Anterior Cervical Discectomy and Fusion (ACDF)

Understanding Your Risks

This document outlines the risks, potential complications, and their estimated incidence associated with **anterior cervical discectomy and fusion (ACDF)**. The information is based on current evidence from large clinical series, meta-analyses, and systematic reviews.

Common Risks and Their Estimated Incidence:

- **Dysphagia (difficulty swallowing):** Occurs in approximately 3–17% of cases, with higher rates in multi-level fusions (up to 22–45 per 1000 for 3+ levels). Most cases are transient, but persistent dysphagia is possible.[1][2][3][4][5][6]

- **Hoarseness (voice changes):** Incidence ranges from 1–5%, often due to recurrent laryngeal nerve irritation or palsy. Most cases resolve, but permanent changes are rare.[1][3][4][6]

- **Hematoma (bleeding/neck swelling):** Occurs in 0.1–5.6% of cases. Hematoma may require urgent intervention if airway compromise develops.[1][2][3][4][6]

- **Superficial wound infection:** Reported in 0.1–2.8% of cases. Deep infection is rare.[1][3][4][6]

- **Neurologic complications (new or worsened deficit, C5 palsy):** Incidence of new neurologic deficit is 0.05–0.4%. C5 palsy occurs in 2–5% of cervical myelopathy cases, but is less common after ACDF (about 2%).[4][7][8]

- **Dural tear (cerebrospinal fluid leak):** Occurs in 0.5–1.9% of cases.[1][3][4]

- **Reoperation:** Early reoperation (within 90 days) occurs in 2–5.6% of cases, most commonly for hematoma or hardware issues. Late reoperation (after 90 days) is often due to adjacent segment disease or pseudarthrosis.[6][9]

- **Fusion failure (nonunion):** Symptomatic pseudarthrosis requiring revision occurs in 0.6–3.7% of cases.[4][6][9]

- **Graft or hardware complications (subsidence, dislodgement):** Occur in 0.9–3.7% of cases.[1][4][6]

- **Airway compromise:** Occurs in 0.1–0.75% of cases, may require urgent intervention.[3][7][10]

- **Adjacent Segment Degeneration (ASD):** This is a significant long-term complication following ACDF where the spinal levels adjacent to the fused area develop accelerated wear and tear.

    - **Radiographic ASD** (visible on imaging but not necessarily symptomatic): Occurs in approximately **30%** of patients after ACDF.[13]

    - **Clinical ASD** (symptomatic disease causing pain, radiculopathy, or myelopathy): Occurs in approximately **11%** of patients overall.[13]

    - **Rate of development:** The risk of developing symptomatic adjacent segment pathology is estimated at **1.6-4.2% per year**. At 5 years, the cumulative risk is **11-12%**; at 10 years, **16-38%**.[14]

Rare but Serious Risks:

- **Esophageal injury/perforation:** Incidence is 0.1–0.3%. May require surgical repair and can be life-threatening.[1][3][10]

- **Vertebral artery injury:** Very rare, but can result in stroke or death.[10]

- **Spinal cord injury:** Extremely rare, but can result in paralysis.[10]

- **Death:** Reported mortality is 0.07–0.1%.[1][3][7][8]

Other Considerations:

- **Systemic complications:** Medical complications (e.g., infection, pulmonary embolism, cardiac events) account for most unplanned readmissions (5–8% within 90 days).[11]

- **Risk factors:** Advanced age, multi-level fusion, comorbidities (e.g., kidney disease, anemia, diabetes, obesity), and use of bone morphogenetic protein (BMP) increase the risk of complications.[4][5][6][7][11][12]

- **Complication rates by number of levels:** Complication rates increase with the number of levels fused, with 1–2 level ACDF having lower rates (3–8%) and 3–4 level ACDF higher (up to 16–19%).[1][2][3][6]

Patient Acknowledgment:

By signing below, the patient acknowledges understanding of the above risks, their estimated incidence, and the potential for both common and rare complications associated with anterior cervical discectomy and fusion. All questions have been answered to the patient's satisfaction.

Patient Signature: _____ **Date:** _____

Patient Name: _____ **DOB:**_____

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