

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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2015

دور الدرنقة القطنية المستمرة في علاج تسرب السائل النخاعي

الرسالة المقدمة توطئة للحصول على درجة الماجستير في جراحة المخ والأعصاب

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٢٠١٥

Acknowledgment

First of all, the great thanks to Allah, the Greatest to whom I relate any success I have reached or might reach in the future.

*I would like to express my profound gratitude and appreciation to **Professor Dr. Ossama Ali El-Shahawy**, Professor of Neurosurgery, Faculty of Medicine, Cairo University, for his supervision and guidance to accomplish this study and for his endless generosity. Also, many thanks and gratefulness to **Dr. Ashraf Abdel-latif Moussa Osman**, Lecturer of Neurosurgery, Faculty of Medicine, Fayoum University, for his great support, continuous encouragement and knowledge he offered me throughout this work. Also I would like to express my deepest appreciation to **Dr. Maged Labib Boules**, Lecturer of Anesthesia, Faculty of Medicine, Fayoum University, for his great effort, patience and generous advice.*

My special thanks to the whole staff members of Neurosurgery department in Fayoum University Hospitals and Cairo University Hospitals for their continuous support and training.

Finally I would like to express my love, gratitude and appreciation to my parents, wife and my whole family for having faith in me and their great support and advice.

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List of Abbreviations

AFB	Acid Fast Bacilli
β1	Beta 1
β2	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
NI	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