The Efficacy of DuraSeal Xact Sealant System for the Treatment of Intraoperative Dural Tears

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Objective: To evaluate the efficacy of DuraSeal Xact Adhesion Barrier and Sealant System, a polyethylene glycol-based synthetic fibrosis inhibitor, for repair of dural tears occurred during spinal surgeries at the lumbar region.

Background: Dural tear is a possible complication of the lumbar surgery. Mainstay in the treatment is the primary closure of the tear by suturing the dura. The most feared complication is cerebrospinal fluid fistula and possible infection. Different glue systems were used in the past as a helping tool in sealing the tears.

Materials and methods: During 2008 and 2009, 159 open lumbar surgical procedures consisting in discectomy and/or decompression were performed. In 15 (9.4%) cases a dural tear was done. In 13 patients the tear was less than 1 cm long while in two cases the tear was longer than that (3 and 5 cm, respectively). When a tear was less than 1 cm long, no suturing of the dura was used and just the DuraSeal was applied. In the remaining two cases with more extensive tearings, suturing of the dura was performed prior to applying the fibrin glue. No wound drains were ever used. Upon surgery the patients were kept at bed rest for a mean period of 4 days (±1.5). All of the patients were treated with antibiotic and low molecular weight heparin medications for 7 days.

Results: The wound healed by first intention in all of the patients and in no case cerebrospinal fluid leak was observed. All of the patients left the hospital between 4 and 6 days post-op. The mean follow-up of all the patients was 4 months and during that period of observation no complications such as fluid leakage, infection symptoms, arachnoiditis symptoms (tethering cord) or others possibly related to dural tear, were observed. All of the patients had improved clinical conditions as compared to pre-operative status. The two patients with major tears had done an MRI 6 months upon surgery and no signs of meningocoele was found.

Conclusion: DuraSeal Xact Adhesion Barrier and Sealant System showed to be an excellent helping tool in sealing tears due to surgical laceration of the dura.

Keywords: Lumbar disc herniation, discectomy, dural tear, liquor leak, fibrin glue