THE ROLE OF CONTINUOUS LUMBAR DRAIN IN MANAGEMENT OF CEREBROSPINAL FLUID LEAK

Thesis submitted for partial fulfillment of Master Degree in Neurosurgery

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دور الدرنقة القطنية المستمرة في علاج تسرب السائل النخاعي

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List of Abbreviations

AFB	Acid Fast Bacilli
ß1	Beta 1
ß2	Beta 2
CNS	Central Nervous System
CSF	Cerebrospinal Fluid
CT	Computerized Tomography
Freq	Frequently
IgG	Immunoglobulin G
LD	Lumbar drain
MEq/L	Milliequivalent per liter
Mg/dl	Milligram per deciliter
Mg/l	Milligram per liter
Mm3	Cubic millimeter

MmHG	Millimeter mercury
Monos	Monocytes
MOsm/L	Milliosmole per liter
MRI	Magnetic Resonance Imaging
MS	Multiple sclerosis
Nl	Normal
OP	Opening pressure
PMNs	Polymorphoneuclear leucocytes
RBCs	Red Blood Cells
Tf	Transferrin
WBCs	White Blood Cells
↑	Increased
↓	Decreased

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Abstract

(Key words: leak, cerebrospinal fluid, lumbar drain)

Cerebrospinal fluid leak is one of the most disturbing issues that face neurosurgeons. It may threaten patient general condition up to be fatal. Thorough neurological examination and proper investigations should be done to diagnose site of CSF leak and other pathologies. Continuous lumbar drain is used as prophylactic measure and a line of treatment for cerebrospinal fluid leak. It may be used pre, intra or post-operative. The study was conducted upon 20 patients at department of neurosurgery in Cairo University Hospitals and department of neurosurgery in Fayoum University Hospitals.

Aim of work is to illustrate the efficacy of continuous lumbar drain as a prophylactic and therapeutic method for cerebrospinal fluid leakage with assessment of clinical outcome and early post-operative sequel.

Introduction

Introduction

Cerebrospinal fluid leak is an unfortunate, yet well-recognized complication of skull base fractures, skull base surgery, and variety of spinal procedures.

The cerebrospinal fluid leak predisposes the patients to life-threatening bacterial contamination that can lead to serious infections, especially meningitis.

Continuous lumbar cerebrospinal fluid drainage is a commonly used procedure in neurosurgical practice for many purposes, such as in prevention of cerebral vasospasm after subarachnoid hemorrhage, treating post-traumatic and postoperative cerebrospinal fluid leak, and even reducing raised intracranial pressure.

Cerebrospinal fluid perioperative diversion reduces the incidence of postoperative leaks. Diversion can be utilized as a prophylactic measure and as a line of treatment for cerebrospinal fluid rhinorrhea following trans-sphenoidal pituitary surgery.

Continuous lumbar drainage can prevent and/or treat cerebrospinal fluid leaks and may preclude re-exploration surgery.

Complications with the use of lumbar drains are not common; however, lumbar drains can increase the length of hospitalization. The most common reported complications are headache, nausea, vomiting and patient discomfort. Major potential morbidities include additional surgery, meningitis, cerebral edema, cerebral herniation and tension pneumocephalus.

Anatomy