Cohere Medical Policy - Pediatric Vertebral Body Tethering

Clinical Guidelines for Medical Necessity Review

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Important Notices

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Guideline Information:

Specialty Area: Diseases & Disorders of the Musculoskeletal System (M00-M99)
Guideline Name: Cohere Medical Policy - Pediatric Vertebral Body Tethering

Literature review current through: 8/2/2024
Document last updated: 8/7/2024
Type: [ ] Adult (18+ yo) | [**X**] Pediatric (0-17 yo)

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Medical Necessity Criteria

Service: Pediatric Vertebral Body Tethering

Recommended Clinical Approach

Vertebral body tethering uses hardware such as screws and cords that are implanted near the curved area of a spine with scoliosis. The cords are tightened, thereby purported to straighten the spine. The procedure requires only small incisions.[1-5]

Medical Necessity Criteria

Indications

- ➔ **Pediatric vertebral body tethering** is considered appropriate if **ANY** of the following is **TRUE**[1-18]:
  - ◆ Vertebral body tethering is considered appropriate if **ALL** of the following are **TRUE**:
    - Spinal curve progression following conservative management, which can include observation, exercise therapy, or bracing; **AND**
    - Radiographs demonstrating a Cobb angle of 40 to 60 degrees; **AND**
    - Spinal curve flexibility greater than 30%; **AND**
    - Skeletal immaturity if **ANY** of the following is **TRUE**:
      - Risser grade 0 or 1; **OR**
      - Sanders Maturity Scale less than or equal to 4; **OR**
  - ◆ Vertical expandable prosthetic titanium rib is considered appropriate if **ALL** of the following are **TRUE**:
    - The patient is skeletally immature, between 6 months and skeletal maturity if **ANY** of the following are **TRUE**:
      - Risser grade 0 or 1; **OR**
      - Sanders Maturity Scale less than or equal to 4; **AND**
    - Treat progressive thoracic insufficiency due to rib and/or chest wall defects; **AND**
    - Implantation of the device should be done in specialized centers given the complexity of these procedures; **AND**

- Preoperative evaluation has been done with the evaluation of **ALL** of the following:
    - Nutrition status; **AND**
    - Cardiac status; **AND**
    - Pulmonary function.

Non-Indications

➔ **Pediatric vertebral body tethering** is not considered appropriate if **ANY** of the following is **TRUE**:

◆ Growing rods are being used (FDA device recall).

Level of Care Criteria

Inpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
0656T	Vertebral body tethering, anterior; up to 7 vertebral segments
0657T	Vertebral body tethering, anterior; 8 or more vertebral segments
0790T	Revision (e.g., augmentation, division of tether), replacement, or removal of thoracolumbar or lumbar vertebral body tethering, including thoracoscopy, when performed
22836	Anterior thoracic vertebral body tethering, including thoracoscopy, when performed; up to 7 vertebral segments
22837	Anterior thoracic vertebral body tethering, including thoracoscopy, when performed; 8 or more vertebral segments
22838	Revision (e.g., augmentation, division of tether), replacement, or removal of thoracic vertebral body tethering, including thoracoscopy, when performed
22899	Unlisted procedure, spine

Medical Evidence

The United States Food and Drug Administration (FDA) (2023) has approved the Tether Vertebral Body Tethering System for skeletally immature patients with progressive idiopathic scoliosis who have failed or not tolerated brace wear.[1] The FDA approved OrthoPediatrics (eLLi) Growing Rod System for scoliosis in 2024.

The Pediatric Orthopaedic Society of North America (POSNA) and the Scoliosis Research Society (SRS) (2020) jointly recommended the use of vertebral body tethering in skeletally immature patients only for the management of idiopathic scoliosis as part of shared decision-making.[5]

In 2017, the FDA approved the MAGEC (MAGnetic Expansion Control) Spinal Bracing and Distraction System for treating children with early onset scoliosis (EOS). The MAGEC system is a non-invasive treatment that uses adjustable growing rods controlled by magnets and an external remote control to help straighten a child's spine. The rods are implanted during surgery and then lengthened every 3 to 6 months as the child grows, which usually requires another surgery. The goal is to control the spinal deformity until the child has enough spinal and thoracic development, at which point they can consider definitive spinal fusion.[6]

According to Trobisch et al. (2024), vertebral body tethering is being used as a motion-preserving technique. In a retrospective review of 25 patients, thoracic curve correction averaged 55.4% and 71.7% for TL/L curves. Some patients did have breakage of the tether, but none required a posterior spinal fusion.[7]

Roser et al. (2023) performed a systematic review of cases using a tethering system and performed a meta-analysis of 16 studies. Vertebral body tethering resulted in a statistically significant reduction in Cobb angle, with an average reduction of 25 degrees. The most common complication was tether breakage; however, the consequence of this complication is unknown.[10]

Bednar et al. (2021) compared magnetically controlled growing rods with other distraction techniques through a systemic review and meta-analysis. In a review of 18 studies, they concluded that magnetically controlled growing

rods were as clinically effective as other technologies and noted a lower complication rate. They note that serum titanium levels were greater in patients with magnetically controlled growing rods, but the clinical impact is unclear.[16]

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