



ORIGINAL RESEARCH PAPER

General Surgery

A RARE CASE REPORT ON SPONTANEOUS NECROTIZING FASCITIS OF ANTERIOR ABDOMINAL WALL

KEY WORDS:

Dr Kalyan Kumar	MS Assistant professor MMC, Institute of General Surgery, RGGGH & MMC, Chennai 03, Tamilnadu, India.
Dr. Yuvarani. V*	General Surgery postgraduate MMC, Institute of General Surgery, RGGGH & MMC, Chennai 03, Tamilnadu, India. *Corresponding Author
Prof. Dr. V. Vijayalakshmi	M.S,DGO, Institute of General Surgery, RGGGH & MMC, Chennai 03, Tamilnadu, India.
Prof. Dr P. S. Shanthi.	M.S,DGO, Institute of General Surgery, RGGGH & MMC, Chennai 03, Tamilnadu India.

ABSTRACT

Necrotizing Soft-Tissue Infections (NSTI) are a dreaded form of infections of the layers within the soft tissue compartment (dermis, subcutaneous tissue, superficial fascia, deep fascia, or muscle) that are associated with necrotizing changes and systemic toxicity. These spread rapidly and carry high mortality (16%-24%). These infections can present with trivial features like small ulcers or mild cellulitis. our patient presents with spontaneous necrotizing fasciitis of anterior abdominal wall without any trauma or surgery which is very rare, associated Immunocompromised status, diabetes can add on to the infection, extensive debridement was done, Gram staining is important for empirical treatment and specific treatment starts after culture and sensitivity of the toxic fluid according to the organisms isolated. Even after the advancements of antibiotics, adequate surgical debridement remains the mainstay in limiting the spread of the infection. Novel therapeutic management like hyperbaric oxygen, Intravenous immunoglobulin have been developed but with limited success. Various prognostic scoring systems are present to predict the morbidity and mortality associated with these infections which help to identify high-risk patients who may benefit from the new therapeutic strategies. Care for patients with NSTIs requires an approach with expertise from critical care, surgery, reconstructive surgery, and rehabilitation specialists.

INTRODUCTION

Necrotizing soft tissue infections contain a large spectrum of illnesses characterized by soft tissue necrosis, systemic toxicity, and high mortality [1]. Early in the disease course, however, these infections can appear benign and their diagnosis largely involves a high degree of clinical suspicion based on history and physical examination.

The pathophysiology of necrotizing soft tissue infections begins with an event that leads to a direct invasion of subcutaneous tissue. Most commonly this involves processes associated with external trauma, introducing cutaneous and environmental bacteria into the body; however, bacteria from internal organs are described in the literature, typically involving the gallbladder [2] or appendix these Case reports also exist suggesting the presence of gastrointestinal ulcers as potential means to communicate bacteria into the subcutaneous tissues [5].

Case Report

40 years old male Admitted with complaints of, Diffuse Abdominal pain for 7 days, Breathlessness for 5 days, Vomiting for 5 days, Constipation for 3 days, Obstipation for 2 days, patient is a known uncontrolled diabetic not on any treatment for the past 2 years, known smoker and alcoholic for past 10 years, O/E Drowsy and disoriented ,Febrile, Tachypneic, Hydration-poor

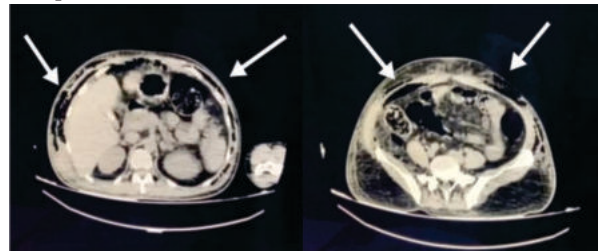
Vitals on arrival PR 140/min, Bp 110/64 mmHg, RR 36/min, Cbg 507mg/dl, Patient intubated in view of respiratory acidosis and respiratory failure, S/E-CVS-S1S2+, no murmurs, RS-B/L air entry+, B/L basal crepts+

Per Abdomen: skin over the anterior abdominal wall normal, Warmth+, Diffuse tenderness +, Diffuse Guarding +, Creptitation + No ulcers/sinuses/scar.

External genitalia , perineum, perianal region normal P/R normal fecal staining+

INVESTIGATIONS: TC 20,600, Hb- 9.8 g/dl, PLT - 3.34L, Ur/cr- 118/2.5, Na/k-130/6.3, Tb/Db- 1.2/0/6, ECG-normal.

CT abdomen and pelvis - necrotising fasciitis of anterior abdominal wall ,air pockets extending between the anterior abdominal wall muscles over the pre vesicular space and retroperitoneum was normal .

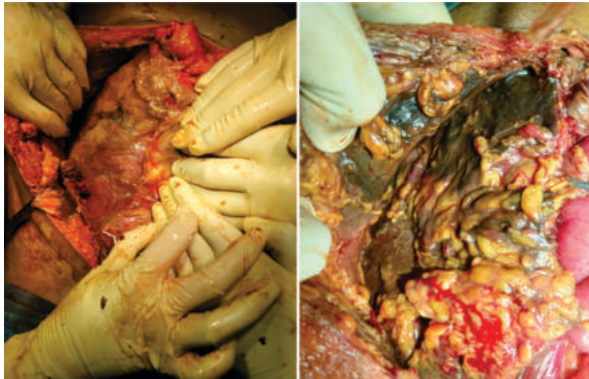


Patient was taken up for emergency laparotomy

Intra Op Findings-

- Diffuse gangrenous foul smelling sloughing of anterior and posterior rectus sheath with internal oblique, external oblique and transversus abdominis muscles
- All Intra-abdominal organs such as Stomach, duodenum, DJ flexure, rest of bowel loops were found to be normal
- Liver, GB normal, kidney & bladder normal
- Thorough debridement of sloughed off necrotic tissues was done.
- Tissue culture and pus culture turned out to be positive for Escherichia coli sensitive to broad spectrum antibiotics





- Patient despite vigorous surgical debridement and higher antibiotics, patient died of septic shock and multi organ dysfunction syndrome

DISCUSSION

Necrotizing fasciitis (NF) describes a group of relatively uncommon, but life-threatening infections of the skin, soft tissues, and muscles, which tend to progress rapidly through the fascia planes arteries and capillaries supplying these structures goes in for thrombosis causing gangrene and gradual destruction of the fascia at a rate reaching 2–3 cm/h. Developing in the lower or upper extremities, the perineum and genital area (Fournier's gangrene) and in the abdominal wall, its swift clinical course is correlated with polymicrobial infection and synergy, which usually co-exists (1, 2). The majority of cases present anaerobic bacteria that proliferate in a hypoxic environment and produce gas, which accumulates in the soft tissue spaces, giving the characteristic image of gas gangrene on plain X-rays and computed tomography (CT) scans (3).

Early diagnosis of NF is mandatory. Any delay could prove fatal, given its association with more extensive surgery, higher rates of amputation, and higher mortality rates. Furthermore, if left untreated, the infection could lead to systemic inflammatory response syndrome (SIRS). Predisposing conditions include **diabetes mellitus**, smoking, penetrating trauma, pressure sores, immunosuppression, intravenous drug abuse, perineal infection (perianal abscess, Bartholin's cysts) and skin damage/infection (abrasions, bites, boils). Classical clinical signs include oedema stretching beyond visible skin erythema; a woody-hard texture to the subcutaneous tissues; an inability to distinguish fascial planes and muscle groups on palpation; disproportionate pain in relation to the affected area, with associated skin vesicles and soft-tissue crepitus. The “**finger test**”, which requires a two cm incision through the superficial fascia followed by gentle probing of a finger, may reveal “**dishwater pus**,” lack of hemorrhage and lack of tissue resistance to blunt finger pressure. Type I, or polymicrobial necrotizing fasciitis, usually is associated with trauma or surgery in the abdomen, perineum, or external genitalia. This type I fasciitis includes all non-group-A streptococci infections and at least one or more anaerobes (*Bacteroides*, *Peptostreptococcus*, or *Clostridium*) or Enterobacteriaceae (*Escherichia coli*, *Klebsiella*, or *Proteus*). The percentages of their presence in cultures are: *Enterococcus* (100%), *Staphylococcus* (71%), \square -Streptococci (57%), *E. Coli*, *Klebsiella*, *Proteus*, and *Bacteroides* (43%). Less common are *Peptostreptococcus*, *Bacillus*, *Citrobacter*, *Enterobacter*, and *Morganella* (14%). In specific cases, normal commensals become virulent, aiding in further spreading of the infection. For example, in Fournier's gangrene, *Escherichia coli* and *Candida albicans* have been isolated from the wound, together with lactobacilli, coliforms, *Klebsiella*, streptococci, staphylococci, clostridia, *Bacteroides*, and corynebacteria. The treatment recommended in an anterior abdominal NSTI is antibiotic therapy followed by serial debridement, ICU care with nutritional support (equivalent to burns and major trauma),

and close wound monitoring. Vacuum-assisted closure therapy (VAC) is being increasingly considered superior for fast and effective wound closure

CONCLUSION

Cases of spontaneous necrotizing soft tissue infections are deceptively reported in the literature. Aside from the rare circumstances already presented, cases are often presented as “spontaneous” while having a remote history of trauma that has been minimized or not initially revealed [6] or take place in patients with histories of significant immunosuppression [7]. These examples do not represent the spontaneous entrance of necrotizing bacteria into the subcutaneous tissue without any discernable entry point. This case is important and adds to the literature as it is an example of a spontaneous presentation without a history of external trauma to introduce bacteria.

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