IDIOPATHIC Toe Walking Clinic Guidelines - Orthopaedic Practice

Definition
Idiopathic toe walking is a term used to define a gait in which a person walks with a toe-toe gait pattern without any known correlated etiology (1)

Pathogenesis/Natural History
• There is no well known etiology(2)
• Possible etiologies:
  i. Normal variant of an early childhood gait pattern
  ii. Heredity(1)

Symptoms
• Tight heel cords
• Possible developmental conditions-most specifically language disablilities including autism(1,3)

Presentation
a. Patient walks with a bilateral toe to toe gait intermittently or consistently (4)
b. They do not typically present with pain
c. They may or may not have tight heel cords with decreased ankle dorsi-flexion and possibly not be able to stand in plantigrade position if have significant equinas contractures (1,5,6).

Diagnosis
a. Past Medical/Surgical history to include birth history, developmental milestone achievement, evaluation of family history for progressive neuromuscular conditions,
b. Review of systems: Thorough history with specific attention to musculo-skeletal and neurologic symptoms especially bowel/bladder pattern difficulties
c. Physical Exam: Specific attention to musculo-skeletal and neurologic exams.
  iii. In regard to musculo-skeletal exam, make sure to evaluate ankle motion and gait.
  iv. In regard to neurologic exam, make sure to specifically check for the following: DTRs, muscle wasting, babinski, clonus, hypertonia, gowers sign, and signs of spinal dysraphism (spinal dimple, hairy patch).

Diagnostic Tests
a. If patient is a chronic toe-toe walker-with abnormal neurologic exam and/or abnormal bowel/bladder function recommend getting an MRI of the brain/spine
b. If positive Gowers sign obtain CK blood level
c. Consider MRI of brain and spine and referral to orthopaedic surgeon, even if no neurologic signs/symptoms, if despite casting, continues to toe walk and presents with significant equinus contractures
Treatment Options

a. Habitual toe walkers without Achilles tendon contracture (>20 degrees of dorsiflexion present)
   • <5yo/sporadic
     1. recommend watchful waiting to see if improves
     2. May refer to physical therapy for two months with follow up appointment to evaluate improvement and desire impression of physical therapist
   • 5-10 yo / 75% of time or greater
     1. May recommend physical therapy for two months
     2. If no improvement or at first recommendation, may start serial casting for up to 6 weeks
     3. If no improvement and desired by parents, refer to orthopaedic surgeon

b. Idiopathic toe walkers with Achilles tendon contractures < 10yo
   • Mild to Moderate: able to stand plantigrade
     1. Initiate physical therapy up to 2 months and/or offer family serial casting for 6 weeks
     2. If physical therapy is chosen and there is no significant improvement noted at 2 month follow up visit then initiate serial casting up to 6 weeks with week to two week cast changes
     3. If good correction obtained either after physical therapy or after casting, initiate night splints (off the counter) for 3 months or as tolerated
     4. If toe walking recurs, consider referral to orthopaedic surgeon and/or MRI of brain/spine
   • Chronic bilateral toe-toe gait with severe Achilles tendon contracture <10yo and/or abnormal neuromuscular exam
     1. Obtain MRI of brain/spine unless known diagnosis of cerebral palsy
     2. Refer to orthopaedic surgeon and obtain further referrals as appropriate based on MRI findings (CP clinic, Neurology or Physical Medicine and Rehab)

c. Toe walkers with concern for underlying diagnosis will undergo treatment as defined above and receive appropriate referral:
   • If concern for associated developmental delays, refer to child development center
   • If concern for neuromuscular condition (and/or elevated CK test) refer to neurology
   • If concern for static encephalopathy, refer to neurology or physical and rehab medicine for further evaluation
Evidenced Based Literature Review


