Case Report

Breast Amputation Correction of a Horse Bite Using the Lipomodeling Technique

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Abstract

Mammary gland development is an important phase of puberty, and it marks the passage into adulthood for women, so any trauma leading to mammary deformities has an important physical and psychological impact. Often, classic techniques are difficult to use in the treatment of traumatic breast lesions. In this article, the authors present an exceptional case of breast reshaping by lipomodeling in a teenage patient who had experienced a horse bite. Treatment included 2 fat grafting sessions with fasciotomies, nipple reconstruction using a bifoliated flap, and areolar tattooing, all without any complications. We achieved a satisfactory result with a symmetric volume, a natural tissue consistency, and sensation improvement, all of which were maintained as the patient grew. In our experience, fat transfer was a safe and reliable technique that provided a good and stable aesthetic result, improving the volume and shape without additional scarring or implant devices.

Level of Evidence: 5

Keywords

fat grafting, breast deformation, fasciotomies, breast malformation, breast asymmetry, lipomodeling, trauma

Accepted for publication August 10, 2012.

Breast growth is an important stage for teenage girls because it marks the passage into womanhood. Normal development of the mammary glands includes symmetry of shape and volume. Acquired mammary deformities are rare, and they are often due to trauma, such as a deep burn. These traumatic breast deformities have an important physical and psychological impact on the patient’s development. The classic techniques used to treat these types of injuries (prosthesis or flap) are difficult to apply in these sensitive patients because of the many inconveniences with which they are associated. Fat grafting to the breast is an alternative that allows for natural breast augmentation and reshaping. These advantages are the reason behind today’s increasing interest in this approach. In our department, we have gained a great deal of experience with breast fat transfer since 1998.1,2 That experience has allowed us to extend the indications of this technique to thoracic malformations since 2000.

In this article, we present an exceptional case of breast amelioration after a severe sequela of a horse bite. We discuss the applications of fat grafting in the treatment of major posttraumatic sequelae of the breast.

CASE REPORT

In July 2002, an 8-year-old patient was bitten by the neighbor’s horse through her cotton T-shirt while she was trying to pet it. The initial treatment was conducted in a different service. It included local treatment and secondary healing. The patient presented to our department 6 years postinjury, as a 14-year-old with severe sequela of the left breast (Figure 1). Clinical analysis of the left breast showed insufficient skin tissue, volume deficit, and amputation of the nipple-areolar complex. We discussed with the patient and her parents the advantages

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and disadvantages of different therapeutic options. Given the fact that our team has great experience with breast lipomodeling for breast reconstruction and breast malformations, and considering the difficulty and the modest results of the classic techniques (prosthesis or flap), we decided—together with the patient and her parents—to correct the deformation by lipomodeling alone. The parents gave their written and informed consent for the intervention.

In April 2008, we proceeded with the first lipomodeling intervention under general anesthesia, grafting 118 mL of fat tissue in the left breast. The fat grafts were taken from the abdominal area after infiltration with physiologic saline and epinephrine (1 mg epinephrine in 500 mL of physiologic saline). Luer-Lok syringes, 10 mL, were attached to a 3.5-mm multiperforated cannula for liposuction. The fat tissue was treated by centrifugation at 500 g (3000 rotations per minute) for 20 seconds. The incisions in the breast were made with a 14-gauge trocar, and the fat grafts were injected in every layer using a 2-mm monoperforated cannula. The fat was injected while retracting the cannula. Fat transfer was performed from the deep planes to the superficial ones in the volume deficit area of the breast. We also performed fasciotomies in the excessive tension zones. Subcutaneous strings were released with a 14-gauge needle, in a similar manner to a mesh graft for burn surgery. We used a double hock retractor to put the tissues under maximal tension and a 14-gauge trocar to release the fibrous strings. The injection points were closed with a very thin, fast-absorbing suture. A paraffin gauze dressing alone was used for the whole breast, and a compressive dressing was placed on the area of liposuction (which was removed 5 days after surgery). The patient’s appearance 15 days after the first fat grafting session is shown in Figure 2.

In April 2009, we performed a second lipomodeling session and grafted 228 mL using the same technique described above. For the second session, we harvested the fat tissue from the thighs and the lower back area, with the patient in a prone position. In the same session, we reconstructed the nipple with a local bifoliated flap and areolar tattoo. The patient, her parents, and the surgical team were satisfied with the final result (Figure 3). The reconstructed breast had a normal shape, volume, and consistency. It also recovered its sensibility. Breast development was symmetrical with the contralateral breast. The patient experienced no complications (infection, hemorrhage, pneumothorax, fat embolism) in the treated breast or in the donor site.

Figure 1. This 14-year-old girl presented with severe sequela of the left breast after having been bitten by a horse at age 8 years.

Figure 2. (A, B) The patient is shown 15 days after the first fat transfer lipomodeling session (118 mL). The graft was taken from the patient’s abdominal area.
Horse bites of the thoracic-mammary region are very rare; we found no other cases described in the literature. Most cases of thoracic trauma are described after deep burns, which are responsible for mammary-acquired deformations with breast asymmetry. The resulting scar acts as an inextensible envelope, making it difficult for the mammary gland to develop normally in teenagers. McCauley et al showed that the mammary gland bud is rarely destroyed, even if the burn is deep. Therefore, the cutaneous defect is the main cause of volume insufficiency. The classic techniques used in breast reconstruction after trauma are locoregional flaps to increase the skin envelope and breast implants to restore the mammary volume. Cutaneous expansion is a useful technique that expands the skin envelope, especially after deep burns, but it is a long and difficult process that requires the patient to submit to regular expansion and multiple surgeries.

Initially, it might seem to be an easy technique, but it has a learning curve and needs precise indications. Preoperatively, we analyze natural fat areas of the patient before surgery. The main difficulty in this case was the fact that the patient was a growing adolescent with a normal to low body mass index. In our experience, for unilateral reconstruction, we can take enough fatty tissue to perform 2 sessions of fat grafting, even if the patient is thin. Usually, in the first session, we use the abdominal area; the second site is the trochanteric region, at the medial part of the thigh and the knee. For the result to be constant over time, it is important for the patient to have a stable weight at the moment of the surgery. The transferred fat indeed retains the memory of the original site (if the patient loses weight after surgery, she will lose a part of the breast volume).

The satisfaction of the patient and her parents was linked to a very good aesthetic result after 2 short procedures, without additional scarring and with a simple follow-up. The fat transfer after acquired breast deformities has many advantages: the surgical intervention involves only autologous tissues, the costs are relatively low, it can be repeated if the result is not satisfying, the breast has a natural appearance and consistency, symmetry is achieved, and it offers liposuction that defines the patient’s figure as a secondary benefit (this advantage is appreciated more by the patients with a fat excess in the liposuction areas).

**CONCLUSIONS**

Breast posttraumatic deformities are rare and difficult cases. They always have an important impact on the quality of life of the patient. They can be associated with breast asymmetry and breast sequelae. Fat grafting is a major advance in breast reconstruction and in plastic surgery. In our experience, lipomodeling is an elegant and effective solution to correct this type of mammary deformation, especially in young patients. It is a technique that has good results and a high satisfaction rate.
Disclosures

The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

Funding

The authors received no financial support for the research, authorship, or publication of this article.

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