Sp64: How to Manage an Incidental Dural Tear during Surgical Debridement of Deep Spinal Infections

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Recommendation: Authors found little to no evidence specific for the topic of managing incidental durotomy during spinal debridement surgery with concomitant infection. Given this, recommendations are made with consideration of literature on modified criteria.

Following a dural tear with known infection in the deep operative field, authors recommend primary dural repair followed by close neuro-ICU monitoring, short-duration bed rest, and tailored antibiotic therapy.

Level of Evidence: Low

Delegate Vote:

Rationale: Very little evidence exists regarding the management of incidental durotomy during debridement of deep spinal infections. One retrospective study, which assessed repair of cerebrospinal fluid (CSF) leaks after craniotomy with intentional durotomy, reported 9 patients with bacterial contamination of the CSF and subsequent successful treatment of each. The authors recommended prompt dural repair along with monitoring in the neuro-ICU and tailored antibiotic therapy for 3-4 weeks to prevent meningitis and other complications [1]. Antibiotics considered should be those that penetrate the blood-brain barrier. Of course, this study was not specific to the spine or incidental durotomy, so readers should use caution when extrapolating the results to spine surgery. No other evidence specific to managing durotomy with local infection was found.

While many viable techniques for dural repair are mentioned in the literature, which method is best remains a debate [2-14]. Several studies reported primary repair with watertight suturing, utilizing interrupted or running locked sutures, as the gold standard [2, 5-7]. Some advocated for addition of graft, patch, and/or sealant adjunct along with sutures, noting leak-free repair in their patients [2, 7, 10, 11, 13]. Sealants commonly used were synthetic polyethylene glycol (PEG) gel and autologous or allogeneic fibrin glue [8, 10, 12, 14]. Patches were both synthetic and absorbable, and offered advantages for larger dural tears. Those made of collagen matrix in particular were thought to act as a scaffold, on which fibroblasts of existing dura could initiate growth [2, 3, 11]. In the relative absence of preferential evidence, however, choice of repair method should be based on tear features, access, and other considerations specific to each individual patient.

Bed rest is an additional consideration offered by several studies to decrease the hydrostatic pressure near the repair in the immediate post-operative period [5, 6, 9, 10, 15]. Optimal duration, however, is still unclear. Two studies found no benefit with extended bed rest (>24 hours), and even advocated for early mobilization, assuming no symptoms of persistent CSF leak, before the 24 hour mark [5, 15]. Another study averaged 3 days of bed rest and a high repair success rate. The range, however, was 1 to 6 days, and no persistent CSF leaks were reported in those with less

than 3 days of bed rest [6]. Similar results were reported in a study with range from 2 to 4 days [9].

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