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Case Report

Microbiology Section

Necrotizing Fasciitis of Hand By Methicillin Resistant *Staphylococcus aureus* (MRSA) – A Sinister

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ABSTRACT

Necrotizing fasciitis (NF) is an aggressive and life-threatening infection of skin and soft tissue characterized by widespread fascial necrosis, leads to gross morbidity and mortality if left untreated. Although MRSA has become a common isolate associated with skin and soft tissue infections globally over the past few years, monomicrobial MRSA NF has been reported only in a few studies. Our case represents the development of NF followed by trivial trauma salvaged with daptomycin and amputation of the affected limb.

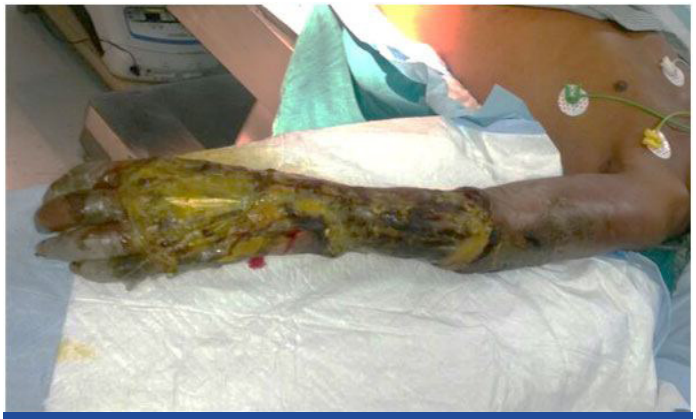
Prompt diagnosis and surgical management with empiric MRSA cover in areas where community acquired MRSA (CA-MRSA) is endemic for suspected cases of necrotizing fasciitis can prevent the dreaded consequences.

Keywords: Amputation, Daptomycin, Monomicrobial

CASE REPORT

A 58-year-old male clerk working in a Bank at Gujarat, presented to our hospital on 14th December 2013 with swelling of the forearm and discolouration of the skin. He had a fall while playing cricket with his son and sustained superficial bruises along left wrist and forearm 5 days before. He had received some medicines from general practitioner. He had no history of any chronic illnesses like diabetes mellitus or tuberculosis. Patient was well oriented at the time of presentation. Local examination revealed swelling involving left hand and half of left forearm. Blackish discolouration with serosanguineous discharge was present on dorsal aspect of fingers, wrist of left hand.Patient was admitted to ward with suspected clinical diagnosis of necrotizing fasciitis. Debridement of the tissue was undertaken on day one [Table/Fig-1].

No foul smell was noted. Pus along with deep tissue and blood was sent for culture. Routine laboratory analysis revealed WBC count of 8200/µl.Ceftriaxone plus metronidazole was started empirically. On day 3 of admission patient worsened with 102^{0}F temperature, 38/min respiratory rate, 80/50 mm of Hg blood pressure and pulse rate of 110/min. Serum creatinine was 2.83mg/dl. MRSA sensitive to teicoplanin, clindamycin, vancomycin, linezolid, daptomycin was isolated from debrided sample. D-test was positive. Blood culture also grew MRSA with similar sensitivity. Patient was undertaken for emergency above elbow amputation [Table/Fig-2].



[Table/Fig-1]: Swelling of the fingers along with blackish discolouration and exfoliation of skin of the left hand and forearm

Patient was put on meropenem 1gm t.i.d and daptomycin 6mg/kg on alternate day. Patient became afebrile on day 3 of daptomycin. He was kept on regular dialysis and on ventilator after surgery. Inotropes and vasopressors started as supportive measure. Subsequent blood culture was negative. Inotropes and vasopressors support weaned off, as urine output was normal. Continued on daptomycin 6mg/kg daily for 15 days. No adverse events were observed. He went home on day 20 of admission.

DISCUSSION

Necrotizing fasciitis (NF) is an aggressive and life-threatening infection of skin and soft tissue characterized by widespread fascial necrosis which can lead to gross morbidity and mortality upto 73% if left untreated [1-3]. NF is usually caused by a mixture of aerobic and anaerobic organisms, typically including group A *streptococcus*, Enterobacteriaceae, anaerobes, and *S. aureus*. Although skin and soft tissue infections caused by MRSA is becoming common globally over the past few years, monomicrobial MRSA necrotizing fasciitis reports are sparse in literature [4,5].

Hohendorff B et al., has reported a case of fall at home on left hand leading to fulminant NF of the hand from group A β-haemolytic streptococcus, requiring an lifesaving amputation [6]. Similarly Dias L et al., reported a case of NF of the thumb following minor injury to the left thumb, requiring ICU admission and surgical debridement

[Table/Fig-2]: Clean surgical margins post amputation

[7]. Govindan et al., reported a case of NF of lower limb caused by community-associated MRSA salvaged by surgical debridement and linezolid along with broad-spectrum antibiotics [8].

Though experts recommend use of broad-spectrum empirical antimicrobial therapy for suspected cases of necrotizing fasciitis, therapy directed against MRSA is not a standard practice, looking at the rarity of this pathogen as aetiology of NF [5]. Local epidemiology and antibiotic resistance trends determine the applicability of recommendations and guidelines in empirical antibacterial therapy for cSSTI [9].

IDSA 2014 update on practice guidelines for the diagnosis and management of skin and soft tissue infections recommends antimicrobial therapy till patient shows clinical improvement and no further debridement is required. Empiric treatment recommendation for necrotizing fasciitis includes agents effective against both aerobes, including MRSA, and anaerobes [10].

CONCLUSION

Necrotizing fasciitis caused by community-associated MRSA should be on the radar of treating physician. Prompt diagnosis and surgical management with empiric MRSA cover in areas where community acquired MRSA (CA-MRSA) is endemic for suspected cases of MRSA necrotizing fasciitis can prevent the dreaded consequences. In communities where MRSA infection is becoming endemic, empirical treatment of suspected necrotizing fasciitis or pneumonia should include active MRSA cover.

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