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Original Research Paper

General Surgery

GANGRENE BREAST ITS EARLY DIAGNOSIS, JUDICIOUS AND TIMELY SURGICAL INTERVENTION

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ABSTRACT

INTRODUCTION: Gangrene of breast (necrotizing fasciitis) is a potentially fatal and rapidly spreading progressive infection of the fascia with necrosis of the subcutaneous tissues but typically sparing underlying muscles. It rarely affects breast because of robust blood supply. First reported by Shah et al (year 2001), only few case reports are available in literatures. It is mainly idiopathic in nature. Disease may be associated with diabetes mellitus, atherosclerosis or HIV and trauma. This is a surgical emergency and need vigorous surgical interventions.

MATERIAL AND METHODS: This is a retrospective study consisting of three cases of breast gangrene detail history of patients, clinical examination, investigation, surgical treatment and out-come was noted and critically analysed.

FINDINGS: All the patients were pre-menopausal out of these two were lactating. Sudden pain and inflammation resulting in gangrene of skin and subcutaneous tissues within a short span was noted. Resuscitation, Surgical debridement, broad spectrum antibiotics followed by skin grafting resulted good recovery in two cases and mastectomy was done in one case.

KEYWORDS : Gangrene breast, necrotizing fasciitis of breast, mastitis, breast abscess, LRINEC.

INTRODUTION:

Breast being a highly a vascular organ, have little possibility of gangrene. Only a few cases have been reported from different parts of world till date. First case was reported by Shah et al[1] in year 2001. Pathogenesis of this phenomenon is obscure and it may be associated with trauma, diabetes mellitus[2], lactation, pregnancy and even with HIV infections[3]. It is a surgical emergency. Prompt and early treatment with wound debridement, supported with broad spectrum antibiotic prevents life threatening complications like septicemia. Without surgical intervention mortality is high. Later skin grafting and other plastic reconstructive[4] procedure give the good cosmetic results. Delayed treatment may land up a total destruction of breast leading to mastectomy[5].

MATERIAL AND METHODS:

This series consist of three cases encountered between April 2009 to March 2018, in PMCH Patna and near by hospitals. Consent for study and publication were taken from each patients. Detailed history of all cases regarding age, sex, onset duration, associated comorbidities, menstrual and lactation history, hormonal treatments if any were taken. Treatment given was both medical and surgical, post- operative complications and final out-come were noted in all cases and critically analysed.

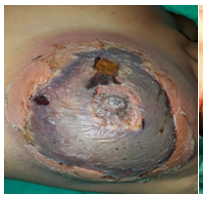
RESULTS:

All the patients studied in this group were in between 30-40 years of age. Two were lactating while one was non-lactating. Onset was sudden in all cases and duration was within 72 hours. Only one patient was diabetic. None of them was taking OCP. One patient was under treatment for breast abscess, before developing gangrene over large area of skin surrounding nipple areola complex and only in this case whole breast including nipple areola complex was involved hence mastectomy was done. In others debridement of all the involved tissue along with broad spectrum antibiotics yielded good result. Wound culture in all the three cases show poly-microbial flora. Most common pathogen were streptococci and E Coli. Blood culture was negative. Early surgical intervention under broad spectrum antibiotic coverage was done to save patients from developing septicemia. Skin grafting was done in two cases where wide local excision of skin had been done.

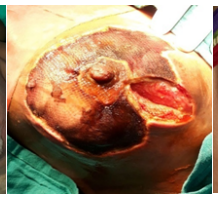
DISCUSSION:

Necrotizing Fascitis[6] is potentially life threatening condition characterized by spreading necrosis of subcutaneous tissue and fascia, it mainly affects extremity followed by abdominal wall and perineum (N F of scrotum is known as fournier's gangrene). It rarely affect breast. Gangrene breast is a surgical rarity and rarely mentioned in modern textbook. Occurence of such rare and unusual disease is worth reporting. Necrotizing fasciitis was first defined by Wilson[7] in 1952 as necrosis of the fascia and subcutaneous tissue with sparing of the muscle but necrotizing

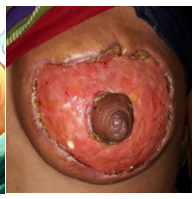
fasciitis (gangrene) of breast was first reported by Shah et al[1] in year 2001. Types of necrosis is coagulative or dry types. Knowledge of such condition can help in taking emergent action. Timely surgical intervention gives good result. It is usually unilateral and may be bilateral sometime. It is considered as a fournier's type of gangrene caused by massive fulminating type of infection complicated by oblitrative end arteritis. Wani et[8] in year 2011 reported 10 cases of breast gangrene from Kashmir India with varied etiology. Spontaneous occurrence of breast gangrene of unknown etiology was reported by Cutter[9] in his case report of apoplexy of breast, spontaneous infraction of physiologically hyperplastic breast tissue with sparing of overlying skin mimicking as breast tumour[10] occured in pregnancy and lactation.



Gangrene breast sparing nipple



After 2 dressing



After healing of wound

Most commonly it is idiopathic[11], also called as primary Necrotizing Fascitis (NF). It starts with mammary pain, no history of trauma and infection. Patient may develop well organized area of skin inflammation and may develop peau'd orange because of dermal lymphatic blockage. Chances of breast gangrene increases with advancing age, gangrene develop after 48 hours of mastitis. Uncontrolled Diabetes mellitus is also reported in causation of gangrene, and also complicate it. Breast gangrene is almost always poly-microbial in case of uncontrolled diabetes as was reported in this series.

TABLE: 1 Showing Different Work On Breast Gangrene

S/N	AUTHOR	YEAR	TOPIC OF REPORTING	INTERVENTIONS
1	Rajakannu M et al.	2006	Necrotising fasciitis mimicking inflammatory carcinoma of the breast in a post menopausal women	Mastectomy was done. Patient recovered.
2	Venkatra mani V et al	2009	Necrotising fasciitis of breast in a HIV positive middle aged women.	Mastectomy was done. Patient recovered. She was started on her anti-retroviral therapy subsequently.
3	Vishwanat h G et al.	2011	Necrotising fasciitis in a lactating women presenting in septic shock	Mastectomy was done. Patient recovered. Skin grafting of the wound done subsequently.
4	Prabhat Yaji et al.	2014	Necrotising fasciitis of breast in a post menopausal, diabetic women presenting in septic shock	Wide debridement was done. Patient died on 2nd post operative day.
5	Wani et al.	2011	10 case Series of breast necrosis	Debridement under antibiotic coverage & grafting
6	Devender kumar et al	2016	Case Report on Necrotising fasciitis of Breast.	Antibiotic and surgical debridement
7	Present series	2018	3 Cases Series of Breast Gangrene	Surgical debridement under antibiotic coverage and skin grafting

MC organism reported is E. Coli. Gangrene set up 120 hours after diabetic breast abscess[12] but in non- diabetic it commences after 48-96 hours. Trauma to breast whether it is minor trauma like teeth bite during milk sucking, needle puncture to breast during FNAC, core biopsy[13] and any surgical procedure like partial mastectomy[14] for any other causes or local injection or a trivial injury to breast. MC organism isolated in gangrene due to teeth bite is Staphylococcus aureus and this types of condition is mostly seen in puerperal sepsis. Some cases have been reported following shock and postpartum psychosis[15]. Some vascular disease and its predisposing factors are atheroslerosis, obelitrative end arteritis, peripheral vascular diseases, thrombophlebitis. Increasing BMI, alcoholic liver diseases, chronic renal failure also increases the risk of gangrene. Recently breast gangrene had been reported in immune-compromized patient like in HIV and post-chemotherapy. Insect bite, Carbon mono-oxide poisoning, inadvertent anticoagulant[16] use for other diseases may also be the inciting factors. Majority of breast infection is also been associated with non specific pancreatitis, focal end arteritis oblitrens, inflammation of small veins, excessive microthrombi in subcutaneous vessel of breast decreases the antibiotic access to infracted region in insufficient quantity leading to uncontrolled fulmination of infection. Recently topical belladonna[17] use has been reported to cause NF. Belladonna extract were applied on threatened milk abscess and patient had recovered, these drugs have galactofuge property and it specially check the secretion of milk and with it the inflammation. Variation to cutaneous response and hypersensivity to belladonna may be suggested as inciting factors.

There are two distinct types of necrotizing fasciitis of breast based on microbiological culture: type 1- infections are poly-microbial consisting of non-group A Streptococci, aerobic and anaerobic organism. Type 2- in this group infections are caused by Streptococcus pyogens.

In necrotizing fasciitis type of necrosis of coagulative or dry types. Consequences of events seen after start of mastitis with or without application of belladonna this progress to black echymosis of dermal abscess. Spreading of this infection in all direction restricted to cutaneous abscess and frequently rapidly evolved as black patch then full scar start forming at the end. Some times gangrene may progresses into underlying tissue of breast like fat lobule and glandular tissue, presenting as necrotizing fascitis. In hemorrhagic type of mammary gangrene once gross tissue necrosis and secondary tissue infection ensue, biopsy become nonspecific and non-diagnostic. There is distinct lack of arteriolar thrombosis and no evidence of vascular and perivascular inflammation in comparison to mammary gangrene after mastitis where there is both vascular thrombosis and evidence of inflammatory infiltrate.

Patient may present with varied features of inflammation and abscess like pain out of proportion of visible skin changes, swollen breast, erythmatous margin along with bullae. Gross discoloration of skin and offensive nipple discharge, subcutaneous crepitus may be appreciated because of ongoing gas gangrene. In delayed case patient may present in septicemia and features of septic shock (increased or decreased temperature, falling BP and raised pulse), multi-organ failure, dizziness, nausea, several episodes of vomiting. Infection may spread to near-by area like chest wall, abdomen, limb and neck. Patient may be miss-diagnosed as cellulitis, abscess and even inflammatory breast cancer. Axillary lymphadenopathy is not appreciated because of acute onset. The cutaneous feature of NF as the disease evolved from early to immediate to late stage. In the breast because of thicker tissue between deep fascia and skin, cutaneous sign may not be apparent until the disease is well advanced, by the time breast may not be salvageable. Patient may be pre-menopausal (more common) or post-menopausal. An early

diagnosis of NF was made aided by LRINEC[18] (Laboratory Risk Indicator of Necritizing Fascitis) score.

Diagnosis is mainly clinical supported by modern imaging technique like USG[19], CECT chest, MRI to know the deeper tissue infiltration and extent of necrotic tissue. Complete haemogram, CRP and special tests for septicemia and septic shock.

Management is through multidisciplinary approach treatment protocol[20]. Intravenous fluid for resuscitation, broad spectrum antibiotic to cover gram +ve and gram –ve organism, aerobic and anaerobic both. Main modality of treatment is judicious and timely surgical debridement of gangrenous tissue. Aim is to remove all the infected tissue in first debridement. Incision should be made down the pectoralis muscle over the area of maximum tenderness and most obvious skin involvement. Thorough debridement should be done and deep fascia must be excised as much as possible, second look surgery may be planned after 24-48 hours depending upon the patient clinical situation. If detected early breast salvage is almost always possible but in advanced stage of disease mastectomy may be necessary. After surgical debridement and mastectomy skin grafting and breast reconstructive surgery is necessary by lattisimus dorsi flap or TRAM flap.

CONCLUSSION:

Surgeons must be aware of this rare but emergent situation. Judicious and timely surgical intervention may save the breast and also the patients from going into septicemia. Plastic reconstruction at a later date gives good cosmetic result.

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