CASE REPORT

Breast gangrene: a rare source of severe sepsis

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SUMMARY

We present a very rare case of breast gangrene in a 26-year-old woman, lactating primipara, referred to the emergency department of our hospital with a 1-day history of difficulty in breathing, high-grade fever associated with chills and rigor and failure to pass urine. After initial resuscitation, stabilisation and thorough examination her right breast was found to be gangrenous, with satellite lesions at the periphery. Later, under local anaesthesia and appropriate antibiotic coverage, the patient was taken for emergency debridement. She gradually recovered and as the wound developed healthy granulation tissue and wound culture became sterile, grafting of the affected area was carried out. The graft took well following which she was discharged.

BACKGROUND

Our aim in reporting this case is to create awareness among the clinicians regarding this uncommon fatal condition and the importance of localising the source of sepsis which is imperative in its early diagnosis. The rarity of breast gangrene is attested by the fact that this condition is not mentioned in any of the standard textbooks. This leads to delay in its diagnosis until the time severe sepsis settles in, which is the major hurdle in managing this condition despite aggressive treatment, so it is associated with high mortality. Hence, the important message to learn here is that thorough examination of patient and early diagnosis followed by aggressive treatment is the keystone in saving the patient's life.

CASE PRESENTATION

A 26-year-old woman, primipara, was referred to the emergency department of our institute with a 1-day history of difficulty in breathing, high-grade fever associated with chills and rigor and failure to pass urine. The patient had delivered a baby 6 months ago and was lactating. Her pregnancy was uneventful. There was no history of fever, diabetes mellitus or any other illness. On examination, the patient had features of severe sepsis. She was dehydrated, icteric. Her pulse rate was 160/min, blood pressure (BP) 80/40 mm Hg, respiratory rate 36/min and temperature 103°F. On urethral catheterisation, no urine was drained. She was promptly resuscitated and intubated, and ventilatory support was given. Intravenous fluids and parenteral broad-spectrum antibiotics—linezolid and clindamycin—were started and septic foci were searched for. Her right breast along with nipple areolar complex was found to be gangrenous, with satellite lesions at the

periphery (figure 1). There was no axillary lymphadenopathy. Her contralateral breast was normal.

INVESTIGATIONS

Her initial investigation reports revealed haemoglobin 13 g/dL, total leucocyte count 30 000/μL with predominance of neutrophils, platelet count 50 000/μL, C reactive protein 412 mg/L, prothrombin time 36 s and International Normalised Ratio 2.3. Her serum urea was 116 mg/dL, serum creatinine 2 mg/dL, serum K⁺ 5.4 mEq/L, and serum blood sugar 108 mg/dL, and ABG showed metabolic acidosis (pH 7.25). Abdominal ultrasonography was grossly normal.

TREATMENT

After initial resuscitation with intravenous fluids, her BP and urine output showed improvement. She was immediately shifted to the operation theatre and extensive debridement was carried out, nipple areolar complex along with gangrenous breast tissue was removed under local anaesthesia. On the next day, second debridement was carried out in which most of the breast tissues were removed due to extensive involvement. Postoperatively, the patient was under intensive care and the wound was dressed twice daily, and followed the same antibiotics—intravenous linezolid and clindamycin with supportive care were continued. The culture reports demonstrated extensive growth of *Staphylococcus aureus* which was sensitive to linezolid and amoxicillin+clavulanic acid. Histology

Figure 1 Gangrene of the right breast involving nipple areolar complex and adjoining breast tissue with satellite lesions in periphery following tooth bite in a lactating woman.

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showed features of breast abscess and necrosis consistent with gangrene. Milk was expressed from contralateral normal breast 3–4 times a day.

OUTCOME AND FOLLOW-UP

She gradually recovered and was shifted to ward on the fifth postoperative day. Breast feeding was initiated from the normal breast. Once healthy granulation tissue developed and wound culture became sterile, grafting of the affected area was carried out on 15th postoperative day. The graft took well and she was discharged on 25th postoperative day and was advised to continue breast feeding from the unaffected side.

DISCUSSION

There are only few reported cases of breast gangrene. This may partially be attributed to its insidious onset and out-of-proportion systemic features of sepsis. So, a prompt search for the site of infection is needed for its early diagnosis and appropriate management. Gangrene of the breast is mostly unilateral.¹ Important predisposing factors are pregnancy, lactation, puerperal sepsis, diabetes mellitus, trauma (tooth bite), application of topical agents as belladonna, breast biopsy, idiopathic² and few cases are also reported in association with immunocompromised states.³ In the early phase of idiopathic form of this disease, patients present with pain in the involved breast with no suggestive antecedent history and in due course of time develop patchy cellulitis and necrosis. Such idiopathic occurrence was initially reported by Cutter in his case of apoplexy of the breast. In our case, the patient was lactating and there was a history of trauma due to tooth bite that was the reason behind the occurrence of this disorder. In its natural history, the disease starts as skin changes similar to ecchymosis and abscess. Insidiously within 2–5 days, disease evolves into dermal gangrene leading to eschar formation at the end. Sometimes it may also involve the underlying breast tissue presenting as necrotising fasciitis. Although local features are insidious in onset, systemic manifestations are severe in the form of full-blown sepsis. This suggests the early consideration of any such patch as a primary implicating source of sepsis. An evidence of widespread venous occlusion had been documented histologically. In majority of cases, pathophysiology implicated behind such breast infarction is a non-specific panarteritis or endarteritis obliterans, and thrombophlebitis causing

microthrombi formation. Such extensive thrombosis also prevents parenteral antibiotics to reach the site of infection in sufficient quantities, thus further aggravating the disease. The main microbiological agents obtained on culture are mixed anaerobic and aerobic flora (*S aureus*, *Escherichia coli*, bacteroids, proteus, *Enterococcus* and anaerobic streptococci). Although this disorder carries a high mortality (20–70%),⁴ early diagnosis and emergent surgical intervention in the form of wide local repeated debridement of the gangrenous breast and proper aseptic dressing along with broad-spectrum and culture-specific antibiotics and other supportive measures can save the patient.⁵ Once healthy granulation tissue appears split skin grafting can be carried out. Sometimes, mastectomy may be needed in cases with extensive involvement.

Learning points

- Breast gangrene is a very rare cause of severe sepsis.
- Thorough examination of the patient has a very important role in localising the source of sepsis.
- Early diagnosis and aggressive treatment is a life-saving measure.
- Broad-spectrum antibiotics and repeated surgical debridement are the cornerstone in its management.

Competing interests None.

Patient consent Obtained.

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