

Pediatric Rehabilitation of Influenza B Associated Rhabdomyolysis: A Case Report

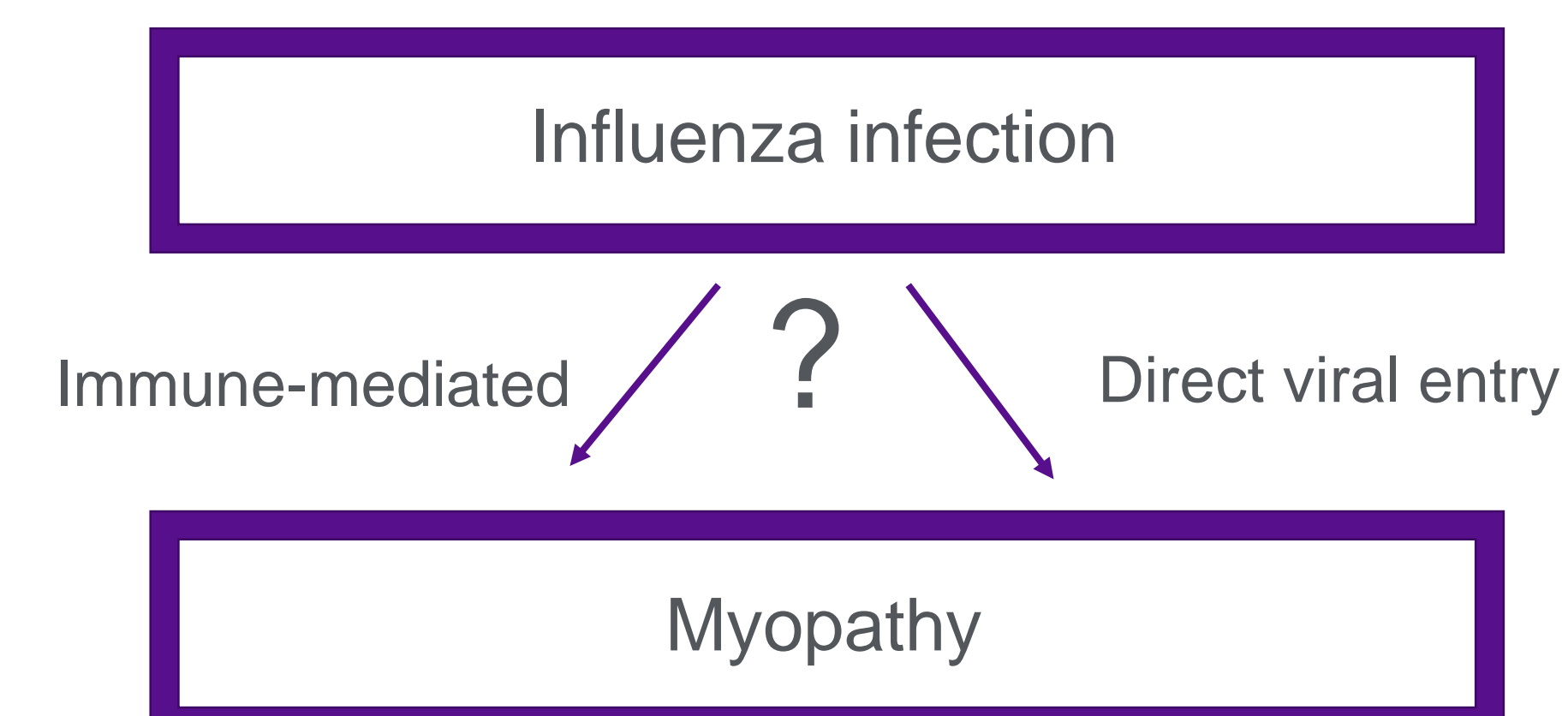
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Case History

8-year old with no known past medical history presented to the hospital with 4 days of cough, vomiting, and fever. The patient rapidly deteriorated and was admitted to the pediatric ICU. Complications included respiratory failure, renal failure, possible shock liver and viral myocarditis. Workup confirmed influenza B infection. Course was further complicated by influenza B associated rhabdomyolysis (CK >40,000 units/liter). This rhabdomyolysis, in addition to multiorgan failure, led to significant functional decline including lower extremity weakness. The patient also experienced significant dysesthesias due to neuropathic pain, possible attributable to chronic inflammatory demyelinating polyneuropathy (CIDP). Pediatric physiatry was consulted.

Proposed Mechanisms (2)

- Though incompletely understood, hypotheses have emerged as to how influenza infection may lead to myopathy (adapted from citation 2)



Physiatric Physical Examination

- Alert, interactive, tearful
- Regular heart rate, no respiratory distress, non-distended abdomen
- Lifting head off of bed appeared to be difficult
- Swelling noted in left upper extremity and bilateral lower extremities
- Limited movement in right upper extremity against gravity, trace left hand movement, trace bilateral lower extremity movement
- Passive range of motion assessment limited by sensitivity to touch

Functional Course

- Bedside rehabilitation was initiated in the pediatric ICU
- The patient was ultimately transferred to a pediatric acute inpatient rehabilitation unit
- Multidisciplinary, family-oriented approach to rehabilitation included early aggressive mobilization, orthotic application (bilateral AFOs), and pain management under the supervision of pediatric physiatry
- Gabapentin was utilized for dysesthesia and was eventually weaned off
- CPK improved
- The patient was ultimately discharged home approximately three weeks later, and was able to ambulate with rolling walker with direct supervision

Discussion

- This is a case of influenza B associated rhabdomyolysis
- Rhabdomyolysis is a rare complication of influenza B infection (1)
- Mechanism of influenza-associated myopathy is incompletely understood, but may include direct viral entry or may be caused by immune-mediated phenomena (2)
- Medical complexities of this case necessitated an interdisciplinary, family-oriented approach to rehabilitation
- Pediatric physiatry was an important team component throughout the stages of this patient's care

Conclusion

- Differential diagnosis for a pediatric patient with rhabdomyolysis and multiorgan failure should include influenza B infection
- Functional recovery for children with viral-induced rhabdomyolysis with multiorgan failure can be facilitated with early referral to pediatric physiatry within an interdisciplinary model of healthcare

References

1. Teutsch S, et al. Ten years of national seasonal surveillance for severe complications of influenza in Australian children. *Pediatr Infect Dis* [online ahead of print], 2020.
2. Parikh M, et al. Novel H1N1-associated rhabdomyolysis leading to acute renal failure. *Clin Microbiol Infect* 16(4):330-332,2010.