Necrotising Myositis Complicated By Septic Encephalopathy

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Abstract: Background: Necrotizing Myositis is an aggressive and relatively rare soft tissue infection, involving the fascia and the subcutaneous tissue along with underlying muscle, with a rapidly fatal evolution. We report a rare case of necrotising abdominal wall myositis initially presented with trunk cellulitis and later complicated by features of septic encephalopathy. He underwent prompt surgical debridement followed by reconstructive surgery. After reviewing literature, approach to necrotising fasciitis is discussed. [Bhadreshwara K Natl J Integr Res Med, 2023; 14(1): 39-42, Published on Dated: 20/01/2023]

Key Words: Necrotising Myositis, Trunk Cellulitis, Debridement, Septic Encephalopathy

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Introduction: Necrotizing Myositis (NM) is an aggressive and relatively rare spreading inflammation of skin, deep fascia and soft tissues with extension destruction, toxaemia caused primarily due to Streptococcus pyogenes infection characterised by acute inflammatory response, oedema, extensive necrosis and cutaneous microvascular thrombosis. Trauma is a common precipitating factor found in 80% cases, others being old age, smoking, diabetes, immunosuppressed, malnourished, obesity, long term steroid therapy, HIV patients.

It can occur in limbs, lower abdomen, groin, and perineum. It is a rare but potentially fatal disease with mortality rate of 25-30% in the past 30 years. We report a case of necrotising abdominal wall myositis initially presented with cellulitis of abdominal wall and later complicated by loss of speech which is the feature of septic encephalopathy.

Case Presentation: Patient is a 25 yrs old 50kg male presented with swelling and ulceration of skin over buttocks with pus discharge and single episode of fever since 7days.In Past before 10 days he had history of intramuscular injection over gluteal region for pain relief. He was treated with oral antibiotics for 2-3 days at a local clinic but symptoms didn't improve. Later, swelling extended over left side of the abdomen along with left gluteal region accompanied by reddish discoloration of skin. Swelling was also associated with aching pain, which restricted his movements as pain increased on movement. Thus, he visited casualty of our hospital for further management.

Image 1: External features of necrotising lesson

Examination revealed ulceration of external genitalia skin with undermined edges with surrounding skin blackish on appearance. Skin over left flank and left gluteal region appears thick, shiny, reddish and blanches on palpation. Ultrasonography revealed echogenic oedematous subcutaneous tissue with internal water logging over upper ⅓ of left lateral abdominal wall, left lateral chest wall and left gluteal region. Abdominal wall cellulitis was likely picture and necrotising myositis was highly suspected due to

rapidly spreading nature of inflammation, foul smell of discharge and large amount of collection within involved tissue spaces.

After admission to surgical ward, twice extensive surgical debridement of necrotic was performed under GA. Laboratory blood examination illustrated anaemia, leucopoenia with elevated CRP levels and elevated ammonia levels. The degenerated abdominal wall muscles along with necrotic skin over external genitalia were removed during surgery. Histopathological analysis revealed inflammation of muscle tissue along with cellular changes of necrosis. Antibiotics were given according to C/S report.

Few days following debridement, he developed hyperthermia, palpitations, tremors which was managed by injectable antipyretics, cold sponging and fluid resuscitation but aphasia likely followed this event. Blood investigations showed elevated ammonia levels along with uraemia and patient's speech eventually deteriorated from normal speech to abnormal words and sounds. MRI Brain suggested toxic metabolic leukoencephalopathy.

Emergency haemodialysis was done to minimise the toxic effects of metabolites along with stepping up of antibiotics. Granulation tissue soon seemed to surface over the wound which was further enhanced by multiple cycles of Vacuum-assisted dressing (VAC dressing). After 30 days of hospitalisation, split-thickness skin grafting (STSG) was done. Meanwhile, his laboratory parameters along with his speech improved. He was then discharged.

Image 2: Surgical debridement & Further Treatment

Discussion: Clinical presentation of cases depends upon the location and extent of muscle involved. Necrotising myositis usually presents with sudden swelling and pain in the part with oedema, discoloration, ulceration and necrotic areas associated with foul-smelling discharge.

Features of toxaemia with high-grade fever and chills along with hypotension are also evident. In few extreme cases with rapid spread in a short period of time, features of SIRS, MODS with oliguria, encephalopathy might also be seen which if not treated properly may prove to be life-threatening. Necrotising myositis is a surgical emergency. It is underappreciated that it may present without changes in the skin. Diagnosis is therefore often delayed.

Patients with concerning history or physical exam such as pain out of proportion to examination or suspected rapidly progressive cellulitis, LRINEC (Laboratory Risk Indicator for Necrotising Fasciitis) score may be helpful in providing an overall gestalt picture of a patient with a potential necrotising soft tissue infection but it cannot rule out this infection.

Table 1: Laboratory Risk Indicator For Necrotizing Fascitis

CRP (mg/dL)	<15	0
	≥15	4
WBC (per mm³)	<15	0
	15-25	1
	>25	2
Hemoglobin (g/dL)	>13.5	0
	11-13.5	1
	<11	2
Sodium (mEq/L)	≥135	0
	<135	2
Creatinine (mg/dL)	≤1.6	0
	>1.6	2
Glucose (mg/dL)	≤180	0
	>180	1
Composite Score	**Score < 6**	**Low Risk**
	Score 6-7	**Intermediate**
	Score ≥ 8	**High Risk**

Initial resuscitation with fluid replacement and restoration of BP is critical. Intravenous antibiotics like Penicillins (high dose), Clindamycin, 3rd generation Cephalosporin's, Aminoglycosides in conjunction with surgical debridement.

Early and extensive debridement of all involved tissues and muscles is mandatory. Hyperbaric O2 can also be given in high pressure chamber with 100% oxygen in 2-3atm reduces mortality to 10-20% as it is bactericidal and promotes neutrophil function.

Conclusion: Early diagnosis and early extensive surgical intervention had a major impact on prognosis of necrotising soft tissue infection. Because necrotising myositis may present with minimal skin changes, clinical diagnosis if often delayed and may cause systemic effects due to sepsis.

However, a large collection on imaging studies and infection with necrotic tissues but little pus can help us make a differential diagnosis of necrotising myositis from cellulitis and thus guide us to give the patient the appropriate medical and surgical treatments for achieving a better clinical outcome. Quick decision making is paramount in reducing death and morbidity.

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