be achieved by the proximity of the transferred fat to blood supply areas at the recipient site.

If a big amount of fat is injected, some of the fat cells may be too distant from a blood supply. This can result in fat necrosis, which can result in the creation of liponecrotic cysts as well as lumps and calcifications. Therefore, transplanting fat in large clumps should be avoided.

Breast augmentation with the Coleman approach can be time-consuming, with the author claiming that harvesting and transferring 100 cc can take up to 2 hours. This means that for an average breast augmentation with fat transfer, the surgeon has to be patient and execute all stages of the technique meticulously and correctly, since it might take up to 3-4 hours to finish.

CASE PRESENTATION

A 36 years old female patient presented at the office with multiple palpable cystic lesions in both breasts, disrupted breast contouring, asymmetry, hyper sensation, nipple itching and and pain during examination.

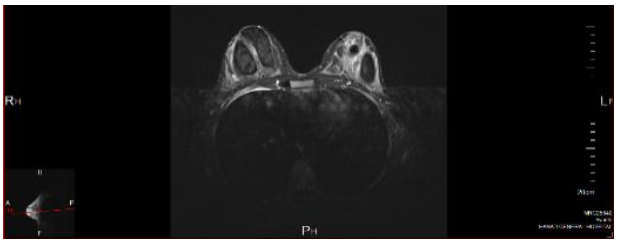

Fig 1: MRI Images

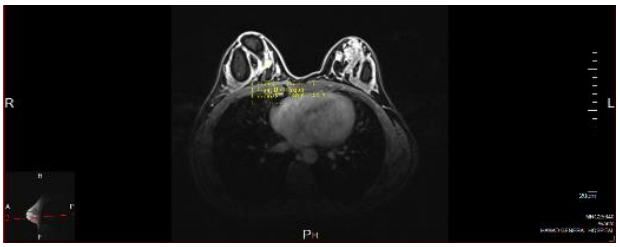

Fig 2: MRI Images

MRI Images (Fig.1 & 2) demonstrating multiple cysts on both breasts. In the right breast most are seen in the LOQ and some at UOQ. Largest lesions measuring 4.8 x 2.6cm. In the left breast most are seen at the LIQ and UIQ. The largest measuring 4.2 x1.8cm.

The patient had a lipotransfer procedure elsewhere for breast augmentation. There was no picture evidence to compare the state and look of the breast before the fat transfer was done. According to the patient, the lesions grew palpable and symptoms arose progressively over a 6-month period following the treatment .The first symptoms of pain and partial induration, having started 2 months after fat transfer.

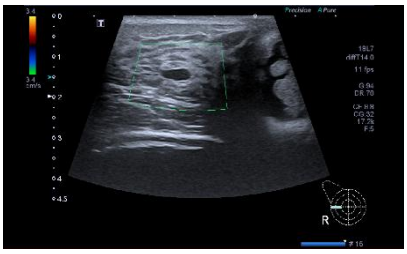

Fig 3: MRI Images

Fig 4: MRI Images

Ultra sound images (Fig.3 & 4) demonstrating multiple cysts on both breasts with internal soft tissue components. The largest lesion in the right breast at 7 o ´clock measuring 4.7 x 2.5cm and in the left breast at 2 o´ clock measuring 2.7 x 1.4cm.

After the initial clinical evaluation the patient was referred for an MRI screening (Fig.1 & 2). Both T1&T2 sequences showed multiple bilateral encapsulated oval fatty masses, the bigger one is found in the breast parenchyma, whereas the smaller one is found in the subcutaneous tissue. Consequent lymphadenopathy and diffuse parenchymal enhancement were also reported. An additional Ultra Sound screening (Fig.3 & 4) showed also large cystic lesions with internal soft tissue components. The woman was informed that a number of surgical treatments may be required to remove the lesions, relieve her discomfort, and restore the breast shape.

Fig 5:

Fig 6:

Intraoperative pictures (Fig. 5 & 6) showing cysts removal and liquid drainage

The treatment plan was decided to consist of two staged operations.

Surgical excision of big lesions in both breasts were done during the initial operation, using periareolar incisions for the lesions adjacent to the nipple areolar complex, and separate incisions over remote lesions of the breast tissue. The majority of the lesions were located in the breast parenchyma. This first procedure took place 2 months after her initial consultation and in total 8 months after the fat transfer procedure she had for breast augmentation. The cystic lesions were found at random, mostly in the breast parenchyma and in the subcutaneous layer of the breast. Some were physically dissected and excised en bloc (Fig.7,8), while others could not be removed because of severe fibrosis and were drained (Fig. 5,6). The remaining capsule after drainage was also dissected and removed. The dead spaces were irrigated with Povidone Iodine solution and Normal Saline, and hemostasis was established. Antibiotic regime was administered pre intra and postoperatively for 2 weeks.

Specimens were sent for Pathology and cytology test. (Fig.5,6,7&8). The pathology results referred to encapsulated fatty lesions, with evidence of fat necrosis, without active inflammation. The cytology results of the drained fluid referred also to similar findings.

Fig 7:

Fig 8:

Right breast encapsulated oval cysts (Fig.7) and left breast encapsulated oval cyst (Fig.8) excised en-block and sent for pathology screening

Three months after the first operation the patient was readmitted to the hospital and underwent further surgical removal of remaining smaller lesions via periareolar incisions. The majority of these minor lesions were found subcutaneously. Breast augmentation was performed after a comprehensive inspection of the breast and confirmation of eradication of the lesions seen on the preoperative MRI and US screening, in the same session, with round moderate plus profile, Cohesive II, silicone gel breast implants, in an attempt to reconstruct the impaired breast shape due to the disruption of the breast anatomy following excision of the liponecrotic or encapsulated fatty cysts. The implants were placed in a retro-glandular plane.

Fig 9:

Fig 10:

Patient after removal of fatty lesions and before breast augmentation with silicone implants (Fig. 9 & 10)

RESULTS

An aesthetically pleasing breast augmentation result was achieved with the use of silicon gel implants, after two stages removal of the fatty lesions, giving the patient a symmetric breast contouring and relieving her from the hyper sensation, pain and the entire symptoms of the previous augmentation attempt with fat transfer. (Fig. 9, 10, 11, 12).

Fig 11:

Fig 12:

Patient after breast augmentation with silicone implants (Fig.11 & 12)

The two stages procedure was decided in order to secure that no active inflammation was present, a fact that would be a contraindication for silicon implant surgery in the first procedure.

DISCUSSION

Fat transfer for breast augmentation is now increasingly used as an alternative to traditional breast augmentation treatments using silicone implants, delivering aesthetically satisfactory outcomes in the majority of instances. However, in order to minimize undesirable functional and cosmetic postoperative effects, the fat transfer technique must be used using lege artis. Patients must be analytically educated about the potential problems and the long-term outcomes. The technique's applied must be relevant and up-to-date to avoid complications.

Before deciding to use this procedure on patients, surgeons should be fully informed and trained. Close follow-up and patient reassurance, as well as the precise timing of any potential problems repair, are critical in handling such instances. Fat transfer for breast augmentation is a well-established method, although the outcomes are variable in terms of duration. The shape of the augmented breast by fat transfer can be of variable quality depending on the experience of the surgeon and the efficacy of the surgical technique. Another factor that might influence the ultimate result is the donor site's fat volume.

Breast augmentation using silicone gel implants has been shown to produce long term and stable outcomes. Even though fat transfer is an acceptable alternative procedure for patients who do not prefer to undergo a surgery with implants for a variety of reasons, using implant has been shown to provide stable and long lasting results.

Analytical explanation of these two different techniques, with their advantages and disadvantages is of utmost importance to the patients, for the relevant decision to be taken prior to surgery.

CONCLUSION

This case report is a example of unfavourable consequences following fat transfer for breast augmentation due to poor method of execution and non-adherence to commonly accepted surgical protocols. The creation of cystic lesions, as well as the resulting functional and cosmetic manifestations in the patient, is most likely due to the large transfer of fat clumps in the breast tissue, which resulted in fat necrosis and encapsulation. Another cause of this problem might be fat injection

inside the breast parenchyma. We cannot ascribe this problem to other factors that may have also played a part in this outcome, due to a lack of information on the procedure used for fat collection and processing prior to the transfer.

Compliance with ethical standards

Conflict of interest:

The authors declare that they have no conflict of interest. They also have no source of financial or material support.

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