



# An Early Diagnosis and Specific Antibiotics Therapy Can Address the Necrotizing Fasciitis: a Case Report

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## Abstract

Necrotizing fasciitis is a life-threatening bacterial infection that usually involves the muscular fascia and subcutaneous tissue but can also affect the muscle and skin. If it is ignored it has high rate of mortality. Necrotizing fasciitis requires early diagnosis of debridement test to provide specific antibiotic therapy. In the present case the patient was early performed with debridement test and specific antibiotic therapy was given. Under the influence of surgery and supportive therapy patient was discharged from the hospital.

**Keywords:** Necrotizing fasciitis; Early Debridement test; Antibiotics therapy; Supportive therapy

## Introduction

Necrotizing Fasciitis (NF) is a rare infection involving deep soft tissue that is characterized by fascial necrosis, which may be life-threatening with a mortality of 25.3%-73% [1]. Based on the soft-tissue layers involved with necrosis, necrotizing soft-tissue infections are classified as myositis, cellulitis, or fasciitis [2]. Streptococcal infections in Necrotizing patients are concomitant with greater risk of complications and mortality. NF includes various predisposing factors such as diabetes mellitus, advanced age, renal failure, obesity, trauma and peripheral vascular disease. Therefore, early recognition of these factors may help in the early management. Early surgical debridement is a major contributor for beneficial outcomes in NF patients [3].

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## Case Presentation

An 80 year old male patient was admitted in surgery department with complaints of swelling of left lower limb and pain since two days. Pain was insidious in onset and progressive in nature. Swelling started over the lateral region of the left leg and further progressed to mid leg, watery discharge was also reported. Trivial trauma was known to be positive. In past, patient underwent debridement for necrotizing fasciitis of left leg four months ago followed by skin grafting. On admission to general physical examination patient was well built, moderately nourished, conscious, oriented and co-operative. Blood pressure was 130/80 mm Hg, temperature – A febrile and pulse rate was known to be 80 beats/min. Local examination of left lower limb was performed in which diffused swelling of the left foot extending from the dorsum till the mid leg was noted. Few blebs, 3 x 2 cm necrotic patches and skin over the leg was stretched, shiny, red in colour was observed on lateral aspects of the left leg (Figure 1). On palpitation local raise of temperature, tenderness, pitting type of edema was known to be positive. Serious discharge was expressed on pressure over medial aspect of leg.

The initial blood investigation revealed total count (Tc) 10460 cells/cmm, Neutrophils 83.5%, Lymphocytes 13.5% , Eosinophils 0.2%, RBC 3.67millions/cmm, Hb 10.3 gm%, PCV 33.7%, MCHC 30.6%, RDW 14.3%, Blood urea 61 mg/dL, Serum creatinine 0.7 mg/dL , Serum chloride 93mmol/l . X-ray of the left leg did not show any bony injury or gas in the soft tissues. The fluid was drained from the left leg and immediately sent for culture report and *Pseudomonas aeruginosa* organism was found. Intravenous metronidazole was prescribed along with amoxicillin and clavulonic acid. Even after 48 hours of antibiotics patient remained symptomatic and was operated. The case was discussed with microbiologist and intravenous (IV) amikacin and ceftriaxone was added along with metronidazole. IV hydration was maintained throughout with close observation of renal functions which remained stable. After 5 days of treatment, ciprofloxacin was given and other antibiotics were



Figure 1: Necrotizing fasciitis of left lower limb.

stopped. Patient made a recovery from left leg and life threatening condition, which was made possible by active participation of surgeon and microbiologist. Patient was discharged after 16 days of hospital stay.

## Discussion

Necrotizing fasciitis is a flesh eating bacterial infection which is rapidly progressive soft tissue necrosis that usually involves the muscular fascia and subcutaneous tissue but can also affect the muscle and skin. During the civil war in 1871, the disease was first described by an army surgeon named Joseph Jones. By 1918, the root cause of this disease was identified as a bacterial infection. It was entitled as “Necrotising Fasciitis” in 1952. The term necrosis indicates death of a portion of tissue and fascia refers to the fibrous tissues which enclose and connect the muscles [4]. Necrotizing fasciitis is commonly affected in lower extremities, abdominal wall, perineum, genital area (Fournier’s gangrene) and in upper extremities [5].

However the patient had swelling and pain of left lower limb since 3 days and had trivial trauma before visiting. Culture report was performed; a *Pseudomonas aeruginosa* was the pathogenic bacteria involved, which is the most commonly isolated bacteria in the hospital. DM is the most frequent comorbidity in patients with Necrotising fasciitis, with the prevalence ranging between 40% and 60% [6,7]. However DM was not a risk factor for mortality [8]. Imaging tests play an important role in cases of suspected necrotising fasciitis [9]. CT scanning includes the findings of muscular edema, fascial thickening and enhancement, fluid collection, abscess formation and fat stranding [10]. CT scan could help to reveal the infection etiology. Therefore, delay in imaging tests can cause emergency surgical treatment [11].

The focal aspects for the management of Non Soft Tissue Infection (NSTI) are surgical debridement, appropriate antibiotic therapy and systemic supportive therapy. Initial surgical procedure is life saving and must be performed as early as possible. Delay in treatment of necrotising fasciitis could be a fatal. Surgical debridement should be repeated during the next 24 hours or later, based on clinical features and vital functions. Secondly, broad spectrum antibiotics should be immediately administered based on the suspected organisms. The most commonly isolated bacteria are reported to be *Pseudomonas auregenosa* and *Klebsilla pneumonia* followed by *E.coli* and *Enterococcus species*. Although we cannot exclude poly

bacterial infections because of prior exposure to antimicrobials. After culture report is performed specific antibiotic therapy is adjusted according to the signs, symptoms and laboratory tests. The duration of antibiotic therapy ranges from 4-6 weeks [12]. Lastly, supportive therapy is also play an important role to improve the patient’s quality of life. Supportive therapies include fluid and electrolyte balance, blood sugar control etc.

## Conclusion

In the present case a *Pseudomonas auregenosa* was the bacterial involved in lower extremities of NF. Delayed diagnosis and treatment can spread the infection rapidly and widely, which may be fatal. Early debridement should be performed to prescribe specific antibiotic therapy in addition to supportive adjuvant therapy to improve the patient’s quality of life.

## References

1. Changchien CH, Chen YY, Chen SW, Chen WL, Tsay JG, Chu C. Retrospective study of necrotizing fasciitis and characterization of its associated Methicillin resistant staphylococcus aureus in Taiwan. BMC Infect Dis. 2011;11(297):1-11.
2. McHenry CR, Piotrowski JJ, Petrinic D, Malangoni MA. Determinants of mortality for necrotizing soft tissue infections. Ann Surg. 1995;221(5):558-63.
3. Jabbour G, El-Menyar A, Peralta R, Shaikh N, Abdelrahman H, Natesa I, et al. Pattern and predictors of mortality in necrotizing fasciitis patients in a single tertiary hospital. World J Emerg Surg. 2016;11(40):1-10.
4. Taviloglu K, Yanar H. Necrotizing fasciitis: strategies for diagnosis and management. World J Emerg Surg. 2007;2(19):1-3.
5. Misiakos EP, Bagias G, Papadopoulos I, Danias N, Patapis P, Machairas N, et al. Early diagnosis and surgical treatment for necrotizing fasciitis: A multicenter study. Front Surg. 2017;4(5):1-7.
6. Goh T, Goh LG, Ang CH, Wong CH. Early diagnosis of necrotizing fasciitis. Br J Surg. 2014;101(1):e119-25.
7. Roje Z, Roje Z, Matić D, Librenjak D, Dokuzović S, Varvodić J. Necrotizing fasciitis: literature review of contemporary strategies for diagnosis and management with three case reports: torso, abdominal wall, upper and lower limbs. World J Emerg Surg. 2011;6(1):46.
8. Cheng NC, Tai HC, Chang SC, Chang CH, Lai HS. Necrotizing fasciitis in patients with diabetes mellitus: clinical characteristics and risk factors for mortality. BMC Infect Dis. 2015;15:417.
9. Zacharias N, Velmahos GC, Salama A, Alam HB, de Moya M, King DR, et al. Diagnosis of necrotizing soft tissue infections by computed tomography. Arch Surg. 2010;145(5):452-5.
10. Chingko CM, Jahed A, Loreto MP, Sarrazin J, Mcgregor C, Blachman JI, et al. Retroperitoneal fasciitis: spectrum of CT findings in the abdomen and pelvis. Radiographics. 2015;35(4):1095-107.
11. Malghem J, Lecouvet FE, Omoumi P, Maldague BE, Vande Berg BC. Necrotizing fasciitis: contribution and limitations of diagnostic imaging. Joint Bone Spine. 2013;80(2):146-54.
12. Misiakos EP, Bagias G, Patapis P, Sotiropoulos D, Kanavidis P, Machairas A. Current concepts in the management of necrotizing fasciitis. Front Surg. 2014;1:36.