



# Help! My Child Can't Walk!

## Approach to the Non-Ambulatory Child in the Emergency Department

CPT Janina Gregorski, MD and LTC T.G. Nessler, MD  
Darnall Army Medical Center, Ft Hood, TX

### Introduction

- Pediatric patients presenting to the emergency department (ED) with acute onset of difficulty ambulating can prove alarming and is a high stress situation for the patient, families, and providers.
- Emergency physicians must elucidate serious underlying neurodegenerative disorders and life-threatening conditions when presented with this clinical scenario.
- Further, a balance is necessary in the clinical approach to prevent unnecessary testing in what may be a benign, self-limited illness.
- Benign acute childhood myositis (BACM) is a syndrome predominately in school age children following a viral-like illness. The patient (Pt) experiences difficulty walking, calf tenderness, and elevated creatine kinase (CK).
- We will discuss a case of BACM and the generalized approach to the non-ambulatory child as this condition is rare and frequently misdiagnosed.

### Case Presentation

#### ED Initial Presentation

- 4yoM, otherwise healthy, **vaccinations up-to-date**, presented to the ED with **difficulty ambulating**. Pt was afebrile with normal vitals.
- Pt PO tolerant with no decrease in UOP.

### ED Course

- Mother notes **recent URI-like symptoms** preceding onset. Pt had a similar episode following streptococcal pharyngitis one year ago where he developed severe calf pain. No back or hip pain.
- No significant family history to include muscular dystrophy, neurodegenerative disease, and autoimmune disease.
- Physical exam was remarkable for **tenderness to calves bilaterally. Pt ambulated with a wide-based, stiff legged gait with intermittent toe walking. Normal motor and sensation.**
- Labs (CBC, CMP, CK) remarkable only for **AST 95, CK 2303.**

### Inpatient Course

- Hospital course was uncomplicated with down-trending CK mirroring spontaneous resolution of symptoms. Pt completed outpatient follow up with the diagnosis of BACM.

### Discussion

- BACM was first reported in 1957 in 74 Swedish children under the name of myalgia cruris epidemica.
- The most commonly associated viruses are **influenza A/B and enteroviruses**.<sup>1,4</sup>
- Etiology is unknown with the hypothesis of direct invasion of the virus, damage by myotoxic cytokines, versus an abnormal immunological response.

- Differential includes trauma, Guillain-Barre syndrome, rhabdomyolysis, osteomyelitis, juvenile rheumatoid arthritis, malignancy, dermatomyositis, polymyositis, muscular dystrophy, or intracranial pathology. See figure 1 to distinguish between possible differentials.<sup>6</sup>

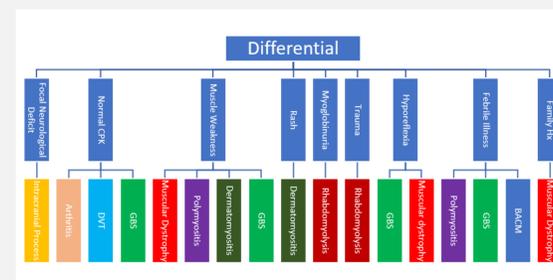


Figure 1

- BACM does not cause motor weakness, sensory deficits, abnormal tendon or plantar reflexes. Rarely, progression can lead to rhabdomyolysis; initial workup must rule this out.<sup>2,4,6</sup>

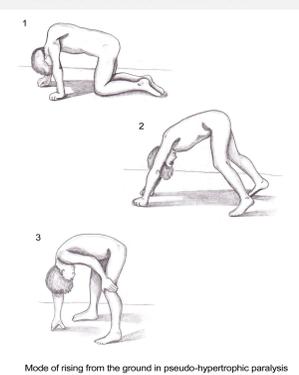


Figure 2

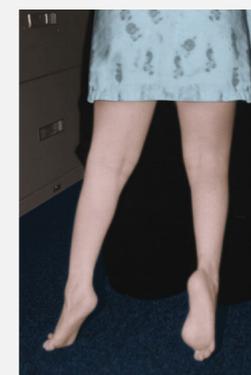


Figure 3

- Gowers' sign reflects weakness of the pelvic girdle (figure 2), which is observed in muscular dystrophy.<sup>5</sup>
- Toe walking (figure 3) is common in children under two and is different than Gowers' sign. Rarely, this can indicate underlying pathology.<sup>7</sup>

### Pearls/Pitfalls

- BACM is a rare, transient condition that is often difficult to diagnose with a disturbing initial presentation.
- Clinician awareness of BACM can prevent unnecessary invasive and often costly workup in the pediatric population.
- Thorough history and physical is key to identify the possibility of serious pathology or life-threatening illness.
- Though alarming in presentation, BACM can be treated safely as an outpatient with excellent prognosis.<sup>3</sup>



### References

1. Crum-Cianflone NF. Bacterial, fungal, parasitic, and viral myositis. *Clin Microbiol Rev.* 2008;21(3):473-494.
2. Chu EC, Yip AS. A rare presentation of benign acute childhood myositis. *Clin Case Rep.* 2019;7(3):461-464. Published Jan 2019.
3. Mackay, M.T., Kornberg, A.J., Shield, L.K., Dennett, X. Benign acute childhood myositis. *Neurology.* Published Dec 1999.
4. Magee H, Goldman RD. Viral myositis in children. *Can Fam Physician.* 2017;63(5):365-368.
5. Nair, D, Lorenzo, Nicholas. Dystrophinopathies Clinical Presentation. Medscape. Published Oct. 5, 2016. <https://medicine.medscape.com/article/1173204-clinical>. Accessed Aug 2, 2019.
6. Terlizzi V, Improta F, Raia V. Simple diagnosis of benign acute childhood myositis: Lessons from a case report. *J Pediatr Neurosci.* 2014;9(3):280-282.
7. Toe Walking. Academy of Orthopedic Surgeons. <https://orthoinfo.aaos.org/en/diseases--conditions/toe-walking/>. Accessed Sept 01, 2019.