



"COMPREHENSIVE MANAGEMENT OF NECROTIZING FASCIITIS : A CASE STUDY AND REVIEW OF CURRENT STRATEGIES"

Management

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ABSTRACT

Necrotising Fasciitis is a rare but potentially life-threatening necrotizing infection of the perineum, genital region and anterior abdominal wall. We present the case of a 44-year-old male who presented with a 10-day history of rapidly progressing pain, swelling starting in the perianal and extending upto groin and hypogastric areas along with fever. Initial emergency wound debridement revealed extensive necrosis suggestive of Fournier's gangrene and Melaney's and multiple pus pockets across the thighs, scrotum, and flank. Subsequent interventions included repeated debridement to manage ongoing necrosis, followed by meticulous wound care involving Eusol-soaked gauze and vacuum-assisted closure therapy (NPWT). The patient underwent successful split-thickness skin grafting after achieving wound healing milestones. This case highlights the importance of early surgical intervention, aggressive wound management, and staged reconstructive surgery in the treatment of necrotizing fasciitis, resulting in a favorable clinical outcome and discharge in stable condition.

KEYWORDS

Fournier's gangrene; Melaney's gangrene, split skin grafting, NPWT.

INTRODUCTION:

Infections causing necrotizing fasciitis of the groin, perianal region, anterior abdominal wall are life-threatening infections requiring prompt and aggressive treatment. The synergistic nature of the bacterial infection necessitates a combination of surgical, antimicrobial, and supportive therapies like nutrition, hydration, wound care. Advanced wound care techniques, such as NPWT, play a crucial role in the management of this severe infection. The prognosis of Melaney's gangrene is generally poor due to the rapid progression and severity of the infection. Mortality rates can be high, especially in patients with delayed presentation, extensive necrosis, or underlying comorbidities. Early diagnosis and aggressive treatment are paramount to improving patient survival and reducing morbidity and mortality.

CASE REPORT:

Patient Presentation

A 44-year-old male presented to the emergency department with a 10-day history of pain and swelling in the perianal and groin regions. The symptoms had a sudden onset and rapidly progressed to surrounding areas, accompanied by intermittent fever.

Clinical Findings

Upon examination, the patient had a tachycardia of 124/min and a temperature of 100°F. Notable findings included a 14 x 5 cm swelling in the anterior pelvic region extending in the right groin with a 3 x 2 cm swelling and further extending in the perianal area on right side of about 2 x 1 cm swelling. The swelling was associated with tenderness, erythema, local rise in temperature, and foul-smelling discharge from the right perianal region swelling.

Initial Intervention

Emergency wound debridement was performed, revealing multiple pus pockets. Significant findings included:

- A 150 cc pus pocket in the medial aspect of the right thigh.
- Pus pockets in the suprapubic region and right hemiscrotum with approximately 20 cc of pus exposing the right testis.
- A 100 cc pus pocket extending into the left iliac region, necessitating an incision extending to the left anterior superior iliac spine (ASIS).

Follow-up Intervention

Due to extensive necrosis and further induration in the right thigh and scrotum, the patient underwent a second debridement after seven days. Necrotic patches and slough were removed, and the inguinal canal was

opened to drain all necrotic tissue and pus. The patient tolerated the procedure well.

Ward Management

The patient underwent multiple debridements in the ward, with pain managed during daily dressings using adequate analgesics and Betadine solution even up to four times a day. Infection control measures included preventing fecal contamination of the wound, managing fever, and administering antibiotics was done. Nutritional support was provided to address losses while bedridden. Despite these efforts, the patient was transferred to the ICU due to blood pressure instability and persistent fever spikes. In the ICU, intravenous albumin and inotropes were administered, and Negative Pressure Wound Therapy (NPWT) was employed in multiple sessions. Diarrhoea caused by antibiotics was effectively managed. The patient and relatives, emotionally and physically drained, received adequate support through counselling. Considering financial constraints, a comprehensive care plan was devised, ultimately leading to a successful recovery.

Outcome

The patient eventually underwent split-thickness skin grafting, which was well-tolerated with good graft uptake. The patient was discharged in stable condition.



Figure 1



Figure 2



Figure 3



Figure 4

Figure 5

DISCUSSION:

Fournier's gangrene with Melanec's gangrene is a rare but severe form of necrotizing fasciitis affecting the perineum, genital regions and anterior abdominal wall, with potentially devastating consequences if not promptly recognized and aggressively managed. This discussion highlights the clinical presentation, management strategies, and outcomes of a case involving a 44-year-old male with necrotizing fasciitis as outlined in the abstract.

Patients typically present with acute onset of severe pain, swelling, erythema, and often systemic signs of infection such as fever and tachycardia. The condition rapidly progresses due to aggressive spread of infection along fascial planes, leading to tissue necrosis and systemic toxicity. Fournier's gangrene is predominantly polymicrobial, involving aerobic and anaerobic bacteria that thrive in the perineal and genital regions. Common pathogens include *Escherichia coli*, *Klebsiella*, *Streptococcus*, and *Bacteroides* species, among others. These bacteria cause rapid tissue destruction through the production of toxins and enzymes that degrade fascial planes and impair local blood supply. Early diagnosis is critical but challenging due to the variability in initial symptoms and the rapid progression of tissue necrosis. Clinical suspicion based on symptoms, physical examination findings, and imaging studies such as computed tomography (CT) can aid in early intervention. The cornerstone of treatment involves early and aggressive surgical debridement to remove necrotic tissue and control the infection's spread. Multiple debridements may be necessary, as seen in the case described, to achieve adequate source control. Adjunctive therapies such as broad-spectrum antibiotics, wound care with antiseptic solutions (e.g., Eusol), and advanced wound management techniques like vacuum-assisted closure (VAC) therapy play crucial roles in promoting wound healing and reducing morbidity. Once infection is controlled and

healthy granulation tissue forms, definitive reconstructive surgery such as split-thickness skin grafting may be performed to cover large defects and promote long-term wound closure. Successful skin graft uptake in the described case underscores effective infection control and wound management. Despite its severity, prompt and comprehensive management can lead to favorable outcomes, as evidenced by the patient's discharge in stable condition after successful skin grafting. Long-term outcomes include functional recovery and psychological rehabilitation, although complications such as wound infections, fistula formation, and scarring may occur.

CONCLUSION:

Necrotizing fasciitis remains a challenging condition requiring a multidisciplinary approach for optimal outcomes. Early recognition, aggressive surgical intervention, appropriate antimicrobial therapy, and advanced wound care techniques are crucial in mitigating the high morbidity and mortality associated with this condition. Continued research and clinical experience are necessary to refine treatment strategies and improve long-term outcomes for affected individuals.

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