Medeniyet Medical Journal 30(3):134-136, 2015
doi:10.5222/MMJ.2015.134

ISSN 2149-2042
e-ISSN 2149-4606

Case Report / Vaka Sunumu

Plastic & Reconstructive Surgery / Plastik ve Rekonstrüktif Cerrahi

Unpredictable presentation of necrotising fasciitis of the hand

Elin öngörülemez seyirli nekrotizan fasiiti

Oğuz KAYIRAN[1], Barış KADIOĞLU[2]

SUMMARY

Necrotizing fasciitis can result in devastating consequences. Once diagnosed, an immediate action is needed to achieve an outcome with minimum morbidities. A 25 year-old male patient was presented with the involvement of necrotizing fasciitis on his left hand. He had no antecedent trauma or infection, and his medical history did not show any relevant evidence. Serial debridements were carried out. The wound closure was realized with groin flap successfully. Rehabilitation program was initiated immediately after the suture removal. Complete survival of the hand with minimum extension lag was achieved. To us, the practitioners should be aware of the possibility of necrotizing fasciitis even in completely healthy patients with very atypical presentations.

Key words: *Necrotising fasciitis, hand, healthy patient, unpredictable presentation*

ÖZET

Nekrotizan fasiit yıkıcı sonuçlanabilmektedir. Morbiditenin azaltılması için tanı konulduğu anda acil müdahale planlanmalıdır. Yirmi beş yaşında erkek hasta, sol elinin üzerine nekrotizan fasiit ile başvurdu. Hiç öncül travması veya infeksiyon varlığı olmayan hastanın öyküsünde herhangi bir neden de bulunmamaktaydı. Seri debridmanlar sonrası kapama kasık flebi ile sağlandı. Rehabilitasyon programı dikişler alındıktan hemen sonra başlatıldı. Minimum ekstansiyon kısıtlığı ile elde tam sağkalım elde edildi. Nekrotizan fasit, çok atipik klinik ile karşımıza çıkabilmektedir ancak tamamen sağlıklı hastalarda da olasılığı akılda tutulmalıdır.

Anahtar kelimeler: *Nekrotizan fasiit, el, sağlıklı hasta, öngörülemez seyir*

INTRODUCTION

Necrotising fasciitis (NF) is a rapidly progressive infection of the soft tissue components, skin, subcutaneous fat, superficial and deep fascia, and muscle[1]. Despite its well-known pathophysiology, NF is still life-threatening even in early diagnosed patients. Moreover, early management may not reduce the morbidity and/or mortality in patients with suspect NF since the lack of specific diagnostic clues can deceptively complicate the process[2].

Classification schemes purpose a description in the management and the progression of the disease, but none has proved clinically useful[1]. Henceforth, resuscitation, debridement and medical treatment are the mainstays of therapy. Differential diagnosis includes less serious hand infections such as cellulitis and abscess; however it may not be easy to distinguish NF from these conditions[3].

CASE REPORT

A 25 year-old right hand dominant male worker in a big factory presented with pain and swelling on the dorsum of his left hand (Figure 1a). He had these complaints for 3 days with a gradual increase with time. At the referral, he was able to move joints of his left hand. He had an uneventful medical history with no use of tobacco and/or alcohol and without any antecedent trauma, accident or comorbidities. His body temperature was measured as 38.8°C and

Received: 24.06.2015
Accepted: 20.07.2015
[1]Kolan Hastanesi, Plastik ve Rekonstrüktif Cerrahi Kliniği
[2]Asya Hastanesi, Ortopedi ve Travmatoloji Kliniği
Yazışma adresi: Op. Dr. Oğuz Kayıran, Kolon Hastanesi Plastik ve Rekonstrüktif Cerrahi Kliniği, Darülaceze Caddesi, Şişli, İstanbul
e-mail: droguzk@yahoo.com

initial laboratory findings revealed a WBC count of 11000/L, CRP as 113.5 mg/L and sedimentation rate as 100 mm/1h.

Within 2 hours, the swelling progressed with the development of erythemaous blisters on the dorsum of his hand. His laboratory tests showed an elevation in WBC (12300/L), CRP (126 mg/L) and sedimentation rate (110 mm/h). Moreover, severe pain with wrist and metacarpophalengeal joint movements was noted. We were able to palpate the radial and ulnar artery deeply. Considering the compartment syndrome, emergency dorsal fasciotomies were performed. Following skin incision, purulent fluid squirted out with the tissues peeling off the underlying plane. During the operation, flush wash-ups were done with appropriate debridements. No permanent closure was carried out. Septic arthritis was eliminated in the surgery. On the third day after the first operation, WBC count was found as 8900/L, CRP as 25 mg/L and sedimentation rate as 92 mm/1h which supported the improvement in laboratory findings.

Oddly enough,results of the microbiological culture did not reveal any bacterial growth. Interestingly, clinical apperance of the lesions showed a typical course of NF with atypical presentation. Diagnosis of NF was proved by histopathological examination. Serial debridements were performed with daily intervals, and concomitant use of negative pressure therapy enabled formation of a viable granulation tissue 10 days later. Groin flap was preferred in definitive wound closure with no subsequent complications (Figure 1b and 1c). After 3 weeks, hand rehabilitation program was begun gradually. At the end of the second month, a total range of motion was achieved in the wrist and all of finger joints (proximal and distal interphalengeal joints) whereas there was a 15 degree extension in the second and third metacarpophalengeal joints (Figure 1d).

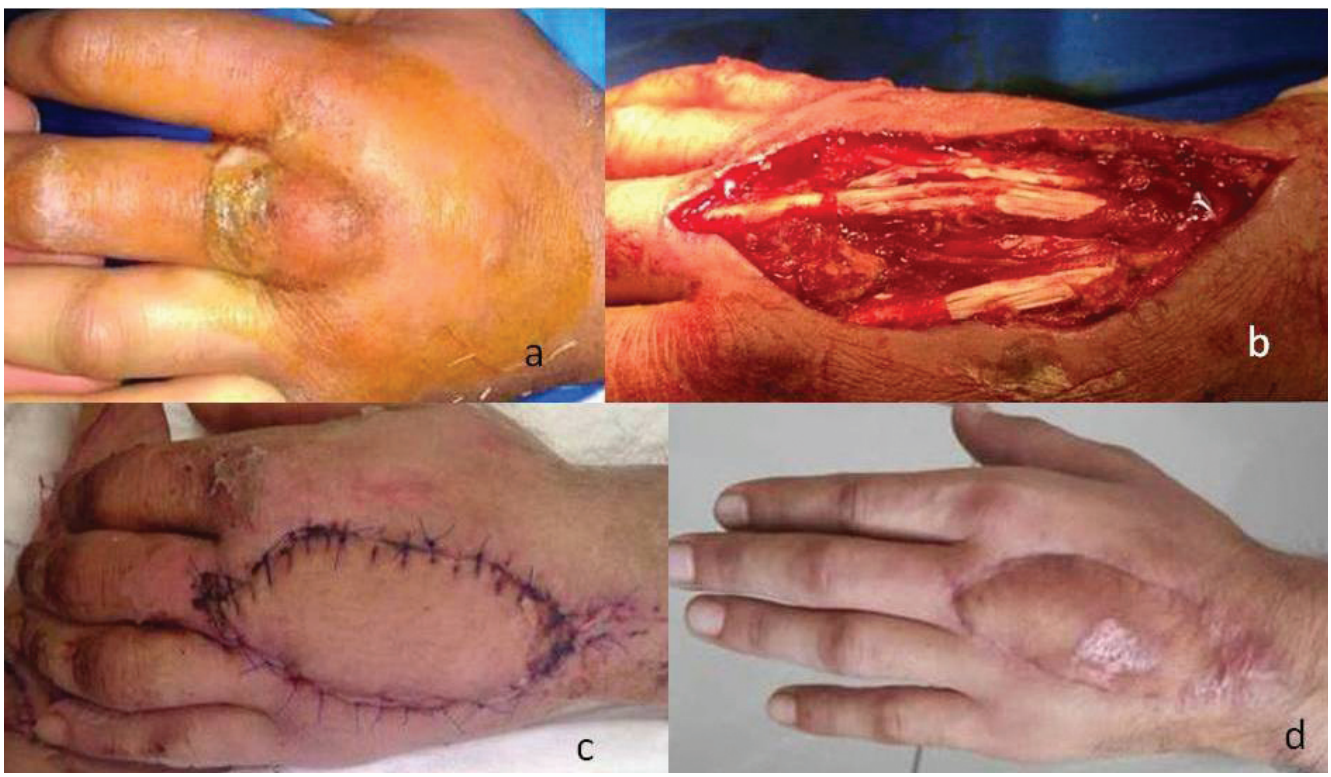

Figure 1. (a) The picture of the hand at the referral. Dorsal side of the hand with cellulitis with blister and tenderness on the third metacarpophalengeal joint region, (b) Defect on the dorsal side with the extensor tendon expositions just before groin flap elevation, (c) The picture of the hand at the end of the closure, (d) Rehabilitation started immediately after suture removal. Successful outcome is achieved with very limited hand movements.

DISCUSSION

The manifestation of NF can be very challenging for the physicians as the predictors for NF may be subtle and insidious. Because the primary site of NF is the deep fascia, skin manifestations such as tenderness, erythema, swelling, rubor, blister formation, crepitus, necrosis and anesthesia may not reflect the pathology accurately[2]. However, with skin manifestations NF can be distinguished from other soft tissue infections. Therefore, entertaining a high degree of suspicion seems to be crucial in the early recognition. Definitive diagnosis can be established with confidence by clinical examination, surgical dissection which are assisted by histopathological evaluation and microbiological analysis[4].

To our knowledge, early diagnosis with immediate management is critical in NF to reduce the morbidity and moreover, mortality. Rapidly progressive course of NF threatens lives of especially immunocompromised patients[5,6]. The infection in NF involves the fascia and subcutaneous tissue. The literature records the onset of typical NF as the presence of an inciting event being most commonly intravenous drug use, trauma, animal or insect bites, chronic wounds, abscesses and puncture wounds[4,7]. On the contrary, the antecedent situation may not be isolated in very selected cases as seen in our patient. This atypical manifestation cannot alarm the practitioner which may result in severe morbidity, organ failures, extremity amputations, and even mortality. Mostly, mixed aerobic and anaerobic organisms are isolated in NF; however, group A streptococcal and/or staphylococcal infections can be seen[8]. In our study, interestingly and unexpectedly, no pathogenic microorganisms could be isolated. Extremities, and more frequently lower extremities are involved[1,3,9]. Our patient had NF on his non-dominant hand.

Clinical reports have discussed the cutaneous manifestations frequently; however, intraoperative findings give us critically important information about the awareness of the disease[4]. Here, we report a case of NF affecting the hand with very atypical clinical findings. To us, this the only case of NF involving upper extremity of a completely healthy patient without any predisposing factor and microbiological involvement.

REFERENCES

1. Sunderland IR, Friedrich JB. Predictors of mortality and limb loss in necrotizing soft tissue infections of the upper extremity. *J Hand Surg Am* 2009; 34: 1900-1. http://dx.doi.org/10.1016/j.jhsa.2009.08.018
2. Wang YS, Wong CH, Tay YK. Staging of necrotizing fasciitis based on the evolving cutaneous features. *Int J Dermatol* 2007; 46: 1036-41. http://dx.doi.org/10.1111/j.1365-4632.2007.03201.x
3. Angoules AG, Kontakis G, Drakoulakis E, et al. Necrotising fasciitis of upper and lower limb: a systematic review. *Injury* 2007; 38: 19-26. http://dx.doi.org/10.1016/j.injury.2007.10.030
4. Chan JC, Fauzi Z, O'Broin E. Intraoperative findings of necrotizing fasciitis of the hand caused by Staphylococcus aureus infection. *Hand Surg* 2013; 18: 93-5. http://dx.doi.org/10.1142/S0218810413720039
5. Gonzalez MH. Necrotizing fasciitis and gangrene of the upper extremity. *Hand Clin* 1998; 14: 635-45.
6. Wong CH, Chang HC, Pasupathy S, et al. Necrotizing fasciitis: clinical presentation, microbiology, and determinants of mortality. *J Bone Joint Surg Am* 2003; 85-A: 1454-60.
7. Descamps V, Aitken J, Lee MG. Hippocrates on necrotising fasciitis. *Lancet* 1994; 344: 556. http://dx.doi.org/10.1016/S0140-6736(94)91956-9
8. Osterman M, Draeger R, Stern P. Acute hand infections. *J Hand Surg Am* 2014; 39: 1628-35. http://dx.doi.org/10.1016/j.jhsa.2014.03.031
9. Anaya DA, McMahon K, Nathens AB, et al. Predictors of mortality and limb loss in necrotizing soft tissue infections. *Arch Surg* 2005; 140: 151-7. http://dx.doi.org/10.1001/archsurg.140.2.151