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A case report of primary necrotising fasciitis of the breast: A rare but deadly entity requiring rapid surgical management

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ABSTRACT

INTRODUCTION: Necrotising fasciitis of the breast is a rare entity with very few cases reported in the literature. It is rapidly progressive and can lead to sepsis and multi-organ failure without prompt medical and surgical management.
PRESENTATION OF CASE: We describe a case of a non-diabetic 23-year-old female with primary necrotising fasciitis of the right breast. She presented in septic shock with gross breast discolouration and nipple discharge. Immediate resuscitation followed by muscle-sparing mastectomy within 3 h of her presentation was performed. She was managed postoperatively in intensive care. Complications included myocardial infarction and anuria requiring continuous renal replacement therapy. She eventually recovered with close to normal cardiac function and was discharged home after skin grafting of her mastectomy wound.
CONCLUSION: This is the youngest patient with primary necrotising fasciitis of the breast described in the literature. Prompt resuscitation and an aggressive surgical approach are critical to the successful management of this life threatening pathology.

1. Introduction

Necrotising fasciitis is an aggressive and severe soft tissue infection, most commonly affecting the abdominal wall, perineum and extremities. Necrotising fasciitis of the breast is extremely rare. Mortality rates have been reported as high as 73%, but can be reduced with early diagnosis and prompt institution of appropriate management strategies [1]. To date, just twelve case reports detailing necrotizing fasciitis of the breast exist in the literature. Of these, only six reports feature primary, idiopathic necrotizing fasciitis of the breast in previously well, non-lactating women [2–7]. We present a case of primary necrotizing fasciitis of the breast in a healthy 23 year old female. To our knowledge, this is the youngest patient reported in the literature.

2. Case presentation

A 23-year-old female presented to the Emergency Department (ED) of a tertiary hospital with a 12-h history of a painful and swollen right breast. The breast was entirely discoloured and an offensive nipple discharge was noted. This occurred in the context of a 3-day history of breast pruritus near the inframammary fold. The patient also complained of dizziness, nausea, and several episodes of vomiting, and denied any history of trauma to the breast. Her medical history includes obesity (BMI 34.7) and polycystic ovarian syndrome. She is not on any regular medications, is a non-smoker and drinks small amounts of alcohol socially.

On presentation, the patient was alert and oriented, with a blood pressure of 80/60 mmHg, heart rate of 130 beats/min and saturations of 95% on room air. Her temperature was 35.8 °C. Breast examination revealed a grossly swollen and markedly tender right breast with discolouration and erythema to the margins, along with associated bullae. Examination of the left breast was unremarkable.

Blood tests were consistent with severe sepsis with end organ dysfunction. Her initial laboratory results revealed a white cell count of 27.85×10^9/L with neutrophilia (23.6×10^9/L) and a C-reactive protein of 400 mg/L. An arterial blood gas identified a metabolic acidosis with pH of 7.06 and lactate of 8.8 mmol/L. Creatinine was elevated at 394 umol/L, with an estimated glomerular filtration rate of 13 mL/min.1.73 m^2. Her international normalised ratio was 1.8 and activated partial thromboplastin time 44 s.

Over the next few hours, the patient received 5 L of intravenous crystalloid resuscitation along with inotropic support, including boluses of metaraminol (2 mg total) and adrenaline (1.1 mg total). She remained anuric during this time. A noradrenaline infusion was commenced in ED via a central line, with a peak pre-operative rate of 1.5 mg/h. With advice from ICU, a vasopressin infusion was also commenced at 4 units/h. In light of a reported possible penicillin allergy, renal-adjusted doses of IV meropenem, IV clindamycin and IV vancomycin were administered after consultation with the infec-

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Fig. 1. Appearance of breast preoperatively, during central line insertion. Marked erythema, bruising and ischaemic skin changes with de-epithelialization.

Fig. 2. Appearance of the breast preoperatively, showing a large area of ulceration.

tion control team. The patient was taken to the operating theatre within 3 h of her presentation and underwent an emergency right mastectomy and debridement of all necrotic tissue including pectoralis major fascia, preserving pectoralis major. A haematologist was consulted with regard to the patient's coagulopathy and 2 units of fresh frozen plasma were administered intraoperatively to prevent excessive haemorrhage. The wound was packed and covered with a vacuum assisted closure (VAC) dressing, and the patient was transferred to the intensive care unit for post-operative care where she remained intubated and sedated. Continuous renal replacement therapy (CRRT) was commenced Figs. 1–5 .

Overnight however, the patient developed a troponin-I rise to 20,203 ng/L with ST elevation in inferior leads. Troponin-I ultimately peaked at >40,000 ng/L. Adrenaline and vasopressin were gradually weaned and 2 units of packed cells were transfused in light of a haemoglobin of 83 g/L. Although likely sepsis driven myocardial ischaemia, aspirin and an IV heparin infusion were commenced following consultation by a cardiologist.

Fig. 3. Appearance of the chest wall post mastectomy.

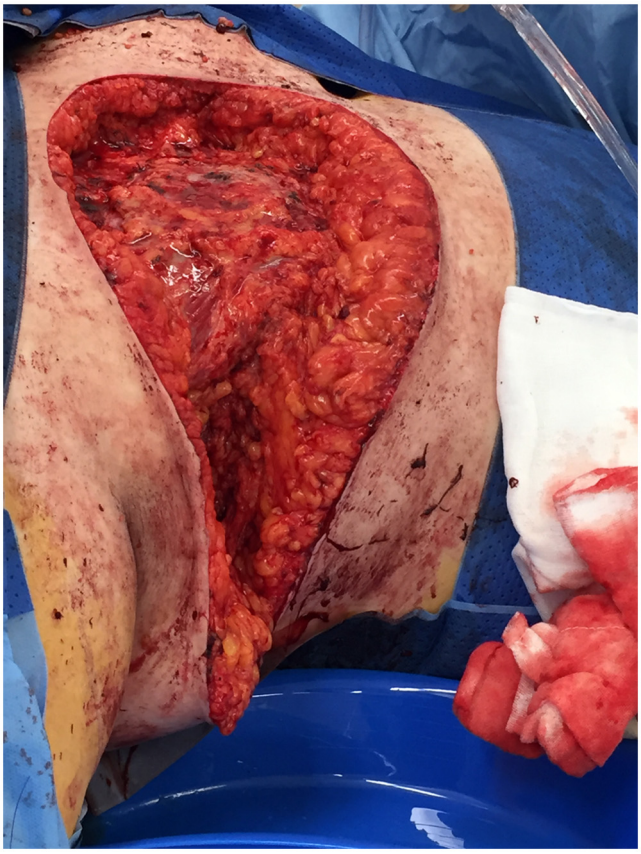

Fig. 4. Healthy bleeding tissue post second debridement.