

TABLE E-1 All Patients Who Had Cervical Dural Tears During Elective Spine Surgery Between 1994 and 2005 Along with Patient Demographic Information, Surgical Procedure, Preoperative Diagnosis, Description of the Tear, Intraoperative Management and Postoperative Course

|   | Age and Gender | Procedure                      | Diagnosis                             | Description of Tear   | Intraoperative Management | Postoperative Course   |
|---|----------------|--------------------------------|---------------------------------------|---|---------------------------|--|
| 1 | 78F            | ACCF C4-C6, PSF C3-T1          | Myelopathy                            | CSF leaked after doing foraminotomy with a Kerrison during the PSF at C7/T1.                                    | Not repaired              | Uneventful.  |
| 2 | 68M            | Revision ACCF C5-6, PSF C3-T1. | Myelopathy, post-laminectomy kyphosis | CSF leaked during taking down PLL during anterior corpectomy.   | Not repaired              | Uneventful.  |
| 3 | 61M            | Laminoplasty C3-7              | Myeloradiculopathy                    | CSF leaked after opening lamina.  | Not repaired              | Recurrent shoulder pain on POD#2, an MRI showed that laminoplasty had closed. Taken back to OR to open laminoplasty. Discharged home on POD#4.   |
| 4 | 38M            | ACDF C5-6, 6-7                 | Radiculopathy                         | CSF leaked while removing PLL with Kerrison.  | Not repaired              | Uneventful.  |
| 5 | 46F            | ACDF C5-6, 6-7                 | Myeloradiculopathy                    | CSF leaked while removing PLL with Kerrison.  | Not repaired              | Uneventful   |
| 6 | 50M            | ACCF C5-6, PSF C4-C7.          | Myeloradiculopathy                    | CSF leaked during anterior approach after using Kerrison to remove an osteophyte that had eroded into the dura. | Not repaired              | POD#1: bedrest, no HA. POD#2: no HA, drain 20/10 had some CSF, POD#3: drain d/c'd, wound clean. POD#4: wound clean & dry. POD#5: d/c home. POD#7: presented to clinic w pseudomeningocele. Taken to OR for cervical I&D and lumbar shunt |

|    |     |                               |                       |   |              |   |
|----|-----|-------------------------------|-----------------------|---|--------------|---|
|    |     |                               |                       |   |              | placement. POD#8: initial HA which resolved when shunt titrated down, POD#9,10: bed rest. Cervical wound c/d/i. POD#11: shunt removed. POD#12: OOB, wound c/d/i, d/c home. Wound healed without any adverse affects at 2 weeks.   |
| 7  | 45M | Revision ACCF C4-6, PSF C3-7. | Myelopathy, nonunion. | CSF leaked taking down PLL during anterior corpectomy.                      | Not repaired | Uneventful  |
| 8  | 42F | ACDF C5-6                     | Radiculopathy         | CSF seen after removing PLL, pin hole sized defect.                         | Not repaired | Uneventful postoperative course but developed a nonunion at 1 year requiring a PSF of C5-6.   |
| 9  | 67M | Revision ACCF C4-6.           | Myelopathy, OPLL      | CSF leaked while trying to remove OPLL, OPLL left in place, no defect seen. | Not repaired | POD#1, slight HA, slight nausea, keep HOB>30, bed rest. POD#2: still w HA, JP 100, 25 (clear). JP switched to gravity. Bed rest w HOB at 30. POD#3: incision w some clear drainage, still w HA, bedrest. HA better when flat not 30. POD#4: Incision clean & dry. Still w CSF in JP, JP removed, HA persist, bed rest. POD#5: CSF leaking from drain site, still w HA. POD#6: HA gone, incision c/d/i. Drain site dry. OOB in afternoon. POD#7: transfer to rehab. Wound healed without any adverse effects at 2 weeks. |
| 10 | 48M | ACDF C6-7                     | Radiculopathy         | CSF leaked while removing PLL with Kerrison.                                | Not repaired | Uneventful  |
| 11 | 68M | ACCF C5-6                     | Myeloradiculopathy    | CSF leaked from nerve root sleeve.  | Not repaired | Uneventful  |

|    |     |                      |                       |   |   |   |
|----|-----|----------------------|-----------------------|---|---|---|
|    |     |                      |                       |   |   |   |
| 12 | 59M | Revision ACCF C4-5   | Myelopathy, nonunion. | Pinhole sized defect while taking down PLL, CSF leaked.               | Not repaired, lumbar shunt placed         | Shunt removed on POD#5. Discharged home on POD#6.   |
| 13 | 71M | ACCF C56             | Myelopathy, OPLL      | 4mm dural defect after removing OPLL                                  | Not repaired, lumbar shunt placed.        | Shunt removed on POD#3. Discharged on POD#4.  |
| 14 | 51F | ACCF C4-6            | Myeloradiculopathy    | CSF leaked after removing disc with pituitary at C3-4.                | Not repaired, lumbar shunt placed         | New onset RUE hand intrinsic weakness. MRI showed ischemic cord signal change at C7-8, no signs of fluid collection, no cord signal changes at site of tear (C3-4). Shunt removed on POD#3. Hand weakness completely resolved at 4mo. |
| 15 | 59M | Revision ACCF C4     | Myeloradiculopathy    | Small rent in dura after removing osteophyte at C6-7.                 | Not repaired, lumbar shunt placed.        | Shunt removed on POD#5.   |
|    |     |                      |                       |   |   |   |
| 16 | 74M | PSF C2-C7            | Myelopathy            | 1mm dural defect from electrocautery at C3.                           | Repaired with suture                      | Uneventful  |
| 17 | 61M | Laminectomy/PSF C3-7 | Myelopathy            | 2mm dural defect after pulling the lamina away from the dura at C3-4. | Repaired with suture                      | Uneventful  |
| 18 | 59M | Revision ACDF C5-6.  | Myelopathy            | Pinhole sized dural defect after removing scarred PLL, CSF leaked.    | Repaired with muscle graft & fibrin glue. | Uneventful  |
| 19 | 75F | ACCF C4-6, PSF C3-7  | Myeloradiculopathy    | Dural defect seen after removing PLL during the anterior              | Repaired with suture                      | Uneventful  |

|    |     |                   |                    |  |                      |            |
|----|-----|-------------------|--------------------|--|----------------------|------------|
|    |     |                   |                    | corpectomy.                                  |                      |            |
| 20 | 75M | Laminoplasty C3-7 | Myeloradiculopathy | 2mm linear dural defect from electrocautery. | Repaired with suture | Uneventful |

Drain outputs were recorded every 8 hours. M = Male; F = Female; OOB = out of bed; NC = no complaints; POD = Postoperative Day; HA = headache; C/D/I = Incision was clean, dry and intact with no drainage on the dressing; PSF = Posterior Spinal Fusion; ACCF = Anterior Cervical Corpectomy and Fusion; ACDF = Anterior Cervical Discectomy and Fusion; OPLL = Ossification of the Posterior Longitudinal Ligament; MRI = magnetic resonance imaging; CSF = cerebrospinal fluid; d/c = discharged; OR = operating room; I&D = irrigation and débridement; RUE = right upper extremity, HOB = head of bed, and JP = Jackson Pratt.

TABLE E-2 Prevalence of Cervical Dural Tears

| Patient Subset  | Number | No. of Dural Tears | Prevalence |
|---|--------|--------------------|------------|
| Patients who had cervical spine surgery                             | 1994   | 20                 | 1.00%      |
| Approaches to the cervical spine                                    | 2216   | 20                 | 0.90%      |
| Subset of patients with anterior approaches                         | 1600   | 15                 | 0.94%      |
| Subset of patients with posterior approaches                        | 616    | 5                  | 0.81%      |
| Subset of patients with anterior only approaches                    | 1378   | 11                 | 0.80%      |
| Subset of patients with posterior only approaches                   | 394    | 4                  | 1.02%      |
| Subset of patients who had anterior revisions                       | 312    | 6                  | 1.92%      |
| Subset of patients who had an ACDF                                  | 894    | 5                  | 0.56%      |
| Subset of patients who had an ACCF                                  | 566    | 10                 | 1.77%      |
| Subset of patients who had a revision anterior approach and an ACCF | 102    | 5                  | 4.9%       |
| Subset of patients who had an instrumented PSF without laminectomy  | 469    | 2                  | 0.43%      |
| Subset of patients who had a diagnosis of OPLL                      | 16     | 2                  | 12.5%      |
| Subset of patients who had a laminoplasty                           | 169    | 2                  | 1.2%       |
| Subset of patients who had a laminectomy & PSF                      | 118    | 1                  | 0.85%      |

ACDF = Anterior Cervical Discectomy and Fusion; ACCF = Anterior Cervical Corpectomy and Fusion; OPLL = Ossification of the Posterior Longitudinal Ligament; and PSF = Posterior Spinal Fusion.