Incidental Durotomy/
Dural Tear

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Objectives

- **Define** ‘dural tear’ (‘incidental durotomy’)
- **Differentiate** dural tears from other accidental punctures or lacerations
- **I.D. Risk factors** that increase likelihood of dural tears during spine surgery
- **I.D. Reporting Bias** (significant under-reporting by Hospital and/or MD)
- **Discuss Coding Options and Guidance** for classifying incidental dural tears
Background

- Dural tear is often associated with intricate surgical procedures on the spine.
- Given the delicate anatomy of structures operated on, it is often not avoidable despite meticulous technique.
- Pre-existing comorbidities (diabetes, steroid use, smoking, et. al) increase risk.
- Pre-existing deformities (scoliosis/kyphosis, spondylololithesis, stenosis) increase risk.
Incidental Durotomy/Dural Tear

- **Definition:**
  - Small tear in the dura mater
  - Often unavoidable occurrence of spinal surgery
  - Ideally identified and repaired inter-operatively.

- **Consequence of Unrepaired Dural Tear:**
  - Further CSF leak
  - Formation of pseudo-meningocele

- **Impact on Post-Operative Care:**
  - Patient experiences CSF headache (349.0)
  - Increased Nursing Care (monitoring, strict orders for ‘head on bed’ for 24 hours or longer)
Dural Tears: Coding Issues

- USE of ICD-9-CM: Disproportionate Impact on Common Quality Indicator (AHRQ PSI-15), Note: Spine Surgery Removed (Version 3.2, March 2008) until Two Refinements to Address Bias Completed:
  - 1-Consistent ICD-9-CM Reporting across hospitals
    - Major Systematic Under-Reporting Bias (Address Today)
  - 2-Refined Risk Adjustment (AHRQ and MD team)
    - Large & Predictable Variation in Patient Risk
    - High Variability in Risk between Hospitals
  - General vs. Specific Coding Guidance Differences
Systematic Under-Reporting Bias

- AHRQ is Removing Spine Surgery Cases from PSI-15 until coding bias is addressed (V.3.2)
- 46% of 2,446 Hospitals Performing Spine Surgery Report NO Dural Tears at all (MEDPAR)
  - Surgeons in Some of These Hospitals Have Journal Articles Reporting Dural Tear Rates Close to 10%
- Many Hospitals Report *Repair* of the Dural Tear, but NOT the Dural Tear Itself
- 57% of Hospitals Performing Spine Surgery Significantly Under-Report
Disproportionate Impact on Common Quality Indicator (AHRQ PSI-15)

- 13% of 998.2 – Accidental puncture or laceration during a procedure, but
- 40% of Variation Between Hospitals
  - 34% of Hospitals do not do Spine Surgery
  - 25% of Spine Surgery Concentrated in 5%
- Huge Impact on Current Quality Rankings
- Future Concerns – Pay for Performance
Dx 998.2 (NOT POA) Rate/1,000 Discharges by MDC
Dural Tear Risk Factors

- Diagnosis – Type and Location of Spine Condition
- Patient Anatomy – Mechanics
- Type of Surgery – Fusion, Laminectomy, Disk Removal
- Comorbidities – Prior Surgery, Predictors of Thinning Dura, etc.
Data on Dural Tear

- Administrative Data reports less than half of rates reported in clinical literature
- Wide Reporting Variation Across Hospitals
- Results of Recent Multi-Facility Trial: SPORT
  - **Spondylolysis** (NEJM 5/07)
    - Random Cohort: 11%
    - Observational Cohort: 9%
  - **Lumbar Stenosis** (NEJM 2/08)
    - Random Cohort: 8%
    - Observational Cohort: 10%
  - **Disk Herniation** (JAMA 11/06)
    - Random Cohort: 4%
    - Observational Cohort: 2%
Dural Tear Risk Factors: Anatomy

Spondylolysthesis
Dural Tear Risk Factors: Anatomy
Central Spinal Stenosis

Central spinal stenosis
TOP VIEWS

Computed tomography image
Dural Tear Risk Factors: Anatomy
Lateral Spinal Stenosis
Dural Tear Risk Factors: Anatomy
Disk Herniation
Expected Dural Tear Frequencies: by Type of Surgery

- Revision Spine Surgery: 15 – 33%
- Multi-Level (3+) Spine Surgery: 13 – 15%
- “Other” Spine Surgery: 7 – 10%
- Single Level Fusion: 7 – 8%
- Two Level Decompression: 4 – 5%
- One Level Open Diskectomy: 2 – 4%
- Single Level Decompression: 0 – 1%
Dural Tear Risk Factors: Other Comorbidities

- Meningeal Adhesions (349.2)
- Exostosis (Osteophytes) (721.8)
- Diabetes (250.00 – 250.93)
- Obesity (278.00-278.01, V85.30-V85.4)
- Chronic Steroid Use (V58.65)
- Smoking (305.1, V15.82)
- Kyphosis or Scoliosis (737.10-737.9)
High Variability in Risk between Hospitals

Distribution of High PSI-15 Risk vs. Low Risk Cases

% High Risk

Weighted Average

Hospitals Performing Back and Neck Surgery
Coding Incidental Dural Tears

- SHOULD be Coded as Additional Diagnosis
  - Repair, Increased Monitoring, Extended Stay
- SHOULD be Differentiated from Punctures or Lacerations that Don’t Affect Stay
- WHERE to Code is A Major Issue
  - Complications of Multiple Body Sites 996-999
    - Currently Indexed to 998.2
    - Conflict: MD Must Document as “More Than Routinely Expected Complication”, but Considers Dural Tear to be Common/Incidental/Unavoidable
  - Specific Body Site = ICD-9-CM Default
(Emphasis added) “Categories 996 through 999 are provided in ICD-9-CM for complications of medical and surgical care that are not classified elsewhere. Note that all conditions that occur following surgery or other patient care are not classified as complications. First, there must be a more than routinely expected condition or occurrence.

... the fact that the problem is a complication due to a procedure must be documented by the physician; the coder cannot make this determination. ...

... Complications of surgical and medical care are classified in ICD-9-CM as follows:

- Complications that occur only in other specified body sites are classified in that chapter of ICD-9-CM
- Complications that affect multiple sites or body systems are generally classified in category 996-999
Coding Clinic and Index

- Coding Clinic First Quarter 2006 Page 15:
  - Question: What is the appropriate code for a dural tear that occurs during surgery?
  - Answer: Assign code 998.2, Accidental puncture or laceration during a procedure, for a dural tear that occurs during surgery. Dural tears are usually inadvertent, but fairly common in re-do spinal surgery where the dura has thinned out. (Emphasis added)

- October, 2007 ICD-9-CM Code Book
  - tear, dural is now officially indexed to code 998.2
Coding Options

- **Option 1 – New 5\textsuperscript{th} Digit in 998.2**
  - 998.20 Accidental puncture or laceration during a procedure, unspecified site
  - 998.21 Accidental puncture or laceration of dura during a procedure
  - 998.29 Accidental puncture or laceration during a procedure, other specified site

- **Option 2 – Code to Body System (preferred)**
  - 349.3 Dural Tear (incidental) (spinal) (vertebral) (cerebral) (thoracic) (lumbar)
Code Also (Both Option 1 or 2)

- Code Also Associated Conditions
  - Adhesions, meningeal (349.2)
  - Diabetes (250.00-250.93)
  - Exostosis (Osteophytes) (721.8)
  - Obesity (278.00-278.01) (V85.30-V85.4)
  - Intervertebral Disc Disorders (722.0-722.9)
  - Kyphosis or Scoliosis (737.10-737.9)
  - Post Laminectomy Syndrome (722.83)
  - Spinal Stenosis (724.00-724.09) (723.0)
  - Spondylosis (721.0-721.91)
  - Spondylolithesis (756.10-756.19)
  - Steroids (V58.65)
  - Tobacco Use Disorder (305.1), (V15.82)
Precedents for Option 2

- AHA/Faye Brown’s ICD-9-CM Coding Handbook (Chapter 29) – added between 1999 and 2003
  - “Complications that occur only in other specified body sites are classified in that chapter of ICD-9-CM”

- Specific Precedents Back to 1995
  - Iatrogenic hypotension moved from 997.91 to 458.2
  - Iatrogenic pulmonary embolism code moved from 997.3 to a new 5th digit 415.11 (Iatrogenic PE)