



Autoamputation of the Breast Following Necrotizing Fasciitis: A Case Report and Review of Literature

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Abstract

Autoamputation of the breast as a sequela of severe pyogenic infection is a rare surgical condition. Severe pyogenic infections or Necrotizing Soft Tissue Infection (NSTI) may lead to, thrombotic vasculitis, rapid tissue necrosis and ultimately, detachment of the breast if misdiagnosed or left untreated. Imaging techniques like contrast-enhanced computerized tomography, and ultrasound scan play crucial roles in the early diagnosis, often with findings of subcutaneous gas, tissue edema, and fascial fluid collections serving as important differentiators from abscess and cellulitis.

I report a 25-year-old woman who presented with complaints of pain in her left breast, left breast swelling and left breast ulcer of eleven (11), seven (7) and four (4) days duration respectively, shortly after weaning her baby. She has no history of sickle cell disease, hypertension or diabetes mellitus.

On examination, the left breast was enlarged with circumferential eschar, and oedematous surrounding skin. The nipple was inverted. The ipsilateral (left) axillary nodes were palpably enlarged. The contralateral (right) breast and axilla were essentially normal.

Breast ultrasound scan revealed subcutaneous gas, tissue edema, and fascial fluid collections in the affected breast.

An assessment of necrotizing fasciitis of the left breast secondary to a poorly treated lactational mastitis was made. She subsequently developed an autoamputation of the affected breast caused by severe pyogenic infection, which rapidly progressed to a necrotizing fasciitis. A wedged biopsy was taken for culture and histology. The culture yielded *Escherichia coli* sensitive to cefuroxime and Gentamicin. The specimen showed acute inflammation of the skin, soft tissue destruction, extensive breast tissue necrosis, necrotizing arteritis, venous thrombosis (consistent with features of necrotizing fasciitis), and an incidental finding of a tubular adenoma on histological examination.

Her management involved timely initiation of broad-spectrum antibiotic therapy, surgical debridement, and proper wound dressing. The wound healed nicely, thus she was counselled and referred to the reconstructive surgeons for breast reconstruction.

This case highlights the importance of maintaining a high index of suspicion in making the diagnosis of necrotizing fasciitis of the breast. Prompt decision-making and multidisciplinary management can reduce morbidity and prevent such tragic outcome as autoamputation. Furthermore, a de-escalation

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therapy to a narrower spectrum of antibiotics is encouraged, after reviewing culture and sensitivity results.

Keywords: Pyogenic breast infection, Necrotizing fasciitis, Autoamputation, Debridement, Antibiotic therapy.

Introduction

This case report presents a patient who developed breast auto-amputation because of necrotizing fasciitis.

Autoamputation is the spontaneous separation and detachment of a body part or tissue resulting from severe ischemia, necrosis, or progressive tissue destruction.¹ Although typically associated with peripheral limbs or advanced malignancies, auto-amputation of the breast is rarely documented.

Autoamputation of the breast as a sequela of necrotizing fasciitis is a rare surgical condition².

Pyogenic infection of the breast can occur following invasion of breast tissue by microorganism, most commonly by bacteria. The portal of entry might be through a cracked nipple, resulting from suckling by the baby, thus commoner during breast feeding. Mastitis is a common condition that predominates during the puerperium.³

Necrotizing fasciitis of the breast can be of idiopathic origin⁴ or secondary to other causes⁵ like human bites, incising injuries,⁶ puerperal sepsis,⁷ breast tumors,^{8,9} post core - needle biopsy,^{10,11} and mastectomy procedures.¹² Other literatures showed that minor scratches, small wounds, and insect bites can be underlying causes.¹³

The primary rationale for this report is that autoamputation of the breast following severe pyogenic infection or necrotizing fasciitis remains an exceptionally rare and poorly characterized clinical entity.¹⁴

A Clinical Case Report

A 25-year-old woman who presented to the surgical out-patient department eighteen (18) months ago with complaints of pain in her left breast, left breast swelling and left breast ulcer of eleven (11), seven (7) and four (4) days duration respectively, shortly after weaning her baby.

She was Para1+0, 1 alive, last child birth was seventeen (17) months ago, and no history of amenorrhoea.

She was apparently well until 11 days prior to presentation when she started having pain in her left breast, the pain was burning in nature with no known aggravating or relieving factors. A week prior to presentation, she noticed swelling of her left breast with associated changes in coloration of the skin over the breast. There was associated high-

grade continuous fever, relieved by ingestion of analgesics. She subsequently developed an ulcer involving the upper outer quadrant of the affected breast, and darkening of the surrounding skin.

There was no history of weight loss, anorexia, easy fatigability, drenching night sweats or exposure to an adult with chronic cough. She has no history of sickle cell disease, hypertension or diabetes mellitus.

On examination, the left breast was enlarged with circumferential eschar and oedematous surrounding skin [Figure I]. The nipple was inverted. The ipsilateral (left) axillary nodes were palpably enlarged. The contralateral (right) breast and axilla were essentially normal.

Breast ultrasound scan revealed subcutaneous gas, tissue edema, and fascial fluid collections in the affected breast.

An assessment of the necrotizing fasciitis of the left breast secondary to a poorly treated lactational mastitis were made. She was then placed on empirical oral co-amoxiclav, metronidazole, analgesics, vitamin supplementation, and tetanus prophylaxis.

The wound was dressed with saline and cetrimide soaked gauze, prior to wound debridement and biopsy.

The patient did not do breast CT scan or MRI due to financial constraints.

Three weeks after commencement of treatment, the whole left breast was found to be necrotic and hanging on a denuded necrotic ulcer measuring 8x10cm with sloping edge and sloughy floor [Figure II].

Wound debridement was done under local anaesthesia with 1% lidocaine in the procedure room, a wedge biopsy was taken from the upper outer quadrant of the breast and specimen was sent for both culture and histology. The necrotic tissue at the central portion of the remnant of breast tissue was excised along the line of natural demarcation. Intraoperatively, the superficial fascia appeared dull grey, necrotic and non-bleeding. Aggressive debridement of all devitalized fascial tissue was undertaken until healthy, bleeding fascial margins indicative of viable tissue were reached. The wound was irrigated with saline, hydrogen peroxide and dressed daily with 5% povidone iodine solution.

The culture yielded *Escherichia coli* which was



Figure I: Necrotizing fasciitis of the left breast with breast necrosis

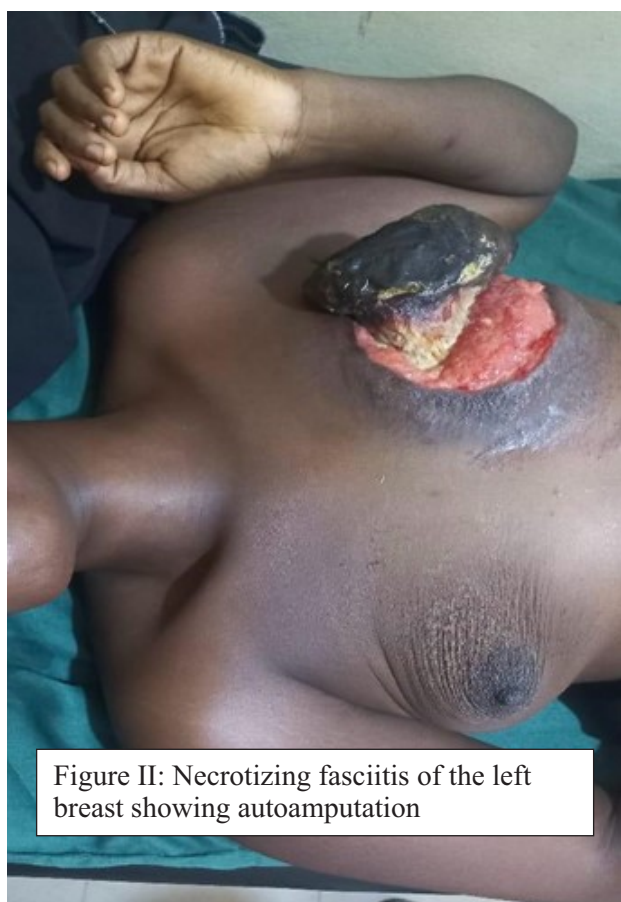


Figure II: Necrotizing fasciitis of the left breast showing autoamputation



Figure III: Necrotizing fasciitis of the left breast showing post debridement wound

sensitive to Gentamicin and cefuroxime. A de-escalation therapy to a narrower spectrum of antibiotics was encouraged after reviewing culture and sensitivity results, thus, her drugs were changed accordingly to Cefuroxime and Gentamicin. Histology showed features of acute inflammation of the skin, soft tissue destruction, extensive breast tissue necrosis, necrotizing arteritis, venous thrombosis (consistent with features of necrotizing fasciitis), and an incidental finding of tubular adenoma.

The post-debridement wound [Figure III], was managed in collaboration with the reconstructive surgery team. The wound healed nicely and the patient was counselled for breast reconstruction.

Clinical photographs demonstrating the progression of breast necrosis, autoamputation, and the post-debridement wound are shown in Figures I–III.

Discussion

Necrotizing fasciitis of the breast is rare but can lead to catastrophic outcomes if not diagnosed early. The breast's rich vascular supply often prevents such infections from progressing to gangrene, yet cases in immunocompromised or diabetic patients have shown fulminant courses. Severe pyogenic infections including necrotizing fasciitis can lead to extensive tissue necrosis, vascular thrombosis, gangrene and, ultimately, self-detachment of the affected part. Necrotizing infection of the breast is often caused by multiple bacteria (polybacterial), and might progress to massive tissue loss if diagnosis or debridement is delayed.^{15,16,17}

The culture yielded *Escherichia coli* which is less commonly encountered as the sole pathogen in necrotizing fasciitis of the breast but may act synergistically with *Staphylococcus aureus*, as reported by Marks B et al.¹⁸

Co-morbidities such as diabetes mellitus, immunosuppression and frailty are recurrent risk factors of NSTI presentation with pain disproportionate to examination findings, systemic toxicity, and rapid progression.¹⁹ Although the patient does not have any of these underlying conditions, she demonstrated features of rapid progression from severe pyogenic infection to necrotizing fasciitis and consequent autoamputation. Probably the pathogen was not susceptible to the initial antibiotics (co-amoxiclav and metronidazole) administered to the patient.

Ibtissam et al. reported a 71 year old diabetic woman with primary necrotising fasciitis of the breast who required mastectomy; tissue necrosis was so extensive that complete loss of the organ occurred without structured partitioning of viable tissue.²⁰

Elenwo et al. presented a series from Port Harcourt (Nigeria) with three patients who developed autoamputation while on treatment for advanced ductal carcinoma, largely due to delay/default and resultant infection/necrosis.²¹ Cases of young lactating women who presented with necrotizing fasciitis resulting to autoamputation in the postpartum period, was documented by Benlghazi et al.^{22,23} Olusola-Bello et al. described a Nigerian patient diagnosed with triple-negative invasive ductal carcinoma who defaulted on care and later presented with autoamputation of the left breast after tissue necrosis had fully set in.²³

Although NSTI is a clinical diagnosis, imaging complements assessment when diagnosis is uncertain.²⁵ Breast ultrasound scan may reveal early changes such as subcutaneous thickening, fluid along the fascia, and air producing "dirty shadowing", although this is operator-dependent.²⁶ Computed Tomography (CT) detects soft-tissue gas, fascial oedema, fluid collections, or extension into chest wall. In one diabetic woman, CT revealed diffuse air pockets in breast tissue extending into the axilla and abdominal wall, aiding urgent surgical decision.²⁷ Magnetic Resonance Imaging (MRI) has highest sensitivity for fascial fluid, and with contrast enhancement it distinguishes necrotizing fasciitis from cellulitis. Furthermore, Plain radiograph, may show subcutaneous emphysema (as a late sign), but has limited sensitivity in early disease.²⁸ Definitive diagnosis rests on surgical exploration and histopathology.²⁹

Early empirical broad-spectrum antibiotic therapy is crucial in suspected necrotising soft tissue infection of the breast, followed by culture-based de-escalation. Recommended empirical intravenous antibiotic therapy consists of a β -lactam/ β -lactamase inhibitor or carbapenem in combination with clindamycin to inhibit bacterial toxin production. In patients with risk factors for methicillin-resistant *Staphylococcus aureus* (MRSA), anti-MRSA therapy should be included, while gentamicin may be considered to provide synergistic Gram-negative coverage. Treatment should be adjusted once culture results are obtained. Duration of therapy typically is from 10 – 14 days to 4 – 6 weeks post-surgery, depending on clinical course and surgical clearance.³⁰

As described, management hinges on prompt broad-spectrum antibiotic therapy, intravenous fluid resuscitation, and urgent surgical excision of necrotic tissue. Serial debridement is often required; modified radical mastectomy is sometimes necessary for source control.^{31,32} Xu R et al reported a case of simultaneous necrotizing fasciitis of breast and forearm in a diabetic patient for which early surgical debridement and targeted antibiotics (clindamycin + levofloxacin) after culture allowed recovery without amputation.³³ Mastitis progressing to frank gangrene may mimic inflammatory carcinoma, emphasizing importance of biopsy and early recognition.³⁴

The adult female breast greatly influences sexual behaviour, being the most outstanding female secondary characteristics,³⁵ hence loss of the breast on the other hand in a young woman, may be perceived as a great personal tragedy, upsetting body and mind balance,^{36,37,38} similar to the feelings among breast cancer patients after mastectomy. In addition, reports from literature about mastectomy demonstrates that loss of breast is associated with altered perception about femininity, reduced sexual self-esteem, and sexual dysfunction.^{39,40,41}

Psychotherapy is therefore an essential component of multidisciplinary care for women with autoamputation of the breast as it helps address psychological changes and support their recovery.

Cai Y et al. emphasized that the extensive tissue destruction associated with necrotizing fasciitis may necessitate mastectomy and/or reconstructive surgery, a recommendation that was also made for the patient presented in this report.⁴²

Conclusion

Autoamputation of the breast is a rare and catastrophic sequela of necrotizing fasciitis.

Prompt recognition, imaging, empiric antibiotic therapy, and surgical intervention are crucial in the management of pyogenic infection of the breast.

This case highlights the importance of maintaining a high index of suspicion and rapid multidisciplinary response to minimize morbidity and mortality. It adds to the limited pool of documented breast autoamputation secondary to pyogenic infection and underscores the need for heightened clinical vigilance, especially in high-risk patients. Furthermore, the case report illustrates both the infectious mechanisms, and need for early aggressive intervention to prevent autoamputation. Imaging such as CT or MRI is critical for identifying gas in tissues or fascial plane disruption. Treatment hinges on early empiric broad-spectrum antibiotics (e.g., piperacillin-tazobactam, clindamycin, vancomycin) and timely surgical debridement.

Declaration/Disclosures: The author certify that he has obtained the patients consent for her images, and other clinical information to be reported in the journal. The patient understands that her names and initials will not be published, and due efforts will be made to conceal her identity, but anonymity cannot

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Conflict of Interest

There are no conflicts of interest.