

Release and Reconstruction of a Postburn Deformed Breast in a Young Woman

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Summary: Burn injuries to the anterior chest wall in the young woman may cause disfiguration or lack of development of the breasts during puberty. Often the patients are referred after puberty with an apparent lack of breast development due to firm postburn scar tissue constricting the anterior chest wall. We report a case where a young female with a postburn disfiguration and apparent diminished breast development was reconstructed successfully with incision only through the restricting burn scar, a periareolar skin excision and split-thickness skin grafting of the subsequent outburst of constricted breast tissue. (*Plast Reconstr Surg Glob Open* 2016;4:e643; doi: 10.1097/GOX.0000000000000626; Published online 17 March 2016.)

Burn injuries to the anterior chest wall in the young female may cause disfiguration or lack of development of the breasts during puberty. The cause of injury is often exposure to hot liquid that may result in a deep second-degree or third-degree burn.¹ At the time of injury, conservative treatment is advised, and if surgery is required, care should be taken to avoid the breast bud that is located in the subcutaneous tissue in the areola area.¹ If the development of the burned breast is inhibited during puberty, the constricting scar tissue may be surgically released and the defects grafted by split-thickness skin graft (STSG) to secure breast development.²⁻⁴ However, often the patients are referred after puberty with disfiguration and an apparent lack of breast development due to firm postburn scar tissue constricting the anterior chest wall. Under these circumstances, several reconstructive procedures have been described involving expanders, local flaps, or excision of the constricting scar tissue and graft-

ing with STSG.⁵ We present a case where a young woman with a postburn breast disfiguration and apparent diminished breast development was reconstructed successfully with incision only through the restricting burn scar, a periareolar skin excision and split-thickness skin grafting of the subsequent outburst of constricted breast tissue.

CASE REPORT

An 18-year-old woman presented with postburn constriction and deformation of her right breast. At the age of 3, the patient had suffered a deep dermal burn at the anterior chest wall caused by hot liquid. The nonhealing areas of the scald were then treated by tangential excision and application of STSG harvested from the thigh. The patient had no further corrective surgery done. At the time of admission, she presented with a postburn constriction at the anterior chest wall and disfiguration of the right breast. The breast seemed underdeveloped at the medial inferior part and the volume of breast tissue appeared about 30% less compared with the volume of the almost normal left breast. There were no signs of excessive compressed breast tissue. The left breast was slightly affected horizontally by the contracted scar tissue (Fig. 1). The patient underwent reconstructive surgery through a semicircular incision from the

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Fig. 1. Eighteen-year-old woman with postburn constriction and deformation of the right breast.

top point of the right breast to the inferior pole to release the contraction. The incision was made only through scar tissue, and by this method, the compressed breast tissue emerged. The resulting skin defect was grafted by a thick STSG, which was harvested from the thigh, and the donor site was grafted with a thin STSG. Due to some skin laxity that appeared after releasing the contracting scar tissue, a periareolar skin excision was performed to adjust the position and skin excess at the nipple–areolar complex (NAC). After successful take of the grafts, silicone tape was applied on the scar for 3 months. On follow-up 9 months postoperatively, the patient was without pain and presented with satisfactory symmetric breasts with fine scar formation (Fig. 2). There were no signs of graft contracture, and the color of the STSG was still a bit reddish. The patient was pleased and satisfied with the result of the treatment.

DISCUSSION

Thermal injuries to the anterior chest wall are often caused by exposure to hot liquid resulting



Fig. 2. Nine months after final reconstructive surgery.

in tissue damage into the superficial subcutaneous tissue. As the breast bud is located in the deep subcutaneous tissue beneath the NAC, only extensive damage as seen after flame burn is likely to cause lack of breast development.¹ However, thermal injuries may result in apparent underdevelopment of the breast due to contracting burn scar. To prevent this, it has been recommended to release chest wall restrictive burn scars by a deep incision to the fascia in the inframammary area and graft the defect by STSG once breast development begins in the early teens.^{2–4} If the patient presents after puberty and no corrective surgery has been performed, constriction of scar tissue of the anterior chest wall often results in breast deformity characterized by alteration in the nipple–areolar position, underdevelopment of the breast, and absence of inframammary fold.⁶ Several reconstructive procedures have been suggested to treat postburn breast deformations depending on an individual assessment. Yet, it is not always clear whether there is a compressed, although entirely developed, breast underneath the constricting scar.⁷ This fact has sometimes led to the strategy of implanting expanders to increase volume before releasing scar tissues and reconstructing the breast with local abdominal fasciocutaneous flaps or permanent implants.^{8,9} Release of a completely developed postburn compressed breast in an adult female was observed after total excision of the burn scar.¹ However, to our knowledge after performing a review of current literature on this subject, no previous publication has specifically addressed a reconstruction of the breast in postpubescent female by an incision in the scar followed by skin grafting, without excision of scar tissue or the use of expanders or flaps. Also, as observed in previous cases, the NAC is often involved in the deformity. When the release of scar tissue led to some skin excess in our presented case, a periareolar skin excision was performed resulting in a successful normalization of the NAC position. Disadvantages of skin grafts comprise graft contracture, color mismatch, and the risk of hypertrophic scarring.¹⁰ However, the use of flaps or expanders was not relevant in our case because there was no deficit of breast volume.

CONCLUSIONS

We recognize that each case is individual and provides certain challenges to the surgeon, and that several methods may be applied to correct and reconstruct postburn deformities in the female breast. However, we recommend taking into account that the breast volume might be larger than it appears to be and therefore planning the reconstructive pro-

cedure accordingly. As presented in our case, a satisfactory result for the patient may be obtained by a simple method without the use of implants or excessive excision of postburn scar tissue.

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