

NECROTIZING FASCIITIS WITH GANGRENE OF BOTH FEET AND LEGS IN A DIABETIC PATIENT - A CASE REPORT

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Abstract:

Necrotizing fasciitis is an insidiously advancing soft tissue infection characterized by widespread fascial necrosis. It is rare and is a life threatening infection. Necrotizing fasciitis has a very high mortality rate. It commonly occurs at abdomen, perineum, scrotum and extremities. It requires prompt diagnosis and urgent treatment with radical debridement and higher antibiotics. We report a rare case of necrotizing fasciitis involving both lower limbs along with gangrene of both feet.

Key words: necrotizing fasciitis, gangrene, Diabetes Mellitus

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Introduction

Necrotizing fasciitis is perhaps the most severe form of soft tissue infection primarily caused by polymicrobial organisms. It has bewildered physicians for centuries. Wilson and Roper first described it in 1952.¹ Necrotizing fasciitis ranges from 6% to 76%.² A delay in diagnosis and consequently delayed operative debridement has been shown in multiple studies to increase mortality.³⁻⁹ A high index of suspicion is required to diagnose this condition. Success in avoiding a fatal outcome depends on prompt and radical debridement.

Polymicrobial (type 1) and monomicrobial (type 2) forms of necrotizing fasciitis are reported. Type 1 (polymicrobial) and type 2 (group A streptococcus) are the most common. Necrotizing fasciitis along with bilateral gangrene of the feet and legs has not yet been reported in the literature.

men, perineum, scrotum and lower extremities.¹⁰ It is common in immunocompromised conditions related to diabetes mellitus, malnutrition and HIV infection.

In most cases, necrotizing fasciitis occurs as a result of entry of bacteria through some precipitating event like a cut, contusion, burn, or even an operative incision. In certain cases, the infection is associated with bacteremia.

We report a case of an elderly diabetic patient who developed necrotizing fasciitis of the lower limbs along with bilateral gangrene of the foot and legs. This condition of bilateral necrotizing fasciitis along with bilateral gangrene has not yet been reported in the literature.

Case Report

A 62 year old male with a 7 year duration of type 2 diabetes and hypertension presented to our casualty department with history of pain, swelling, and discoloration of both feet of [] ^É, ^^ \Áã ~ !æcá [} ÉÁV@^Á } æcá^ } cÁã } áccáæ|| ~ Á@æãÁ] æã } Á in the lower limb with swelling. In order to relieve the pain, he dipped his both lower limbs in warm water for approximately 15 minutes followed by oil massaging. On the next day, he noticed reddish discoloration of both feet and legs with blackish discoloration of all toes. He was rushed to a nearby hospital that later referred the case

to our institute for further management. On physical examination, the patient was conscious and oriented. His pulse rate was 84/minute, blood pressure was 130/90 mm Hg, respiratory rate was 20/min and temperature was normal. On local examination, both his feet and legs were swollen and had multiple blebs (Fig 1 and 2).



Figure 1: Bilateral necrotizing fasciitis with gangrene.

Figure 2: Photo of the necrotizing fasciitis, right lower limb. Dorsal View.

discoloration of all the toes and both feet. His dorsalis pedis and posterior tibial arterial pulses were well palpable on both and cardiovascular system examination were normal. His laboratory investigations are listed in Table 1

Table 1

Investigation	Values
Haemoglobin	12.7g%
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Differential count	
Neutrophils	81.6%
Lymphocytes	12.8%
Eosinophils	0.29%
RBS	3.01mg%
BUN	43.8mg%
Serum creatinine	0.9mg%
Serum electrolytes	
Sodium	136.1meq/
Potassium	3.68meq/
Liver function test	
V[cajÁãããi ~ ài}	0.5mg%
Direct bilirubin	0.1%
ÚÓUV	150.6IU
ÚÓUV	113.6IU
V[cajÁ] : [c^ã}	5.4g%
Serum albumin	2.5g%
Alkaline phosphatase	81.5lu/
ECG	Normal
Chest X-ray	Normal
Echo cardiogram	Normal
ABI	
Right	1.50
Left	1.25
Vibration perception threshold	
Right	35
Left	35
Creatine kinase(total serum)	1074.5 U/L

Table 2

Investigation	Values
Lupus anticoagulant	Negative
Anti Jo Antibody	Negative EU
Anti RNP Antibody	Negative EU
Anti SS-A Antibody	Negative EU
Anti SS-B Antibody	Negative EU
Anti Cardiolipin Antibody IgG	1gG:5.2 U/ml
Anti Cardiolipin Antibody IgM	1gM:4.5 U/ml
Anti Phospholipid Antibody IgG	1gG:16.0 U/ml
Anti Phospholipid Antibody IgM	1gM:5.51 U/ml
P-ANCA	Negative
C-ANCA	Negative

A diagnosis of bilateral lower limb necrotizing fasciitis was made. We also, however, took the opinion of our dermatologist and vascular surgeon who advised additional work up for vasculitis and Doppler study of lower limb and abdomen. Both the investigations were also normal (Table 2).

empirical intravenous antibiotics & [] •ã •cá } * Á [-ÁÚã] ^ :æ&ãã } ÈVæ : [àæ&-tam, Clindamycin and linezolid as per our protocol. Fortunately, the patient did not have septicemia.

Since the patient was unwilling for any level of amputation, debridement of the wound was done

and he was subsequently discharged from the hospital (Fig 3 and 4).



Figure 3: Four weeks after initial presentation. Patient had undergone debridement. Note the localization of the infection at lower leg.



Figure 4: Eight weeks from initial presentation and four weeks after debridement. Note the localization of the infection on both the sides.

Upon regular follow up at our outpatient department we found that the larger wound was granulating well. After three months from the initial debridement we noted that all the toes exhibited dry gangrene (Fig 5).



Figure 5: Three months after bedside debridement. Note the healthy granulation tissue & dry tendons. The toes exhibit dry gangrene.

Due to the extent of the infection and the patient's unwillingness for amputation, further debridement and bilateral midfoot amputation (Fig 6). Postoperatively, the ulcers were healing well. Due to the patient's condition, he was discharged with recommendation made for the need of a split skin grafting in the future.



Figure 6: Postoperative view of the feet showing healthy granulation tissue.

Discussion

D Necrotizing fasciitis is a rapidly spreading infection of the deep fascia and subcutaneous fat. In our institute we frequently encounter necrotizing fasciitis, about one case every week.¹¹ However, this case posed a unique challenge to us in management and we were successful in salvaging his limbs. We attribute the cause of this rare presentation of necrotizing fasciitis and bilateral forefoot gangrene to the fact that patient had developed thermal burns and mechanical injury resulting from dipping of the foot in the hot water and subsequent massaging.

Dipping the foot in hot water and also massaging the leg for pain relief, are very common practices in India.¹²⁻¹³ It leads to a breach in the skin and entry of the microorganism(s), which results in necrosis containing blood vessels and nerves.

Arterial vasculitis, local hemorrhage and secondary skin infarctions. Infection can spread to underlying muscles resulting in myonecrosis. Blister or bullae formation can also commonly occur. Creatinine Phosphokinase (CPK) concentration is a useful marker of muscle necrosis. ¹⁴ This patient had a very high serum creatine kinase levels (1074.5 U/L).

Improper methods of pain relief as mentioned above. Such practices should be condemned, as they could be limb threatening and life threatening especially in diabetic patients. Necrotizing fasciitis is rightly described as a "crotizing fasciitis of both lower limbs along with bilateral gangrene of the forefoot is extremely rare and to our knowledge has not yet been reported.

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