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Management of cerebrospinal fluid leak after spinal surgery: A prospective cohort study

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Over the past decades, the rate and indications of spinal surgery has increased dramatically, especially with the recent technological advances and the introduction of minimally invasive surgery. The spinal surgery is indicated for a wide variety of spinal pathologies including traumatic, degenerative, inflammatory, and neoplastic lesions[1]. According to recent epidemiological studies, there was a marked increases in the number of spine surgeries between 2001 and 2010 in both United States (US) and Europe[2-4]; similarly, another report from Asia reported a significant increase in the annual spine surgeries between 2004 and 2015[5]. On the other hand, spine surgery is associated with high risk of intra and postoperative complications –most commonly with thoracolumbar procedures-, given the complexity of spinal anatomy and surgical methods. Previous reports have shown that the incidence of spinal surgery-related complications ranges between 10 to 20%[6]. In their systematic review, Nasser and colleagues[7] reported that hardware failure, radiculopathies, wound infections, and urinary tract infections were commonly reported following spinal surgery. The present study was a prospective cohort study conducted from January 2016 to January 2017 at departments of Neurosurgery at Maadi military Hospital and Assiut University. Adults' patients who were scheduled to undergo spinal surgeries (as laminectomy, discectomy, fixation and intradural tumors or cysts, or elective lumboperitoneal shunt placement) were included consecutively if they met the following criteria: patients who developed symptomatic iatrogenic unintended spinal dural tears during the postoperative period with subsequent CSF leak, pseudomeningoceles, or even meningitis. In cases that require opening of the dura, such as repair of a tethered cord or resection of intradural tumors, a dural defect was considered if a watertight closure has not been achieved postoperatively. We excluded patients with incidental dural tears who were repaired intraoperatively without subsequent postoperative sequela. The present study included 20 patients who developed postoperative CSF leak. The median age of the included patients was 35.5 (IQR 21.25-56.25) and the majority of patients were males (75%). Forty percent of the patients were smokers, while 30% had diabetes or hypertension. Only one patient had osteoporosis, ankylosing spondylitis, or ventricular septal defect. The most commonly reported indications for spinal surgeries were recurrent herniated intervertebral disc (35%), traumatic fracture (15%), spinal stenosis (15%), and spinal tumors (10%). While the most commonly performed spinal surgeries were laminectomy, discectomy (35%), laminectomy (20%), and laminectomy with posterior instrumentation (15%). As expected, the lumbar spine was the most commonly observed level of surgery (85%) and posterior approach was performed in 95% of the cases.

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