

Necrotising soft tissue infection following mastectomy

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ABSTRACT

Necrotising fasciitis is a rare but rapidly progressive soft tissue disease which can lead to extensive necrosis, systemic sepsis and death. Including this case, only 7 other cases have been reported in the world literature with only 2 others affecting the patient post mastectomy. This 59 year old Caucasian lady presented with severe soft tissue infection soon after mastectomy, which was successfully treated with a combination of debridement, triangulation, VAC[®] dressing and skin grafting. Necrotising soft tissue infections following mastectomy are rapidly progressive and potentially extremely serious. It is essential that a high index of clinical suspicion is maintained together with prompt aggressive treatment in a multidisciplinary environment to prevent worsening physical and psychological sequelae.

INTRODUCTION

Necrotising soft tissue infections following mastectomy are rapidly progressive and potentially extremely serious. It is essential that a high index of clinical suspicion is maintained together with prompt aggressive treatment in a multidisciplinary environment to prevent worsening physical and psychological sequelae.

CASE REPORT

A 59 year old lady presented to the clinic with a large palpable mass in the right breast. She was otherwise very well, had never smoked and was overweight with a BMI of 30. This correlated both mammographically and with ultrasound, confirming an irregular 50mm mass suspicious of carcinoma. A core biopsy was performed revealing invasive carcinoma with lobular features. Following a multidisciplinary discussion, the patient consented to treatment with a simple mastectomy, sentinel lymph node (SLN) biopsy with per-operative assessment using OSNA (SYSMEX corp) and axillary dissection (AND) if the SLN proved positive. This was performed, and was accompanied by a level I+II axillary clearance as the SLN was positive. The operation used a standard technique and 2 vacuum drains were placed (one to the chest wall and one to the axilla). She made an uneventful postoperative recovery and was discharged 5 days later with the chest wall drain in situ. The patient presented to clinic 2 days following discharge for a routine drain review. At this time a florid wound infection was noted with spreading cellulitis and evidence of flap necrosis. The wound was very tender and associated with malodour. The patient was clinically septic. The patient was readmitted for intravenous antibiotics and analgesia with subsequent clinical improvement. Blood cultures taken day 9 post-op grew coagulase negative staphylococci with a wound swab taken day 12 post-op revealing mixed coliforms and skin flora. Due to clinical deterioration and a high

suspicion of a necrotising wound infection the decision was made to widely debride the remaining inflamed tissue on day 14 post-op. The histology of the primary tumour revealed a 45 mm area of lobular carcinoma, with extensive lymphovascular invasion but excellent margins of clearance. 10/14 lymph nodes were positive. Histology from the mastectomy skin flaps revealed severe acute inflammation with necrosis involving the subcutaneous tissue. Over the next 6 weeks, the wound underwent regular debridement with Hydrogen Peroxide washes and triangulation as shown in figure 1 to progressively reduce the surface area of the wound. Initially the wound was packed with povidone iodine soaked gauze rolls and then replaced by the application of a low pressure VAC[®] dressing, first in the hospital setting and then in the community.



The wound was eventually grafted with a split skin graft taken from the thigh 7 weeks later achieving a near 100% take (figure 2).



DISCUSSION

Necrotising fasciitis characteristically does not involve the underlying muscle (as in this case) and usually follows trauma, surgery or drug injections, often associated with advanced age, chronic renal failure, obesity, peripheral vascular disease or diabetes. The first case of necrotising fasciitis affecting the breast was reported by Shah (1). In this case the treatment was a simple mastectomy with delayed closure. Two other cases have also been reported in the absence of primary breast interventions, the first in a steroid dependant patient and the second in the absence of another predisposing factor (2). Four further cases have occurred following surgical intervention to the breast. Two cases occurred, as in this instance, following mastectomy (3) one following breast reduction surgery (4) and one following a core biopsy (5). Three broad types of necrotising fasciitis have been identified, ranging from the fulminant form which presents with shock and is often fatal to the subacute form which can be clinically indistinguishable from cellulitis until it progresses to necrosis needing extensive

debridement. Clinically the patient may present with minimal signs apart from severe pain. As the condition progresses this often is associated with marked oedema, erythema and purulent discharge. As in this case, the progression from a well healing wound to severe soft tissue infection is often extremely rapid and therefore a high index of suspicion is vital. Blistering and necrosis of the skin can follow together with septic shock, renal failure and disseminated intravascular coagulation. The treatment is essentially a two pronged attack with antibiotics and surgical debridement. Debridement is essential and needs to be extensive enough to ensure healthy bleeding tissue in all directions. The use of the VAC[®] system, which utilises a low pressure suction effect across a sealed wound using a reticulated foam surface, aims to increase local oxygenation and promote fibroblast stimulation and granulation formation although it's actions are contentious. In this case, several other factors may have contributed to the development of soft tissue necrosis. Malignancy is known to be a positive risk factor and the presence of extensive lymphovascular invasion may well have played a part. In addition, the increased operative time due to OSNA (50 mins), and the prolonged placement of the chest wall drain were possibly important. Despite the drain being a theoretical 'closed system', the presence of coliforms is suspicious for this being a potential causative factor. The mortality rate of patients with necrotising soft tissue infections ranges from 25%-73% (6) but can be reduced by early recognition and effective management. In cases such as this where the patient has already had the trauma of cancer with a mastectomy, it is vital that this potentially disastrous condition is picked up and treated immediately to prevent further physical and emotional morbidity. Also early recognition and surgical intervention prevented a significant delay in starting adjuvant therapy for breast cancer.

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