

Case Study**Urinary Incontinence after Retained Lumbar Drainage Catheter: A Case Study**

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Abstract

Introduction: Lumbar external drainage (LED) is one of the most frequently used salvage methods in neurosurgery. This method helps to prevent CSF fistula in patients with risk of developing rhinorrhea. This report describes a case of a mechanic complication due to the lumbar drainage system. A 54-year-old woman presented to the otolaryngology clinic with a complaint of nasal congestion. Radiological imaging revealed meningocele. During the endoscopic meningocele repair performed by otolaryngology clinic, cerebrospinal fluid leak was observed. Following the repair of the meningocele sac, a LED was inserted into the patient's lumbar subarachnoid space to prevent cerebrospinal fluid fistula. During this procedure, the lumbar catheter tip was broken in the subarachnoid space, and a new catheter was inserted in the upper vertebra. After the procedure, the patient's neurological examination was normal. After one week, the lumbar drainage was removed, and the patient was discharged. After 6 months, the patient visited the clinic with complaint of urinary incontinence. The retained catheter was removed by lumbar laminectomy.

Conclusion: Mechanical complications should also be taken into consideration during LED replacement, surgical care and attention should be paid, and the convenience of the surgical procedure should not be deceived.

Keywords: Retained catheter fragment, Urinary incontinence, case report

Introduction

Lumbar external drainage (LED) is one of the most frequently used salvage methods in neurosurgery. This method helps to prevent CSF fistula in patients with risk of developing rhinorrhea. This report describes a case of a mechanic complication due to the lumbar drainage system.

Patient Information

A 54-year-old woman presented to the otolaryngology clinic with a complaint of nasal congestion with no prior history of trauma or trans-nasal surgical intervention present. Prior to administration, patient's complaints have not been relieved with antihistaminic treatment.

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ment procedures concerning allergic rhinitis. Family history have not provided with any findings helped differential diagnosis.

Clinical Findings

Physical examination and laboratory results showed no signs of infections. Patient had no history of fever and neurological examination revealed no deficits.

Timeline: Patient's complaints of nasal congestion and nasal irritation developed six months ago and she had received antihistaminic treatment 3 times from which she had not benefited before her final administration to our clinic.

Diagnostic Assessment

Due to lack of remission of symptoms with previous medical interventions, patient was undertaken to further diagnostic assessments. Cranial and paranasal CT and MRI scans were scheduled and radiological examinations revealed maxillary retention cysts and meningocele sac. Surgical intervention was planned for cyst excision and sac repair.

Therapeutic Interventions: After the excision of cysts using endoscopic endonasal intervention, the meningocele was detected in the anterior skull base. A cerebrospinal fluid (CSF) leak was observed from the meningocele sac and septal flap used for the meningocele sac repair. The fascia lata was placed on the septal flap, and the anterior skull base repair was completed. After endonasal surgery, the procedure for inserting the lumbar external drainage (LED) catheter was started. A 14G Tuohy needle was advanced from the lumbar area, and the CSF arrival was observed. During the insertion of the catheter through the needle, a rotation movement was made with the needle to facilitate the procedure, but the proximal catheter was broken. A new catheter was placed at the level of an upper lumbar vertebra.

Follow-up and Outcomes: After the procedure, the neurological examination showed normal findings, and CT imaging was performed to observe the part that was broken inside (Figure 1). The patient was followed up with the LED for 1 week and was discharged after removing it. The patient and her relatives were told that a catheter piece remained in the subarachnoid space that would be followed up. At 6 months after discharge, she visited the clinic with a complaint of urinary incontinence. She underwent lumbar hemilaminectomy for the removal of the remaining catheter. The tip of the retained catheter was observed adherently to the conus medullaris. The surrounding tissues

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Figure 1: a) Preoperative proximal drainage catheter axial tomography section, b) Proximal catheter view in the axial section at the subarachnoid distance, c) LED entry site view from L2-3 distance, d) Proximal catheter tip progressing in its normal course is shown in the red ring, e) Broken proximal catheter tip is shown in the red ring, f) The proximal catheter tip adherent to the surrounding tissue that cannot be removed is shown in the axial section, g) Two different proximal catheters in the preoperative axial section.

were dissected, and the retained catheter was removed. The patient's urinary incontinence complaint was resolved after the procedure.

Discussion

LED catheter insertion is a surgical method frequently performed in otolaryngology, cardiovascular, and neurosurgery clinics whenever necessary. It plays a life-saving role in preventing a CSF fistula and wound healing and reduces the risk of meningitis [1]. However, due to the widespread application of LED, several complications are encountered, such as local infections, nerve root irritations, meningitis, retained catheter, and symptomatic intracranial subdural collections. In one case, it was reported that the catheter remained at the intraspinal distance, and there were no neurological symptoms in the follow-up examinations [2]. Another study of 22 patients treated with LED reported the removal of drains in four patients, root irritation in three patients, and infection in two patients [3]. Several retained lumbar catheters have been reported in the literature by anesthesiologists and neurosurgeons. There is no clear perspective on the immediate surgical removal of retained catheters, and in some case series, it was followed up without symptoms. Cases causing radicular pain and epidural/subdural collections were operated [4-6]. The present report describes a case of urinary incontinence due to retained lumbar catheter. Urinary incontinence is a rare complication due to retained lumbar drainage and has not been reported in the literature. As an intraoperative observation, it was believed that the catheter fragment adhered to the conus medullaris, which caused tension of the conus medullaris due to fibrosis, ultimately resulting in urinary incontinence [7]. The dissection of the adherent components from the surrounding tissues during the surgery and the release of the conus medullaris explain the improvement of urinary incontinence. It is also necessary to consider mechanical complications during LED replacement. Surgical care and attention are vital, and the convenience of the surgical procedure should not be deceived.

Conflict of interest: No

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