ISSN 2689-8268 | Volume 8

American Journal of Surgery and Clinical Case Reports

Case Report Open Access

Metastasis of Pharyngitis, a Rare and Deadly Case

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Received: 16 Aug 2024
Accepted: 30 Sep 2024
Published: 05 Oct 2024
J Short Name: AJSCCR

Citation:

Garg N. Metastasis of Pharyngitis, a Rare and Deadly Case. Ame J Surg Clin Case Rep. 2024; 8(2): 1-2

1. Introduction

Streptococcus pyogenes (S. pyogenes) pharyngitis is a prevalent infectious disease, affecting over 11 million people yearly in the United States and accounting for over 800 per 10,000 consults annually. 1 Although typically noninvasive, and responsive to antibiotic treatment, S. Pyogenes imposes a considerable clinical burden. The majority of S. Pyogenes-related mortality is attributable to its complications, with necrotizing soft tissue infection being particularly devastating due to its atypical and rapidly decompensating clinical picture. These infections manifest with bacteremia and disseminated necrosis with no clear entry portal. 2 Since the 1980s, the incidence of invasive S. Pyogenes cases has been variably documented, possibly influenced by population susceptibility. In this report we present a case of a rare and exceedingly dangerous invasive disseminating S. Pyogenes in an otherwise healthy 39-year-old male.

2. Case Description

A previously healthy 39-year-old male with no significant past medical history presented to the emergency department with complaints of left arm swelling and pain accompanied by shakes and chills. He had been started on prednisone by his primary care provider, but experienced worsening symptoms prompting emergency department presentation. Examination in the ER revealed a severe soft tissue infection of the left upper extremity necessitating fasciotomies due to compartment syndrome and non-reactive musculature. Blood cultures at this time revealed the presence of an organism consistent with Streptococcus. Further investigation revealed that the patient's wife and two young children had recently experienced streptococcal pharyngitis. Given this history and clinical pictures, a working diagnosis of metastatic Group A Streptococcus (GAS) infection to the muscles of the forearm from occult pharyngitis was proposed by infectious disease consultant. Treatment with beta lactam therapy and Linezolid for anti-streptococcal toxin effect was initiated. IVIG was also administered to bolster humoral immunity against the streptococcal pathogen. Despite these therapeutic measures, the patient underwent further deterioration and underwent intubation in the surgical ICU. In the SICU, he was tachypneic and in acute renal failure with a markedly elevated lactic acid level, requiring escalation of pressors, continuous renal replacement therapy, and initiation of massive transfusion protocol. Overnight, the patient underwent guillotine left upper extremity trans humeral amputation in the hopes of obtaining source control. Upon further decompensation post operatively, orthopedics were consulted for shoulder disarticulation and debridement of myonecrosis of the deltoid muscle extending to the anterior chest wall. Upon further examination, the patient's left pectoral muscle was non-viable and his bilateral lower thigh compartments were tight. The patient underwent multiple fasciotomies of the bilateral thighs, and right upper extremities as well as extensive debridement of the left upper extremity, shoulder and bilateral chest wall. Ultimately the patient passed away 5 days after presentation to the emergency room following discussions with family and withdrawal of CRRT and pressors.

3. Discussion

Group A streptococcus pharyngitis is the most common cause of acute pharyngitis in the United States, accounting for 5-15% of all adult cases and 20-30% of pediatric cases. 3 Standard treatment involves a 10-day course of Amoxicillin or Penicillin, with symptom resolution typically within 5 days. 3 Disease prevention involves proper hand hygiene as disease spread is often seen in close contacts and within households. Severe complications of acute pharyngitis include rheumatic fever, scarlet fever, nephritis, and directly spreading soft tissue infections such cellulitis, fasciitis, and myositis. Risk factors for severe complications such as

soft tissue necrotizing infection include chronic illness, diabetes mellitus, recent trauma, burns, or surgery. Of these complications, Myositis is particularly rare, with under 50 cases reported worldwide. 3 Diagnostic markers of this complication include elevated creatine kinase, myoglobin, and inflammatory markers. 3 In these cases, early surgical intervention is critical to observe the presence of necrosis within muscular and fascial layers. The mortality rate in myositis cases is nearly 100%. 4 Treatment involves prompt surgical debridement, amputation, and high dose antibiotics. Such as IV benzyl-penicillin and clindamycin due to its exotoxin-blocking capabilities. Adjunctive treatments include high flow oxygen and IVIG.

4. Conclusion

Metastatic Group A Streptococcal Myositis from occult pharyngitis is exceedingly rare but extremely dangerous. Although the vast majority of pharyngitis infection in adults does not complicate, it is essential for survival that cases with suspected soft tissue necrosis receive early surgical consultation as well as targeted antibiotic treatment. Use of diagnostic ultrasound and non-delayed debridement is highly recommended. Clinicians must have a low suspicion for diagnosis and initiation of treatment. Further investigation into the etiology and swift management of this complication is necessary to prevent unfavorable outcomes - even in otherwise healthy.

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