



Case Report

Isolated left upper extremity myositis and severe rhabdomyolysis in an adult with H1N1 Influenza, a case report with literature review



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ABSTRACT

Acute viral myositis is a fairly rare condition and usually seen in recovery phase of illness, especially in pediatric or geriatric population. Influenza type A, specifically H1N1 may present with generalized myositis and mild elevation of creatinine kinase in addition to usual manifestations. We would like to discuss an atypical presentation of Type A Influenza (H1N1) in a middle aged male who was never immunized for influenza, presenting with fever, vomiting, anuria and acute severe left upper extremity pain. The most interesting presentation in our patient was that, it was limited to a single extremity, unlike generalized presentation, which was previously reported, acute renal failure warranting renal replacement therapy. This case serves as a reminder for clinicians about atypical manifestations of H1N1 and its threatening metabolic complications. Hence the practitioners should be aware of this rare but possible presentation of certain strains of influenza virus. It also accentuates the importance of being immunized, reminding us of the Old but Golden Adage "Prevention is better than Cure."

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Introduction

Pandemic influenza H1N1 virus has been reported worldwide including the United States since 2009. As the infection has been studied in more detail, multiple complications have been reported secondary to the infection. Among these, myositis has been described as a rare complication, which usually occurs in children as well as in the elderly. The classical presentation of myositis due to H1N1 virus is more diffuse and involves all muscle groups. We report a case of a 36-year-old male with PCR proven H1N1 influenza. He was presented with focal upper limb myositis and its serious complications. The myositis involved only one group of muscles, while sparing all other muscles, leading to rhabdomyolysis and acute renal failure.

Case

A 36-year-old male came to the emergency room with 3 days of vomiting, fevers and left arm pain and swelling with restricted range of motion. The patient had a 2-week history of upper respiratory illness preceding this event. The events started in Detroit where the patient was on a business trip. The patient also

complained of malaise and generalized weakness along with the respiratory symptoms. He complained of loss of appetite and nausea. The patient did not have any other significant past medical or surgical history. He was not taking any medications and denied smoking or drug abuse. He had been anuric for the past 2 days and had a fever of 101 °F on presentation.

The physical examination of the left upper extremity showed erythema with mild tenderness and swelling over the left upper extremity extending to the elbows and down the lateral chest wall. Distal pulses were intact. Localized exam did not reveal injection site, insect bites, and trauma or open wounds. Wheezes were auscultated throughout the chest. The initial laboratory examination showed a creatinine of 5.07 mg/dl and BUN of 32 mg/dl. His total creatinine kinase on admission was 81,089 IU/L. His transaminases were elevated with an AST of 2557 units/L and ALT of 648 units/L. Chest X-ray showed a left middle lobe infiltrate. X-ray of the left shoulder was unremarkable and the CT scan of the left upper extremity without contrast showed stranding and edema of the soft tissues of the left shoulder, left abdominal wall and left upper extremity. No fascial thickening, drainable fluid or subcutaneous air collection was noted.

The patient was vigorously hydrated with normal saline with bicarbonate. Patient was started on combination of piperacillin/tazobactam and linezolid for cellulitis and pneumonia after blood cultures were obtained. Overnight the patient's urine output was 120 cc. The following morning the chest X-ray showed congestion due to aggressive hydration. He underwent dialysis for fluid

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overload and due to anuria. Patient's nasopharyngeal swab was sent for PCR analysis for influenza, which came back positive for influenza type A subtype H1N1. The remaining labs were negative – toxicology screen, urine antigen tests for legionella and pneumococcus, and HIV ELISA. Antimicrobials were discontinued on day 4 because of negative blood cultures and absence of fever or leukocytosis. The initial infiltrate cleared rapidly as well. The patient continued to receive dialysis for 4 days as he remained oliguric with his creatinine trending down.

The final diagnosis was rhabdomyolysis with acute renal failure due to isolated upper extremity myositis as a complication of influenza caused by H1N1 virus. The patient was treated with a 5-day course of oseltamivir. The patient's creatinine kinase started trending down and went back to normal. Patient's urine output gradually started increasing and the patient was discharged home in 10 days with regular dialysis follow up till his acute renal failure resolved completely.

Discussion

We report a novel case of H1N1 infection complicated by isolated myositis of the left upper extremity causing severe rhabdomyolysis and acute renal failure. This is an unusual example of the localized myositis and severe myolysis after an influenza H1N1 infection.

Acute myositis has been described in many influenza epidemics since 1957 [1]. Influenza A and B viruses have been documented to cause viral myositis with rhabdomyolysis [2–5].

This rhabdomyolysis eventually leads to renal failure. All of these reported cases of myositis as a complication of influenza H1N1 virus have presented with diffuse muscle involvement and has not been described with an isolated muscle groups. In this patient the presentation was unusual because the myositis was limited in its distribution to the left upper extremity while sparing all other extremities and muscles.

Viral myositis presents with history of preceding upper respiratory tract infection followed by fever, anorexia and diffuse myalgias. GI symptoms may be present. Medical attention is usually sought due to development of severe diffuse muscle pain, swelling or tenderness that interferes with function. Both upper and lower extremities as well as trunk are involved. In severe cases a compartment syndrome may develop as a result of muscle edema [6]. The diagnosis of viral myositis as a cause of rhabdomyolysis is first suspected on a clinical basis. Extreme elevation of creatine kinase can be seen in cases of acute viral myositis ranging from 10,000 IU/L [7] to 500,000 IU/L [8]. Viral myositis can occur from other viruses apart from the influenza virus including Coxsackievirus [8], Epstein Barr virus [9,10] and Echovirus [11].

Common causes of rhabdomyolysis include environmental heat illness and extreme physical exertion [12,13], inherent metabolic myopathies [14] and drug induced myopathies [15]. Other acute viral illnesses may also manifest as viral myositis and can cause complications like rhabdomyolysis and acute renal failure and fatal hyperkalemia. Treatment consists of immediate fluid hydration and lab monitoring, to prevent dialysis.

Contrary to popular belief that viral myositis presents as generalized weakness involving all muscle groups with or without

rhabdomyolysis, this atypical case highlights the fact that on rare occasions, viral myositis may present as an isolated myositis leading to severe rhabdomyolysis causing acute renal failure. There has been a reported case of orbital myositis in an infant with a severe H1N1 infection [16]. It is thus important to note that influenza type A subtype H1N1 which has been famous for its respiratory manifestations can also cause viral myositis and can have extremely atypical manifestations as noted in this case and the infant with orbital myositis [16]. It is essential to recognize this association and have a high index of suspicion for patients presenting with similar clinical presentation and flu like illness. It is important to note that the patient did not get the flu vaccine. This case also emphasizes influenza vaccination to prevent the flu and its life threatening sequelae.

In conclusion, we report a novel case of influenza A subtype H1N1 complicated by rhabdomyolysis resulting from severe myositis of left upper extremity. This should alert the practitioners about the atypical presentations of influenza type 1-H1N1 and to its potential metabolic complications.

Conflict of interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

Consent

Written informed consent was obtained from the patient for publication of this case report. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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