Too close for comfort: accidental burn following subcutaneous mastectomy and immediate implant reconstruction*

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DECLARATIONS

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Summary

We report a case of an accidental burn from a self-applied heat pack following subcutaneous mastectomy and implant reconstruction. Such patients are at increased risk of accidental burns not only due to loss of protective sensation, but also because of the thinner, less vascular overlying skin. We have changed our practice so that all patients undergoing breast reconstructive surgery are warned postoperatively to protect the skin from externally applied heat sources.

Case Report

A 41-year-old woman was diagnosed with multifocal ductal carcinoma in situ (DCIS) in the left breast. She underwent a subcutaneous mastectomy, with sparing of the nipple areolar complex and immediate reconstruction with a McGhan 410 mm, 280 g implant. The implant was covered superiorly by the pectoralis major. On review in the clinic two weeks following her surgery her wounds were healing well with no concern regarding the vascularity of the skin over the lower pole of the breast.

One month following her surgery, whilst at home, she applied a commercially available 'wheat sack', heated in the microwave. This was held to her breasts for 15 minutes and she felt no pain during the application. One hour later she noticed blistering over her reconstructed left breast. The right breast was unaffected. On review, she was found to have sustained a full thickness burn to the lower inner quadrant of the left breast (Figure 1).

It was clear that following debridement of the burn the implant would be exposed. Immediate reconstructive options were discussed. She did not want to undergo extensive surgery. Tangential excision of the burn was performed. The exposed implant following burn excision is shown in Figure 2. The implant was removed and a split skin graft used as temporary skin coverage. This was later excised and she was left with a linear mastectomy scar.

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Discussion

Accidental thermal injuries to insensate skin following breast reconstruction surgery are well recognized.[1–4] In several of these previously reported cases the burn was sustained through the application of heating pads. Management of the burns ranged from conservative treatment to revision-free tissue reconstruction.

In our institution, patients undergoing breast reconstruction with latissimus dorsi, free transverse rectus abdominis musculocutaneous (TRAM) or deep inferior epigastric artery perforator (DIEP) flaps are routinely warned to protect insensate areas of skin from injury postoperatively. Until recently it was felt unnecessary to extend such advice to patients undergoing subcutaneous mastectomy and immediate implant reconstruction. These patients were warned to expect altered sensation in the breast, but not given any specific advice with regard to protecting the breast from injury.

Whilst altered sensation can occur in the breast following any plastic surgery,[5] a study assessing touch sensation using von Frey's monofilaments in the skin of the breast following subcutaneous mastectomy and implant reconstruction found retained touch sensation.[6] However, an accidental burn has been reported in a patient with such a reconstruction.[7]

Loss of protective sensation in the skin of the lower pole of the breast following subcutaneous mastectomy and implant reconstruction means this area is more susceptible to thermal injury. In

Figure 1
Full thickness burn to reconstructed breast

Figure 2
Exposed implant following tangential excision

addition, the skin and soft tissue above the implant is thinned, with little fat insulation and reduced vascularity. Burns will therefore be more easily sustained and deeper for a given thermal insult.

Gradual skin necrosis and implant extrusion is a recognized complication of implant reconstruction, particularly if the implant is located subcutaneously. Such an implant will threaten the viability of the overlying skin whether it is subjected to further insult or not. Implant extrusion is an important differential to consider in this case. In this case, however, the history of acute onset of skin changes following application of the heat pack, in an area of the breast where there was no previous concern regarding skin vascularity, makes thermal injury much more likely than extrusion.

Another possible explanation for the left breast being burned and not the right other than the reasons discussed above could be unequal heating by microwave resulting in different temperatures within the compress. It is also possible that the implant may act as an insulator, retaining thermal energy and thus prolonging the exposure time.

Following this experience, we have changed our practice so that all patients undergoing breast reconstructive surgery are warned postoperatively to protect the skin from externally applied heat sources.

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