Posterior Thoracic Discectomy

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Patient Presentation

What are typical symptoms of thoracic herniated disc?

Patient Presentation and Evaluation

• Symptoms can be classified into four broad categories:
  • Back pain
  • Sensory changes
  • Motor deficits
  • Alterations in bowel or bladder control
• Usually, patients present with a combination of these symptoms

What are Demographics of Thoracic Herniated Disc?

• Most Frequent Levels?
• What Percent of Disc Herniations are in T-Spine?

Background

• Thoracic discectomy accounts for less than 1% of all disc surgeries performed in the U.S. Each year
• The most frequently involved levels are T9/10 followed by T8/9

Background

• First reported attempt at thoracic discectomy was by Antoni in 1931
• Initially, surgeons performed thoracic laminectomies and discectomies
• Thoracic Discectomy following simple laminectomies required retraction on the thecal sac which devastated the thoracic cord
What is the Vascular Supply to the Thoracic Cord?

Background – Vascular Considerations

• Blood supply to lower cervical spinal cord: vertebral, thyrocervical, and costocervical radicles (of subclavian a.).
• Upper thoracic: radicles of supreme intercostal a.
• Watershed zone between these two supplies.

Background – Vascular Considerations

• Thoracic cord from T4-T9 is a watershed zone
• Tenuous blood supply from small, variable radicular feeding arteries
• Artery of Adamkiewicz, the largest of the thoracic radicular feeders, usually is on the left side at the level of T9-L1, but this anatomy is quite variable

Surgical Options?

Treatment Options

– Posterior?
– Anterior?
– Approach?


Surgical Approaches

• Anterior – typically for large calcified discs
• Lateral/Posterolateral – for soft laterally displaced discs
• Posterior
Surgical Approaches

- Anterior
  - Direct anterior low-cervical approach (with or without a manubrial window)
  - The trans-sternal approach
  - The trans-thoracic approach
  - The thoracoscopic approach

Trans-sternal Incision Options

- Right vs. Left
  - Right – no thoracic duct
  - Left – reduced risk to Recurrent Laryngeal N.
  - I prefer Rt side
    - (Rt handed surgeon)
    - No thoracic duct

Incision Options

- ‘T’ incision
  - No neck access
  - (Sundaresan)

Bone Removal Options

- Manubrial split
  - Access to T2
- Sternal split
  - Access to T5
  - Aortocaval window
- Manubrial window
  - With clavicle removal
    - Trap door
    - Open door
  - Without clavicle removal

Aortocaval Window
(Rhines and Gokaslan: JSD 2005)

Lateral Approaches

- A: Posterolateral approaches:
  - costotransversectomy/transcostovertebral approach
  - lateral rachiotomy
  - lateral extracavitary approach.
- B: True lateral approach:
  - retropleural
Potential Thoracic Disc Approaches

Posterior Incisions/Approaches
- What kind of incision?
  - Linear
  - C shape?
  - J shape?
- Can we do this minimally invasively?

Posterior Mini-invasive Transpedicular Discectomy
- For soft discs
- For lateral discs
- If you do calcified discs, be prepared for a very tough case
- Not good for central calcified “rocks” with no anterior dura

How Will You Get to the Correct Level?

Min Inv. Trans-pedicular Thoracic Discectomy
Minimally Invasive Transpedicular Discectomy

Intraop Considerations
- Keep MAP 90-100
- Use MEP and SSEP
- Consider steroids

Potential Complications
- CSF Leak
- Paraplegia
- Incomplete decompression
- Infx
- Wrong level surgery
- Note that thoracic disectomy is one of the most frequent surgeries leading to medical malpractice lawsuits in the U.S.

Case 1
- 55 yo man,
- Myelopathic
  - Ataxic
  - Bladder urgency
  - Mid thoracic sensory level

MRI T2 images

Preop vs. Postop
Thank You