بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

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A Systematic Review/Meta-Analysis For Partial Fulfillment Of
Master Degree In General Surgery

Meta-Analysis study

Factors favouring Laparoscopic Over Laparotomy Technique Of Vp Shunts

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قالوا
سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم الحكيم
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List of **Abbreviations**

CI	Confidence limits
CNS	Central nervous sysytem
CSF	Cerebrospinal fluid
CT	Computed tomography
LOS	Length of hospital stay
MRI	Magnetic resonance imaging
N/A	Not assessed
PRISMA	Preferred reporting items for systematic reviews and meta-analyses
SAH	Subarachnoid hemorrhage
SD	Standard deviation
SMD	Standardized mean difference
U/S	Ultrasound imaging
VPSs	Ventriculoperitoneal shunts

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Introduction

Hydrocephalus, be it congenital or acquired, is caused by the accumulation of cerebrospinal fluid (CSF) in the ventricles of the brain that may cause symptoms of increased intracranial pressure, neurologic deficits, and, in pediatric patients, increased cranial size. The prevalence of hydrocephalus is 1 to 1.5%.**(Richards, 2006).**

The etiologies for the obstructive type include congenital malformations, Arnold-Chiari malformation, aqueductal stenosis, or tumors. The main etiology for the communicating type is inflammation and fibrosis of the arachnoid granulations that follows meningitis or subarachnoid hemorrhage (so named postinfectious and posthemorrhagic fibrosis) **(Greenberg, 2006).**

Ventriculoperitoneal shunts (VPSs) are the mainstay of treatment for pediatric patients with hydrocephalus of diverse etiologies.**(Kahle et al., 2016).**It is estimated that 25% to 40% of VPSs fail and need revision within the first year after placement and a full 50% fail by the second year **(Stone et al., 2013).**

The need for revision can arise from the ventricular or peritoneal portion. Peritoneal revisions may be related to shunt misplacement, obstruction, fracture, infection, migration, ascites and pseudocyst formation **(Browd et al., 2006).**

The classic laparotomy requires closing of the peritoneal entry point around the catheter , carrying the risk of catheter ligation or secondary dislocation into the subcutaneous tissue. Visualization of the peritoneal cavity through laparotomy is generally poor, and catheter placement in obese patients and patients with adhesions owing to previous abdominal surgery presents an additional challenge **(Schucht et al., 2015).**

The laparoscopic approach has advantages in that it is minimally invasive and allows for better visualizing of the entire peritoneal cavity for concurrent conditions and for localizing the best site for the distal

catheter. The recovery time is usually less than for the laparotomy approach **(Fanelli et al., 2000).**

Disadvantages of the laparoscopic approach are minor and include irritation to the peritoneum from inflation, hemodynamic compromise from increased abdominal pressures, and a slow learning curve **(Fanelli et al., 2000).**

Aim of work

To review, revise and redefine the role of laparoscope in the effectiveness of ventriculo-peritoneal shunt placement in a Meta-analytical form in comparison to laparotomy techniques in patients with hydrocephalus.

Anatomy of the ventricular system

The ventricular system is characterized by four large fluid-filled spaces interconnected by openings between the supra-tentorial and infra-tentorial compartments (Fig. 1). The lateral ventricles are bilateral C-shaped structures that span the entire cerebrum. These spaces merge into the anterior aspect of the third ventricle via the foramen of Monro. At the posterior extent, the cerebral aqueduct serves as the connection to the fourth ventricle . CSF is able to exit the ventricular system via the foramen of Magendie and foramina of Luschka located along the medial and lateral walls of the fourth ventricle **(Felten DL et al., 2015) .**

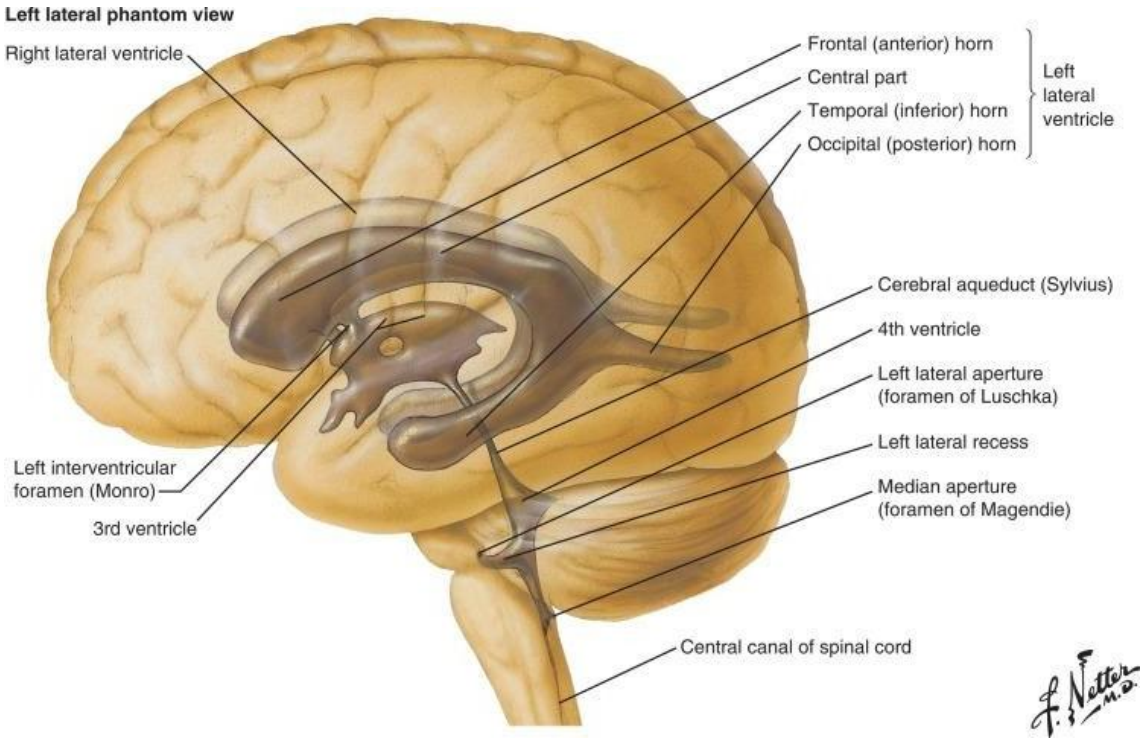

Figure 1: Normal ventricular anatomy and CSF composition. **(Felten DL et al., 2015).**

The paired lateral ventricles are comprised of the body and atria centrally with the anterior (frontal), inferior (temporal), and posterior (occipital) horns forming a c shape extending peripherally in their respective cerebral lobes. The anterior, or frontal, horns of the lateral