
Epidural catheterisation for perioperative therapeutic external lumbar cerebrospinal fluid drainage

Sir,

We report a case of laceration of lumbar cerebrospinal fluid (CSF) drainage catheter in a 53-year-old American Society of Anesthesiologists Class 1, female patient posted for elective craniotomy and excision of falcine meningioma (5.7 cm × 2 cm × 4.5 cm dimensions). Preoperatively, the patient had symptoms of raised intracranial pressure (ICP), and the magnetic resonance imaging showed 8 mm midline shift with mild subfalcine herniation. After induction, with standard precautions to prevent fluctuation in ICP, the patient was positioned in the lateral position for placement of lumbar external CSF drainage with the Surgi-wear lumbar external drainage system under strict aseptic precautions. The 14-Gauge Tuohy needle of the system was inserted at L4–L5 level with free flow of CSF at 6 cm. Silicon catheter was inserted through the needle and positioned at 20 cm. Attempt to withdraw the Tuohy needle resulted in

longitudinal laceration of the catheter and retention of a portion of catheter *in situ* [Figure 1]. Incision and exploration along the track was attempted; however, the retained fragment could not be removed. Further to this, lumbar CSF drainage was done with standard epidural catheter (B Braun D-34209, Melsungen AG). The 18-Gauge Tuohy needle was inserted at L2–L3 level and 20-Gauge epidural catheter inserted caudad into the thecal space for CSF drainage. Intraoperative brain relaxation was contemplated with this catheter. The surgical procedure was conducted under invasive monitoring, and the patient was electively ventilated postoperatively and extubated on the 1st post-operative day.

Post-operative follow-up did not reveal any CSF leak or signs of infection at the site of insertion of the silicon catheter (L4–L5). The intrathecal ‘epidural’ catheter was removed on the 3rd post-operative day.

Literature review shows up to 1/3rd of cases of retained catheters can produce symptoms.^[1] Presentations varies from infection, CSF leak and radicular pain. Guidelines for the management of retained intrathecal lumbar catheter are not widely available in contrast to retained epidural catheters; hence, the management must be individualised. Our patient was discharged with the retained fragment of silicon catheter as she was

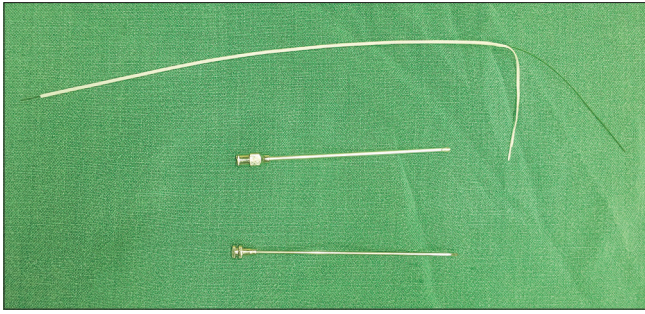


Figure 1: Longitudinal laceration of cerebrospinal fluid drain catheter

asymptomatic on immediate post-operative follow-up. Therapeutic CSF drainage is used perioperatively to facilitate brain relaxation for the ease of surgical approach, prevention or treatment of CSF fistulae, enhance recovery and prevent cerebral infarction in subarachnoid haemorrhage. Infections are common with external CSF drainage with more than 10 days use.^[2] Evidence corroborating to significant impact on the outcome of external CSF drains is scanty except in aneurysmal subarachnoid haemorrhage wherein external lumbar drainage is associated with a significant decrease in the risk of delayed cerebral ischaemia-related complications.^[3]

In our institution, we use the Surgi-wear lumbar external drainage system (Surgi-wear SH025, India) which contains a 30 cm long siliconised catheter with outer diameter 1.5 mm, inner diameter 0.7 mm and a 14-Gauge Tuohy needle. The catheter is supported by a teflon-coated guidewire which is removed once the catheter is placed 8–10 cm intrathecally. Siliconised catheters are preferred for CSF drainage in contrast to the catheters for epidural anaesthesia to prevent neurological injury; however, they are vulnerable to shearing and laceration with incidence varying from 0 to 3.3%.^[4]

Siliconised catheters are the standard practice for lumbar external CSF drainage, but prone to catheter lacerations in inexperienced hands, with a high incidence of symptoms of retained fragment.^[1] Concerns of patient safety, especially in the perioperative setting, need to be highly considered with the anaesthesiologist performing this procedure. Moreover, such lumbar external CSF drainage is deliberated for short-term use only in the perioperative setting. Perioperative intrathecal use of epidural catheters offers the advantage of lesser incidence of catheter lacerations due to the much sturdy material of this catheter and technical ease due to familiarity of an

anaesthesiologist with the procedure and equipment. Further randomised control trials comparing the silicon catheter and epidural catheter for intrathecal use are required to provide better evidence.

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Conflicts of interest

There are no conflicts of interest.

Varun Suresh, K Asish

Department of Anaesthesia and Critical Care, Medical College, Thrissur, Kerala, India

Address for correspondence:

Dr. K Asish,
Department of Anaesthesia and Critical Care, Medical College,
Thrissur - 680 596, Kerala, India.
E-mail: asishkarthik@gmail.com

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