Varicella Zoster Viral Infection Complicating into Necrotizing Fasciitis: A Case Report

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Abstract

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Informed Consent

Written informed consent was obtained from the patients to publish this report in accordance with the journal's patient consent policy.

Abstract

A 35 years old female presented to the ED with severe pain and right thigh discharge for 2 days. She gave a history of chickenpox 2 weeks ago and received ibuprofen for excruciating pain. She was immediately diagnosed with necrotizing fasciitis and shock.

Keywords: Antibiotics; chicken pox; debridement; necrotizing fasciitis; shock

Key Clinical Message

Chickenpox can cause life-threatening infections, including meningitis and soft tissue infection. Early diagnosis and aggressive resuscitation with supportive organ care and antibiotic therapy are key to survival.

INTRODUCTION

Varicella zoster virus infection causes chickenpox in pediatric and adult immunocompetent patients. Chickenpox is usually a milder disease but can lead to serious neurological and respiratory complications and soft tissue infection.[1] Less than 1% of children and 1.3% of adult patients with chicken pox will be complicated into necrotizing fasciitis.[2]Necrotizing fasciitis (NF) is a rare but potentially fatal skin and soft tissue infection and a surgical and medical emergency.[3] We report a case of post chickenpox necrotizing fasciitis in an immunocompetent female adult patient.

CASE PRESENTATION

A 35 years old female presented to the emergency department with severe pain and yellowish discharge in the right thigh for 2 days. She had a history of chickenpox for 2 weeks and had taken ibuprofen nonsteroidal anti-inflammatory drug (NSAID), for pain control. She was awake, dehydrated, tachycardic (110-120/min), tachypneic (24-29/min), and febrile (39°c) with borderline blood pressure (90/50 mm Hg). On local examination, there were blackish lesions involving the posterior aspect of the right thigh, extending to the perineum, vulva, and buttocks, with multiple blisters and yellowish discharge. Her laboratory workup showed leucocytosis (19000/), hyperglycemia (RBS 16.2 mmol), impaired renal function (BUN14.5 and creatinine 124umols/L), and anemia (Hb 7.2gm %) with high C-reactive protein (324). She was diagnosed as a case of necrotizing fasciitis in the thigh by using LRINF (laboratory risk indicators for necrotizing fasciitis) score (table 1), started on Tazocin® (Piperacillin+Tazobactam), and continued resuscitation with fluids and packed red blood cells transfusion (pRBCs). She was taken for debridement of the thigh, necrotic tissues, and blackish skin lesions. Postoperatively, she was transferred to the surgical intensive care unit (SICU) in intubated and ventilated condition. In SICU, resuscitative measures were continued; she required noradrenaline to maintain the hemodynamics. Clindamycin was added, and dalteparin was started for deep venous thrombosis prophylaxis. On day 2, she underwent re-debridement and continued resuscitation and supportive care. Tissue culture showed growth of *streptococcus pyrogens* and*pseudomonas aeruginosa* , both sensitive to Tazocin®. By day 4, she was on enteral feeds, off vasopressors, and her trachea was extubated by day 5. The patient remained stable, all invasive lines were removed, and an oral diet was initiated. She was transferred to the surgical ward on day 7 and from there discharged home to be followed in outpatient clinics.

DISCUSSION

Around 47% of chicken pox infection occurs in the adult population, with male predominance.[4] In adult patients, there is an increased rate of complications compared to the pediatric age group.[3] The central nervous system and soft tissue infections are the most frequent complications of chickenpox infection.[1,2,4] In a recent study, 1.3% of chickenpox infections were complicated into necrotizing fasciitis (NF).[5] NF is a rapidly progressing infection of the fascial layer with delayed skin, subcutaneous, and muscle involvement with systemic toxicity.[3] NF is classified into 4 groups depending on the microbiological etiology. In our patient, it was polybacterial, which is type1 NF. There are various risk factors for the occurrence of NF reported in the literature.[3] Although our patient was immunocompetent without any comorbidities, she had a chickenpox infection 2 weeks back, which was a risk factor for the development of NF. Early diagnosis is key for better management of NF.[1, 3]

The most important finding in the patient's history is pain, which will be much more intense than the local dermatological manifestations. The tissue biopsy is the gold standard for the diagnosis of NF. The LRINF (laboratory risk indicators for necrotizing fasciitis) score helps in earlier diagnosis by differentiating NF from cellulitis.[1, 3] The management of NF is essentially medical as well as surgical. Medical management includes early antibiotic administration and organ supportive therapy, whereas surgical management is earlier bold debridement of the necrotic tissues.[3, 6]

CONCLUSION

Chickenpox is a contagious infection caused by the varicella-zoster virus. Chickenpox is more frequent in the pediatric age group and affects a significant portion of the adult population with a higher rate of complications. Chickenpox can cause life-threatening infections, including meningitis and soft tissue infection. Our case concludes that chickenpox in healthy females can cause life-threatening soft tissue infection; early diagnosis and appropriate medical and surgical therapy is the cornerstone for a better outcome.

ABBREVIATIONS

NSAIDs: Non-steroidal anti-inflammatory drugs; LRINF: laboratory risk indicators for necrotizing fasciitis; NF: Necrotizing fasciitis; RBS: Random blood sugar; Hb: Haemoglobin; WBC: White blood cells; CRP: C-Reactive proteins

DECLARATIONS

Ethics approval and consent to participate

The article describes a case report. Therefore, no additional permission from our Ethics Committee was required (MRC-04-20-1018).

Availability of data and material

All data generated or analyzed during this study are included in this published article.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

Data Collection and Literature Search: NSH

Manuscript Preparation (draft and final editing): UA, MIH, SM, AIE, MAM, AJN

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Tables

Table 1. Patients LRINF (laboratory risk indicators for necrotizing fasciitis) score

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Patients LRINF score

Serum sodium (serum Na)	132 (mmol/L)
Random blood sugar (RBS)	16.3 (mmol)
Haemoglobin (Hb)	7.2 (gm/dl)
Leucocytosis (WBC)	$19x^3/L$
C-Reactive proteins (CRP)	324
Serum creatinine	124 (umol/L)