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Erysipelas-like inflammation following breast surgery☆

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Summary Impaired lymph drainage is an inevitable consequence of any form of surgery that disrupts lymphatics, resulting in a degree of lymphoedema that may vary from subtle to dramatic and although classically involving an entire limb, may be more localised, confined to only a small area such as a skin flap. Infection is a well-recognised complication of lymphoedema. However, not all inflammatory episodes occurring in the setting of lymphatic dysfunction can be clearly attributed to infection as this article demonstrates. Five patients presented over a 5-year period with distinctive erysipelas-like inflammation affecting the breast which occurred several weeks following reduction mammaplasty in four patients and breast reconstruction in one patient. No clinical response was obtained with standard antibiotics. This inflammatory problem may represent a previously unreported complication of breast surgery with an incidence of 4% following reduction mammaplasty. Recent research supports the notion that this type of episode is most likely to be due to a non-infective inflammatory process related to lymphatic dysfunction induced by surgery.

Lymphatic dysfunction occurs in lymphoedema and results in defective local immunity,[1—3] predisposing to recurrent infection, including erysipelas and lymphangitis.[4—8] Disruption to the lymphatic drainage of an area of the body can arise due to cancer, lymphadenectomy, congenital abnormalities of the lymphatic system, chronic

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venous disease, and infectious diseases such as filariasis and recurrent cellulitis. Other causes include burns, peripheral vascular surgery, lipectomy and scar tissue formation. Although not regarded as classical lymphoedema, similar derangements in lymphatic function necessarily occur during surgery whenever pathways of lymph drainage are disrupted. One familiar manifestation of this in plastic surgery is the peau d'orange texture often acquired by skin overlying a flap when dermal lymphatics are interrupted by incisions and subsequent scar tissue formation. Surprisingly, however, reports of infection attributable to this acquired immune defect are almost nonexistent in the literature.

One case of recurrent erysipelas of the abdominal wall has been described in a patient after an abdominoplasty by Kronowitz et al.[9] According to the report, a 39-year-old man developed a postoperative group A β-haemolytic streptococcal infection of the abdominal wall after a gastroplasty, having undergone an abdominoplasty 2 years previously. Despite successful treatment of the infection, the patient developed an identical infection 6 weeks later. The authors surmised that the abdominoplasty resulted in compromised blood circulation and altered lymphatic drainage of the abdominal wall which predisposed to the development of erysipelas. No further cases have appeared in the literature. However, the basis of our article is a similar phenomenon which was observed in five patients over a 5-year period, each presenting with an inflammatory episode following breast surgery.

Patients

Between 2000 and 2005, a distinctive superficial inflammatory reaction resembling erysipelas with associated lymphangitis was observed several weeks post-surgery in four patients following reduction mammaplasty by the inferior pedicle technique and one patient following a breast reconstruction using latissimus dorsi as a myocutaneous flap. For a surgeon who performed 104 reductions over the same time period, the incidence of this complication was 4% following reduction mammaplasty. The age range of the patients was 42—60 years with a mean of 51 years (Table 1). None of the patients were immunocompromised and all had undergone surgery which had been without complications and was followed by an uneventful postoperative course before presentation. No prior surgery had been performed on the breasts or axillae except for the patient who underwent a breast reconstruction which followed a simple mastectomy and sentinel node biopsy for early stage breast cancer. The mean time from operation to presentation was 2.5 months with a range of 1—4.5 months (Table 1).

All five patients complained of a localised area of pain, swelling and tenderness in their breast which had progressively worsened over a period ranging from several days to weeks. Aside from general malaise, no constitutional symptoms were identified and they were afebrile. The main finding on examination was an area of erythema which was oedematous with a peau d'orange texture, tender and warm to touch. The inflammation appeared to be very superficial and resembled erysipelas but unlike classical group A β-haemolytic streptococcal erysipelas, was ill-defined with a dusky, violaceous hue. It also had a streaky appearance suggestive of an associated lymphangitis although no lymphadenopathy was detected. There were no nodules, plaques or induration evident on palpation of the affected area. In the patients who had undergone reduction mammaplasty, the area was confined between the periareolar and inframammary scars on either the medial or lateral side of the vertical scar extending down from the nipple (Fig. 1). In the patient who had undergone a breast reconstruction, the area was confined to the island of skin circumscribed by scar tissue overlying latissimus dorsi.

The appearance of erysipelas is often not sufficiently distinctive to permit a specific diagnosis on

Table 1 Patients and treatment

Patient	Age (years)	Operation	Time to presentation (months)	Site of inflammation	Treatment
1	51	Reduction mammaplasty	1	Medial flap	Flucloxacillin
2	60	Reduction mammaplasty	3.5	Medial flap	Cephalexin
3	42	Reduction mammaplasty	4.5	Lateral flap	Tetracycline
4	47	Reduction mammaplasty	2	Lateral flap	Nil
5	55	Breast reconstruction	1.5	Skin island	Flucloxacillin