Fluoroscopically-guided epidural fibrin glue blood patch as definitive therapy for persistent cerebrospinal fluid leak: A case study.

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Abstract:

Introduction: Historically, direct application of morphine to the spinal cord producing spinally mediated analgesia first appeared in the mid-1970s.1 The utilization of intrathecal drug delivery systems (IDDS) provides continuous drug delivery in close proximity to the spinal cord. Intrathecal drug delivery systems (IDDS) are used to deliver opioids and adjuvants for intractable pain as well as baclofen for spasticity and rigidity in patients with spinal cord injuries.2 IDDS vary from simple percutaneous catheters to totally implantable and programmable infusion pumps. Implanted systems have gained in popularity for long-term infusions, both in cancer pain states with long survival times and in nonmalignant pain states.3 These systems provide for a broad range of delivery rates and modes, and hence flexibility. As with any surgical procedure and intervention, IDDS have several risks which include: bleeding, infection, seroma formation, equipment malfunction, neurologic damage, and persistent cerebrospinal fluid (CSF) leakage.4 Infection is usually localized; however, epidural or intrathecal sepsis is disastrous and requires the removal of all hardware and administration of systemic antibiotics.4 A case of delayed persistent CSF leakage following intrathecal pump implantation, seroma formation, and subsequent drainage is presented here. Case study: A sixty two year old male presented with progressive upper and more pronounced lower extremity tremors secondary to an unknown etiology. He underwent an intrathecal baclofen test dose with significant improvement in his lower extremity spasticity. Two weeks following the test dose, an intrathecal pump with baclofen was placed without complication and his symptoms improved greatly. One year after intrathecal pump implantation, the patient noted swelling and pain

over the catheter site as well as a new-onset positional headache. The patient was evaluated and underwent magnetic resonance imaging. A seroma was identified adjacent to the catheter at the right lumbar region. Two weeks later, an ultrasound-guided aspiration of the lumbar seroma was performed showing clear, slightly yellow-tinged fluid that was confirmed to be CSF. The patient underwent an epidural blood patch and this improved his symptoms for several days after which time his symptoms returned. Two weeks later, he underwent fluoroscopically-guided L2-3 interlaminar epidural fibrin glue blood patch. Ten milliliters of fibrin glue additive in combination with two milliliters of autologous blood (total volume of twelve milliliters) was administered to the point that the patient had a mild pressure paresthesia. The patient has had complete resolution of the CSF leak following the procedure. Discussion: While IDDS has been shown to greatly improve the quality of life for many patients suffering from spasticity or severe pain, it comes with inherent risks. There is a paucity of literature showing the use of a fibrin glue blood patch as definitive treatment for persistent CSF leak.