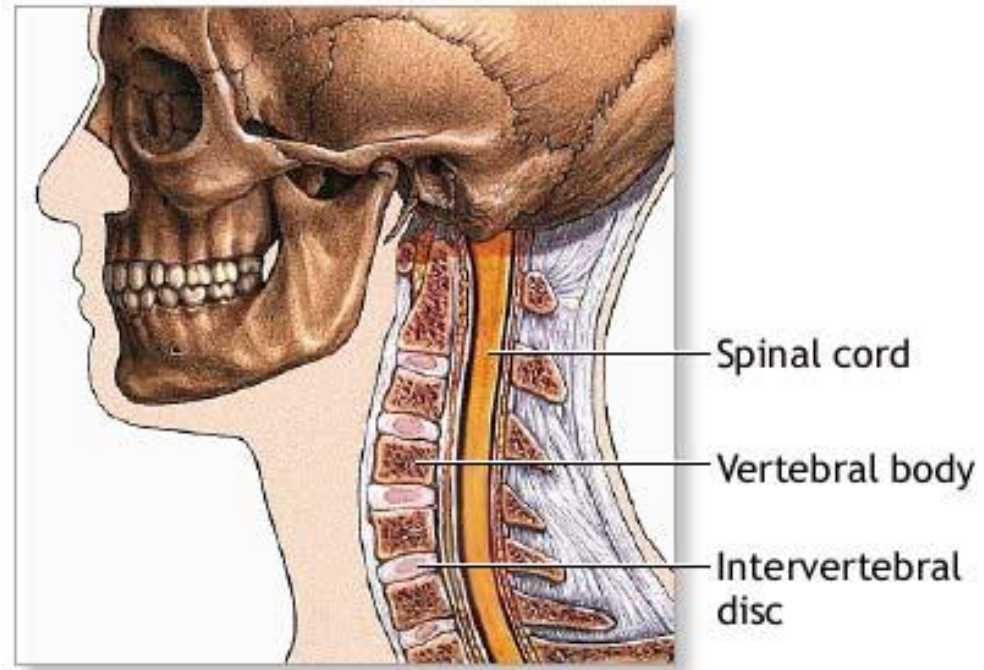


Cervical Spine Disorders Requiring Fusion

Vincent C. Traynelis
Department of Neurosurgery

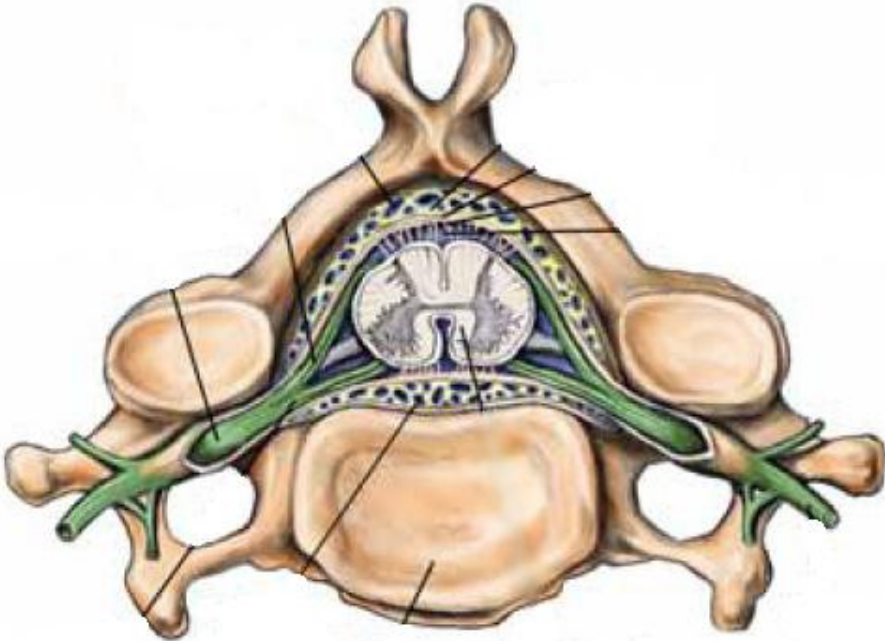
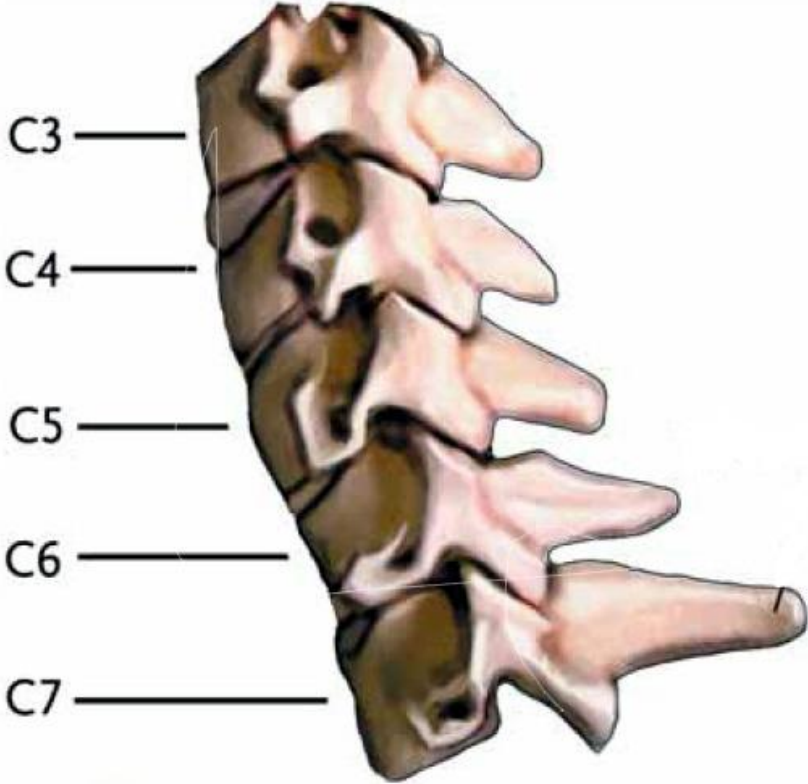
The Cervical Spine

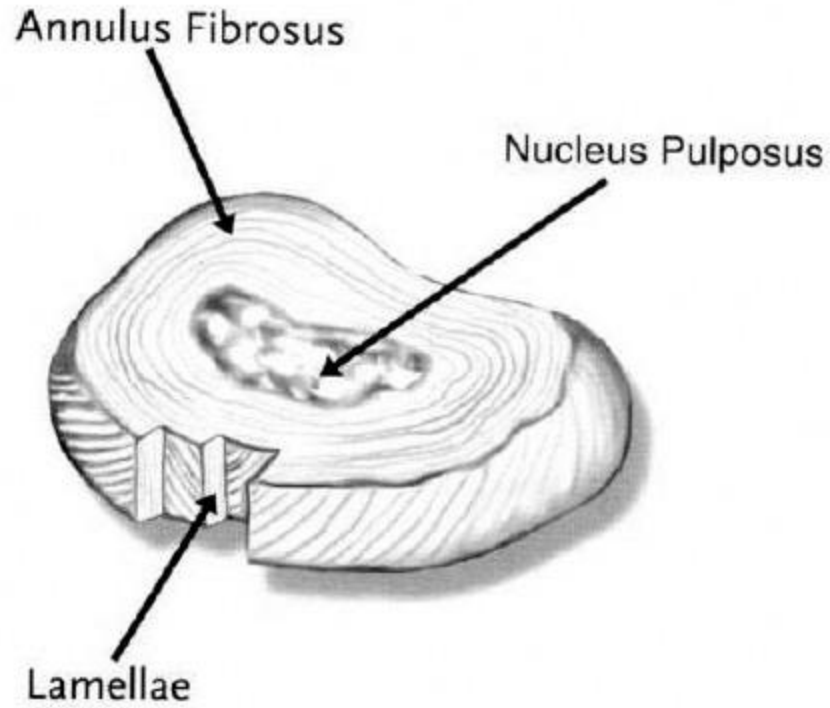
- The cervical spine is designed to do three things:
 - Support the head
 - Protect the spinal cord and nerve roots
 - Allow for motion



- Basic anatomy
- Cervical nerve root compression
 - Ruptured discs
 - Bone spurs
- Cervical spinal cord compression
 - Cervical stenosis

Lateral View C3-C7

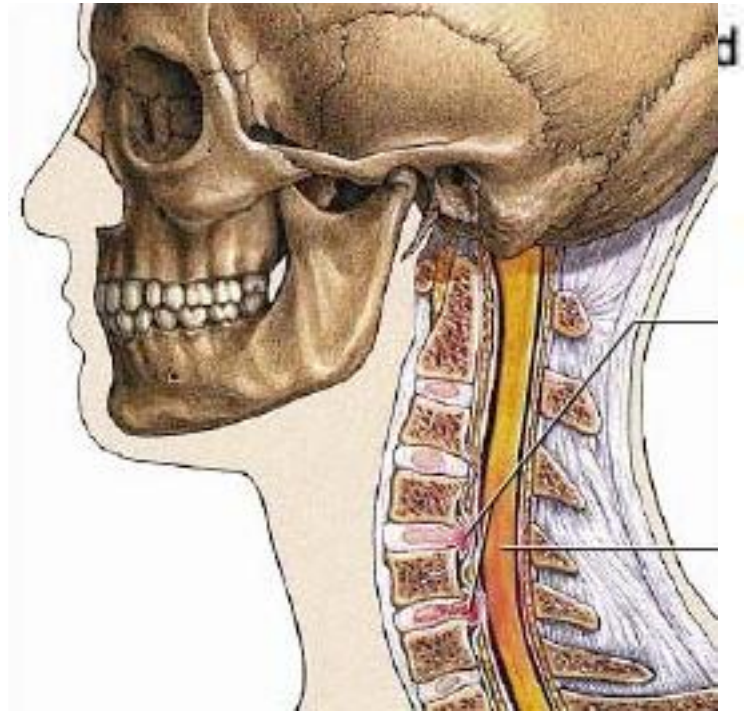




- **FUSION**
 - Can be done from the front or back of the spine
 - The goal is to make 2 or more spinal vertebral grow or fuse together

Degenerative disc disease is a common problem.

- As discs age they lose flexibility and the outer layers may become weakened.
- This can result in a disc herniation or the development of bone spurs that pinch the nerve roots and spinal cord
- This can cause neck and arm pain, weakness and numbness in the arms and hands.



Non-Surgical treatment of disc herniations often alleviates pain and restores function.

- Physical therapy
- Pain medication
- Anti-inflammatory medications
- Traction
- Neck collars or bracing



There are three major options for surgical treatment of ruptured cervical discs.

IT'S HOW THE
FUTURE
OF MEDICINE
SHOULD BE

- Anterior cervical discectomy and fusion
- Anterior cervical discectomy and arthroplasty
- Posterior cervical discectomy

Prevalence of Indications and Contraindications to Cervical Total

IT'S HOW THE
FUTURE
OF MEDICINE
SHOULD BE



THE
SPINE
JOURNAL

The Spine Journal 8 (2008) 711–716

Clinical Studies

The prevalence of indications and contraindications to cervical total disc replacement

Joshua D. Auerbach, MD^a, Kristofer J. Jones, MD^{b,1}, Christian I. Fras, MD^a,
Jessica R. Balderston^c, Scott A. Rushton, MD^d, Kingsley R. Chin, MD^{a,*}

^a*Department of Orthopaedic Surgery, The Hospital of The University of Pennsylvania, Two Silverstein, 3400 Spruce Street, Philadelphia PA, 19104, USA*

^b*Department of Orthopaedic Surgery, Hospital for Special Surgery, 535 East 70th Street, New York, NY10021, USA*

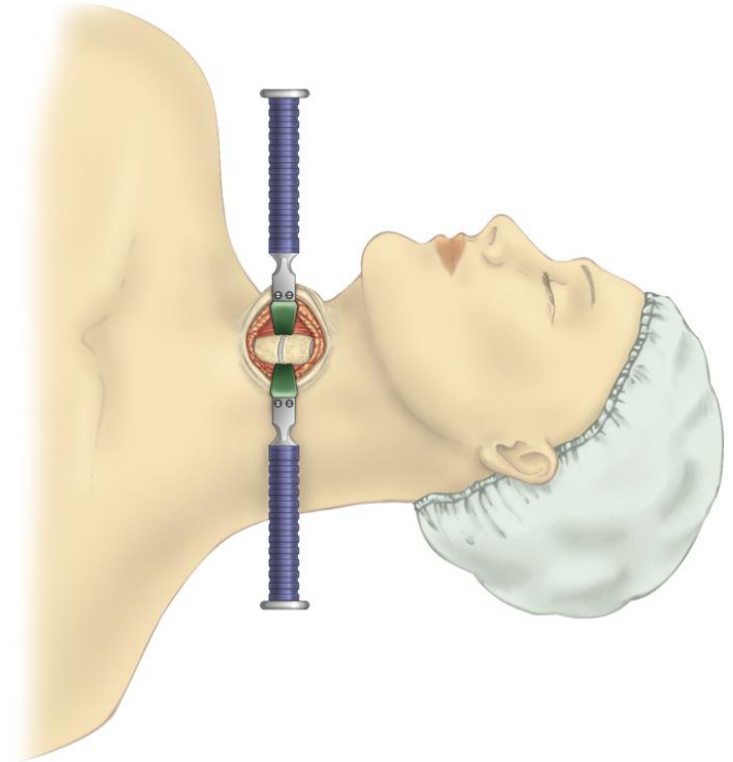
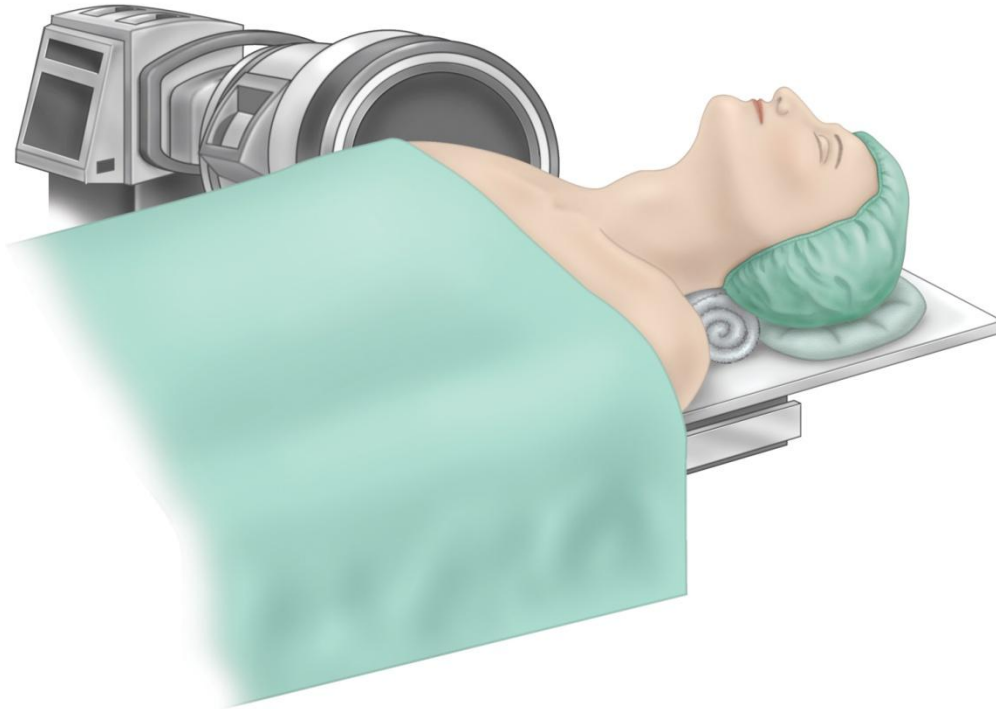
^c*Yale University, New Haven, CT, 06511, USA*

^d*Booth, Bartolozzi, and Balderston Orthopaedics, Pennsylvania Hospital, Philadelphia, PA 19107, USA*

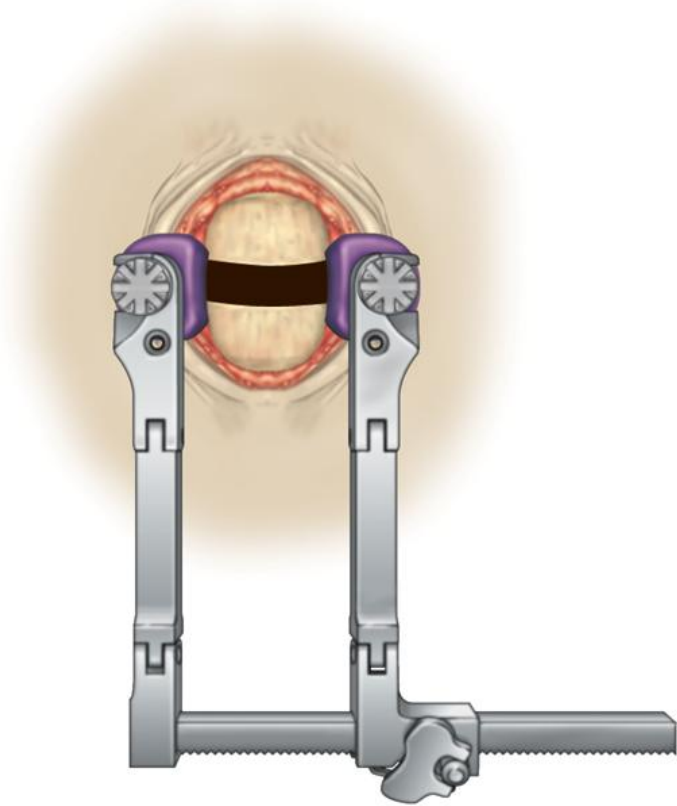
Received 3 March 2007; accepted 27 June 2007

Anterior Cervical Discectomy

IT'S HOW THE
FUTURE
OF MEDICINE
SHOULD BE



IT'S HOW THE
FUTURE
OF MEDICINE
SHOULD BE



Anterior Cervical Decompression and fusion.

- Remove the ruptured or diseased disc
- Fuse the adjacent bones
- Very little pain
- One night hospitalization
- Potential complications include swallowing difficulty and vocal cord weakness



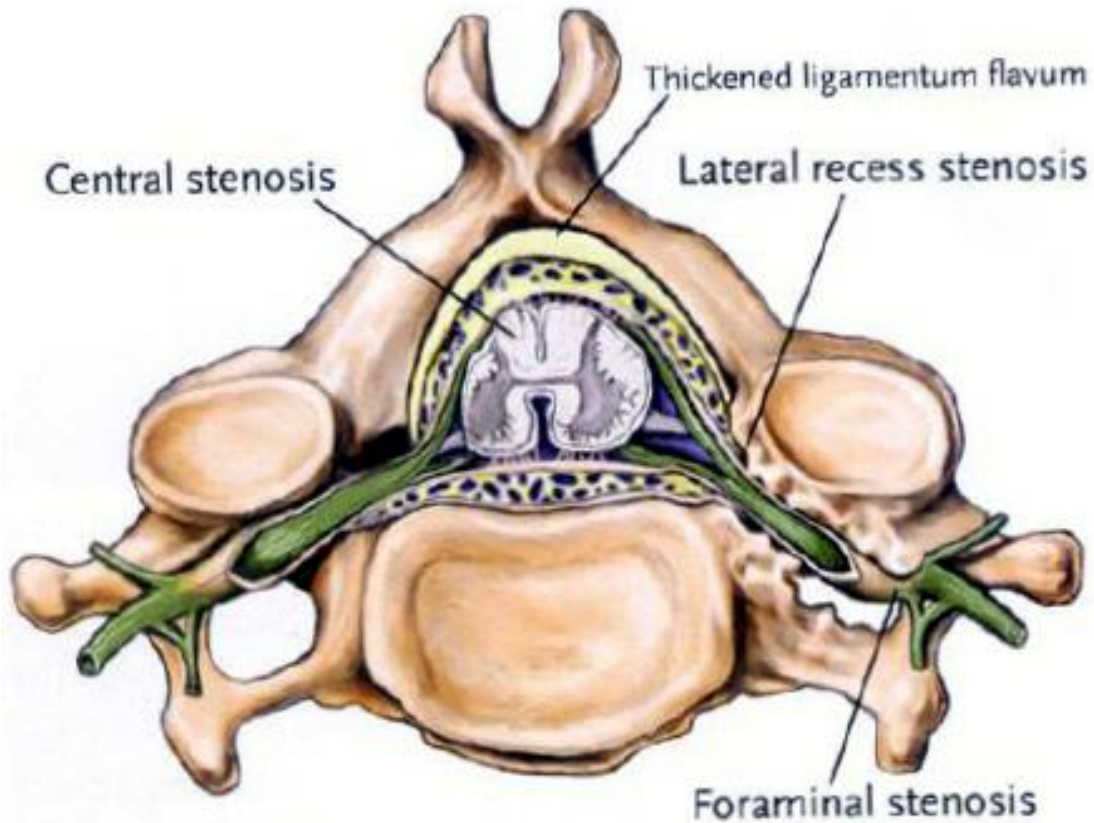
Anterior Cervical Fusion

- Fusion is necessary if there is any instability
- Fusion is probably optimal for treatment of spinal cord compression
- One level fusion does not alter overall neck motion
- A fusion *may* cause adjacent levels to degenerate more quickly
- Very common operation, long history of good results.

Cervical Arthroplasty

- Artificial cervical discs
- Can maintain mobility
- Same decompression as for fusion
- Same basic postoperative course and complications as for fusion

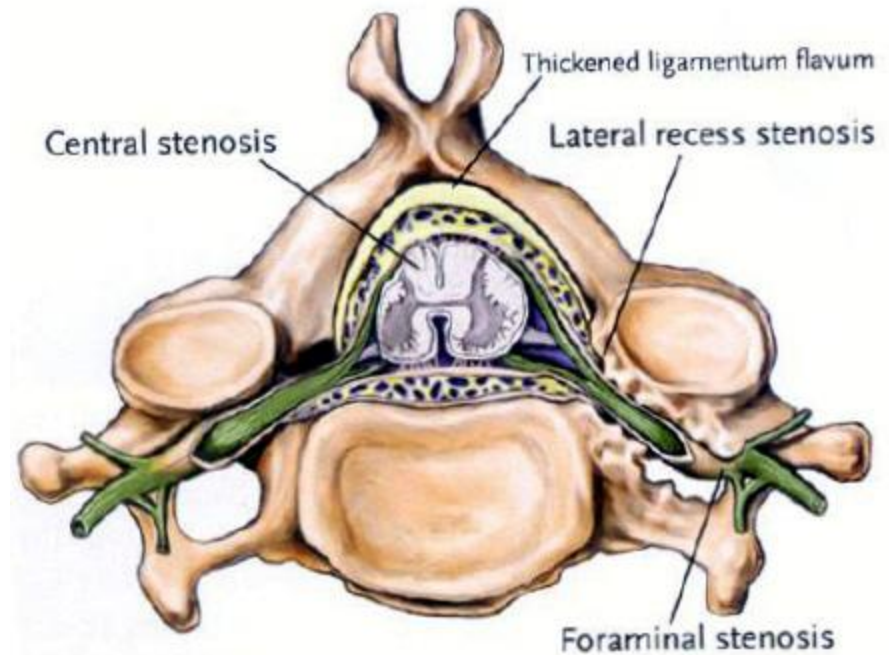
Spinal Stenosis



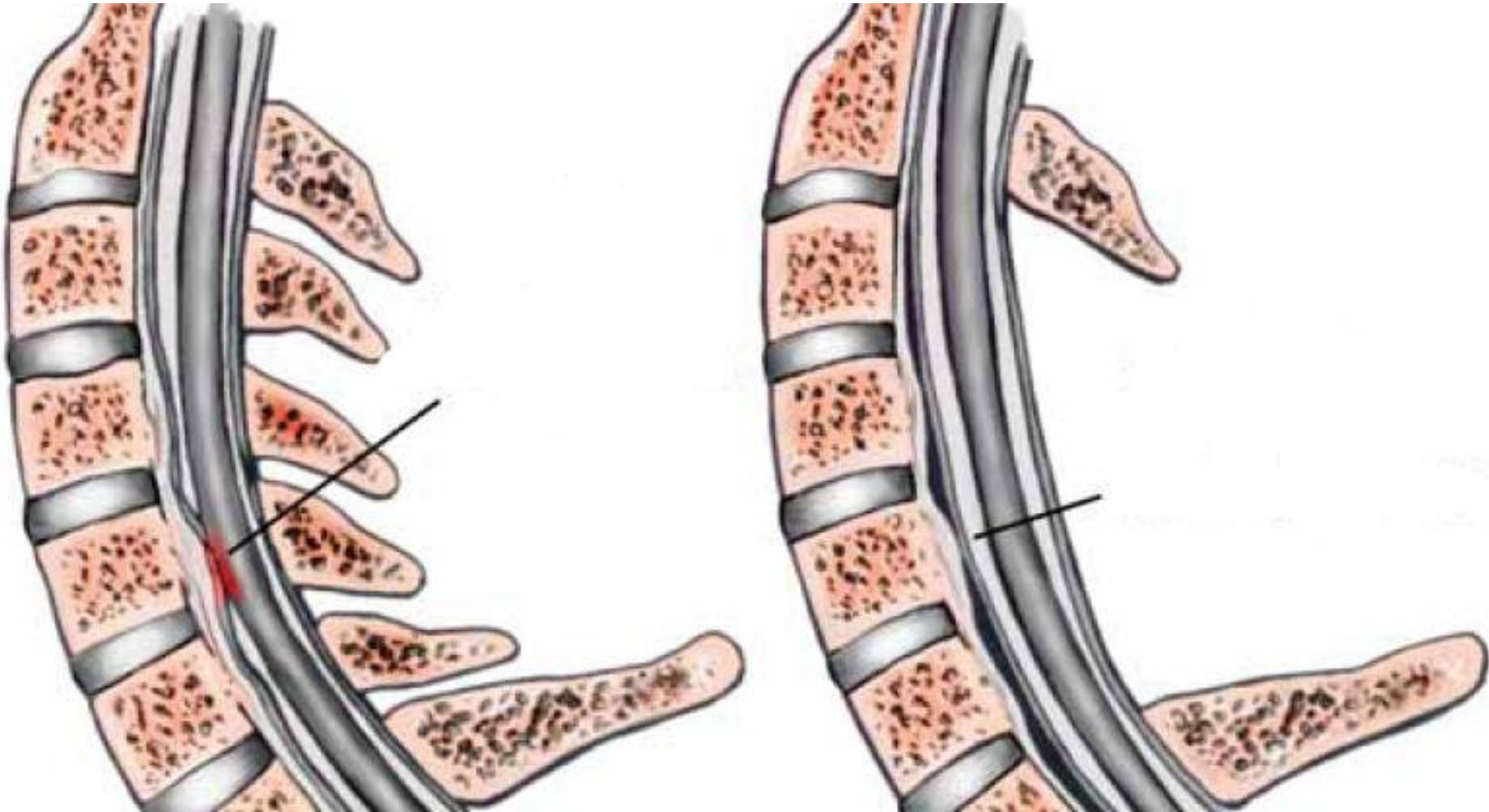
Management of Cervical Spinal Cord Compression

IT'S HOW THE
FUTURE
OF MEDICINE
SHOULD BE

- Anterior decompression and fusion
- Laminectomy
- Laminectomy and fusion
- Laminoplasty



Cervical Laminectomy

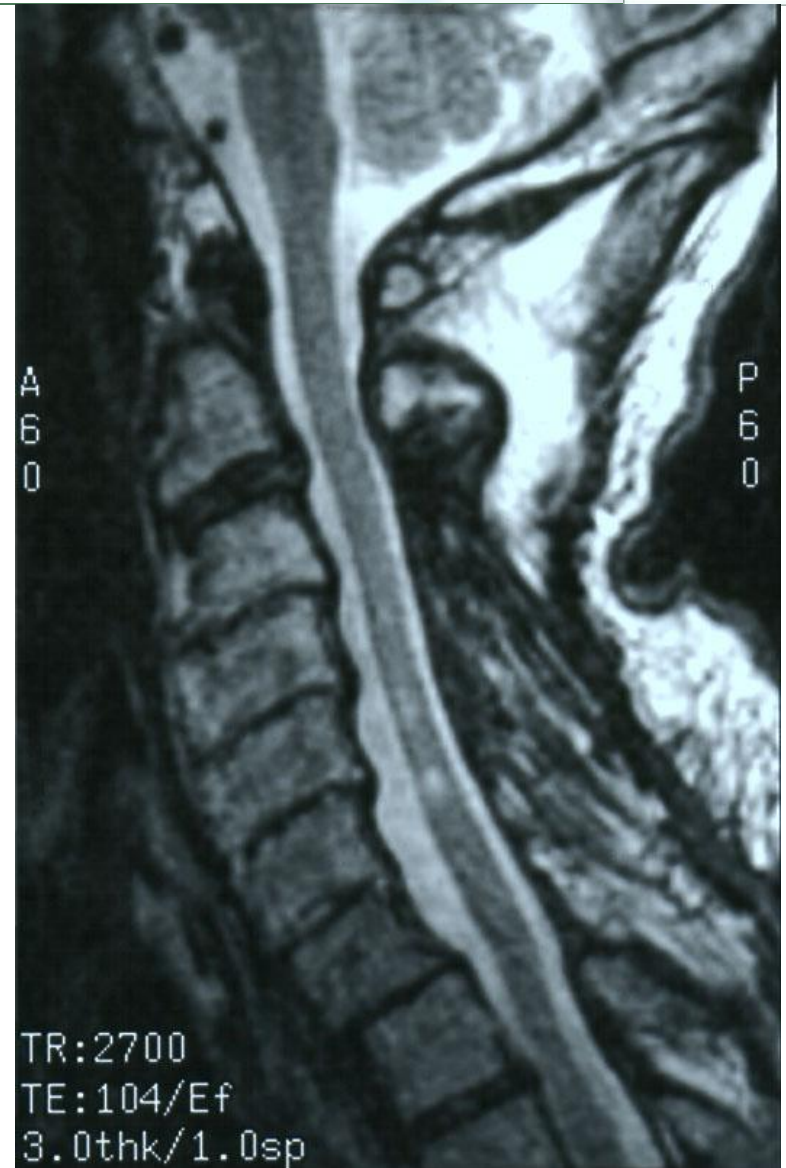
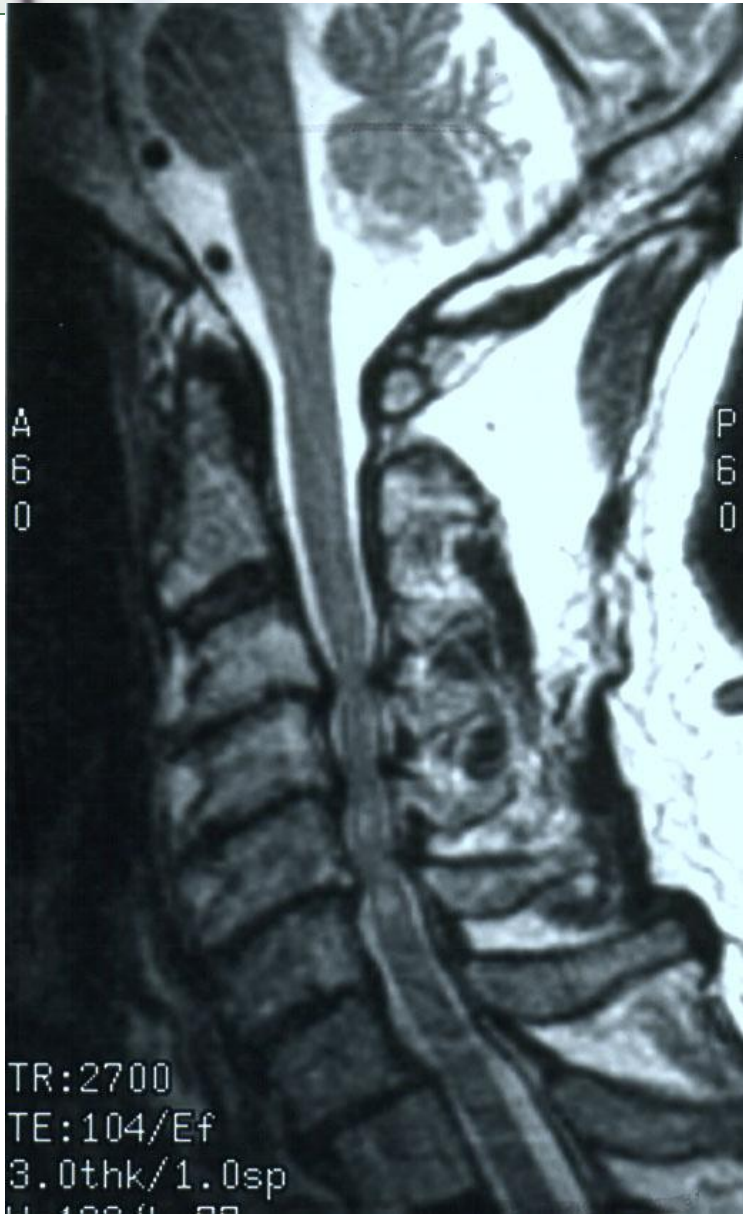


Cervical Laminectomy and Fusion

- Laminectomy
 - Remove the posterior portion of the ring
- Fuse with instrumentation
- One to two day hospitalization
- Negatives
 - Uncomfortable
 - Infection

Cervical Laminectomy and Fusion

IT'S HOW THE
FUTURE
OF MEDICINE
SHOULD BE

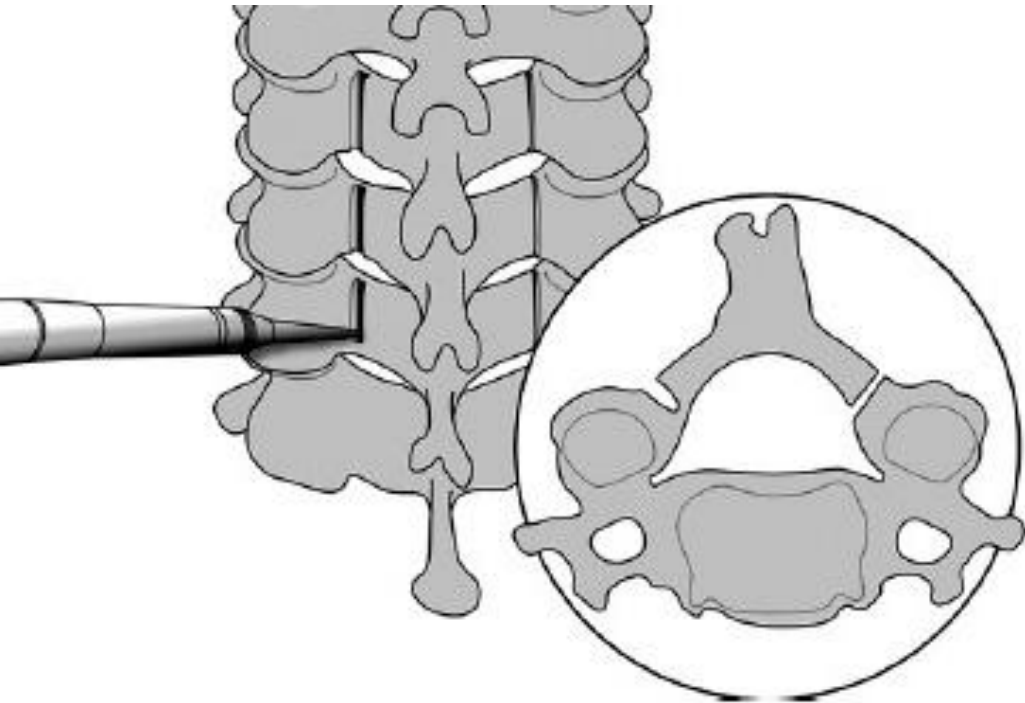


Cervical Laminectomy and Fusion

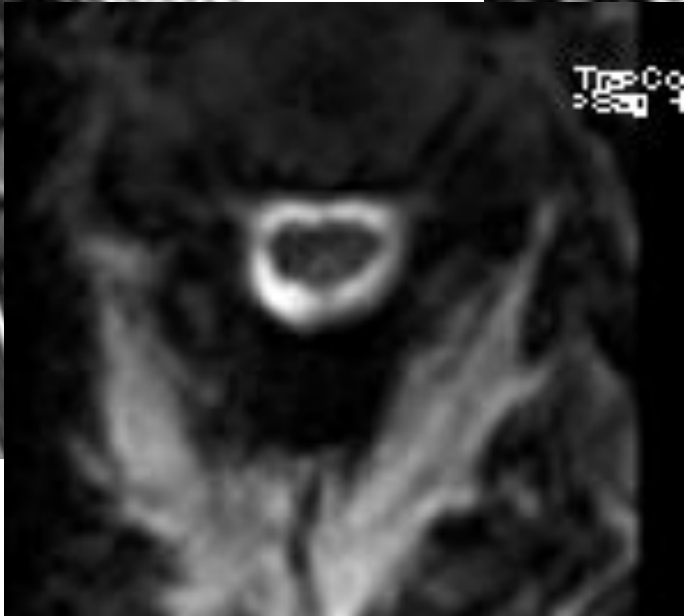
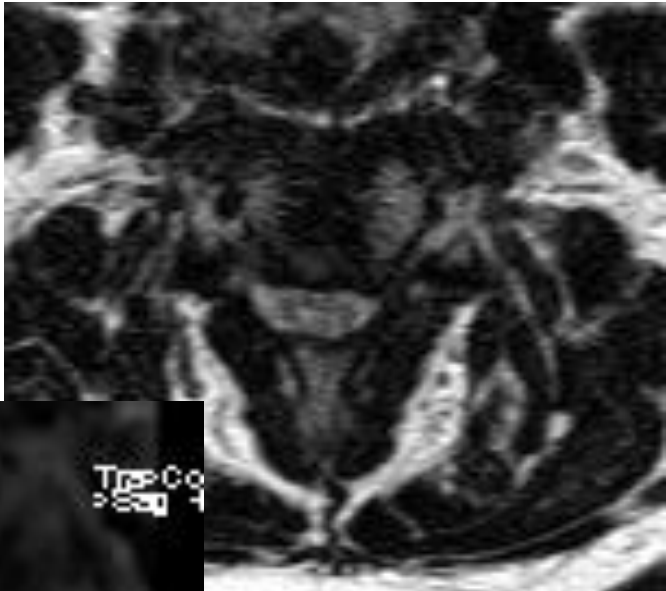
IT'S HOW THE
FUTURE
OF MEDICINE
SHOULD BE



Cervical Laminoplasty



IT'S HOW THE
FUTURE
OF MEDICINE
SHOULD BE



IT'S HOW THE
FUTURE
OF MEDICINE
SHOULD BE



Surgery for Symptomatic Cervical Spine Disease

IT'S HOW THE
FUTURE
OF MEDICINE
SHOULD BE

- The goals are to preserve neurological function, alleviate pain and maintain spinal alignment and stability
- Multiple options which allow treatment to be tailored to the individual specific condition
- Results are generally very good and the recovery relatively rapid
- All surgery does involve risk

IT'S HOW THE
FUTURE
OF MEDICINE
SHOULD BE

THANK YOU