



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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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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2020



سورة البقرة الآية: ٣٢



Acknowledgments

*First and forever, thanks to **Allah**, Almighty for giving me the strength and faith to complete my thesis and for everything else.*

*I would like to express my sincere gratitude to **Prof.Dr. Walid Atef Alyan**, Professor of General Surgery, Faculty of Medicine – Ain Shams University, under his supervision, I had the honor to complete this work, I am deeply grateful to him for his professional advice, guidance and support.*

*My deep gratitude goes to **Assist. Prof. Dr Ahmad Gamal El-Din Osman**, Assistant Professor of General Surgery, Faculty of Medicine – Ain Shams University, for his invaluable efforts and tireless guidance and meticulous supervision throughout this work.*

*I can't forget to thank Dr. **Abdallah Hamed Khalil**, , Lecturer of General Surgery, Faculty of Medicine – Ain Shams University, for the efforts and time he has devoted to accomplish this work.*

*Last but not least, I like to thank all my **Family**, especially my beloved **Wife**, for their kind care, help and encouragement.*

List of Contents

Title		Page No.
Acknowledgement		
List of Contents	Page Numbering	i
	List of Abbreviations	i
	List of Tables	iii
	List of Figures	iv
Introduction		1
Aim of Work		3
Review of Literature	Anatomy of the ventricular system	4
	Anatomy of the Anterior Abdominal Wall	6
	Physiology of Cerebrospinal Fluid	13
	Pathology of hydrocephalus	19
	Management of Hydrocephalus	23
Systematic Review	Methodology	41
	Results	46
Meta-analysis	Meta-analysis	55
	Results	57
Discussion		75
Conclusion		78
Summary		79
References		81

List of Abbreviations

CI	Confidence limits
CNS	Central nervous system
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

List of Tables

Table No.	Table Title	Page No.
1	Characteristics of studies comparing laparoscopic and laparotomy peritoneal catheter insertion.	47
2	Percentage of deaths due to infections in some studies around the world. Population description and pre-operative findings for the laparoscopic group.	48
3	Population description and pre-operative findings for the laparotomy group.	48
4	Indications for shunt placement for the laparoscopic group.	49
5	Indications for shunt placement for the laparotomy group.	50
6	Operative time (Laparoscopy Group).	51
7	Operative time (Laparotomy Group).	51
8	Intra & post-operative complications (Laparoscopy Group).	52
9	Intra & post-operative complications (Laparotomy Group).	53
10	Hospital Stay (Laparoscopy).	54
11	Hospital Stay (Laparotomy).	54

List of Figures

Figure No.	Figure Title	Page No.
1	Normal ventricular anatomy and CSF composition.	4
2	Lateral Ventricles, Third Ventricles and Fourth Ventricle.	5
3	Surface markings of the abdominal wall.	6
4	Layers of the anterolateral abdominal wall.	7
5	Muscles of the anterolateral abdominal wall.	8
6	Anatomy of the rectus sheath above and below the arcuate line.	10
7	Parasagittal Section of Peritoneal Cavity.	11
8	CSF circulation.	14
9	Relationship of the arachnoid villi and the dural sinus spaces.	15
10	The blood-brain and blood-CSF barriers showing the daily formation of 500 ml of CSf.	18
11	CT brain (axial section) shows Choroid plexus papilloma	20
12	CT brain (axial section) shows Third ventricle tumor causing hydrocephalus	21
13	Common sites and causes of CSF obstruction	22
14	Normal head circumference chart for the first 36 months of life-based on the National Center for Health Statistics percentiles	23
15	Components of a shunt.	29

16	Ventricular catheter.	29
17	Flow diagram of identified, excluded, and included studies used in the systemic review (PRISMA [preferred reporting items for systematic reviews and meta-analyses] flow diagram).	43
18	Forest plot for operative time.	57
19	Funnel plot for operative time.	58
20	Forest plot for length of hospital stay.	59
21	Funnel plot for length of hospital stay.	60
22	Forest plot for overall shunt failure.	61
23	Funnel plot for overall shunt failure.	62
24	Forest plot for proximal shunt failure.	63
25	Funnel plot for proximal shunt failure.	64
26	Forest plot for distal shunt failure.	65
27	Funnel plot for distal shunt failure.	66
28	Forest plot for overall infection.	67
29	Funnel plot for overall infection.	68
30	Forest plot for overdrainage.	69
31	Funnel plot for overdrainage	70
32	Forest plot for intraoperative complications.	71
33	Funnel plot for intraoperative complications.	72
34	Forest plot for overall complications.	73
35	Funnel plot for overall complications.	74

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).

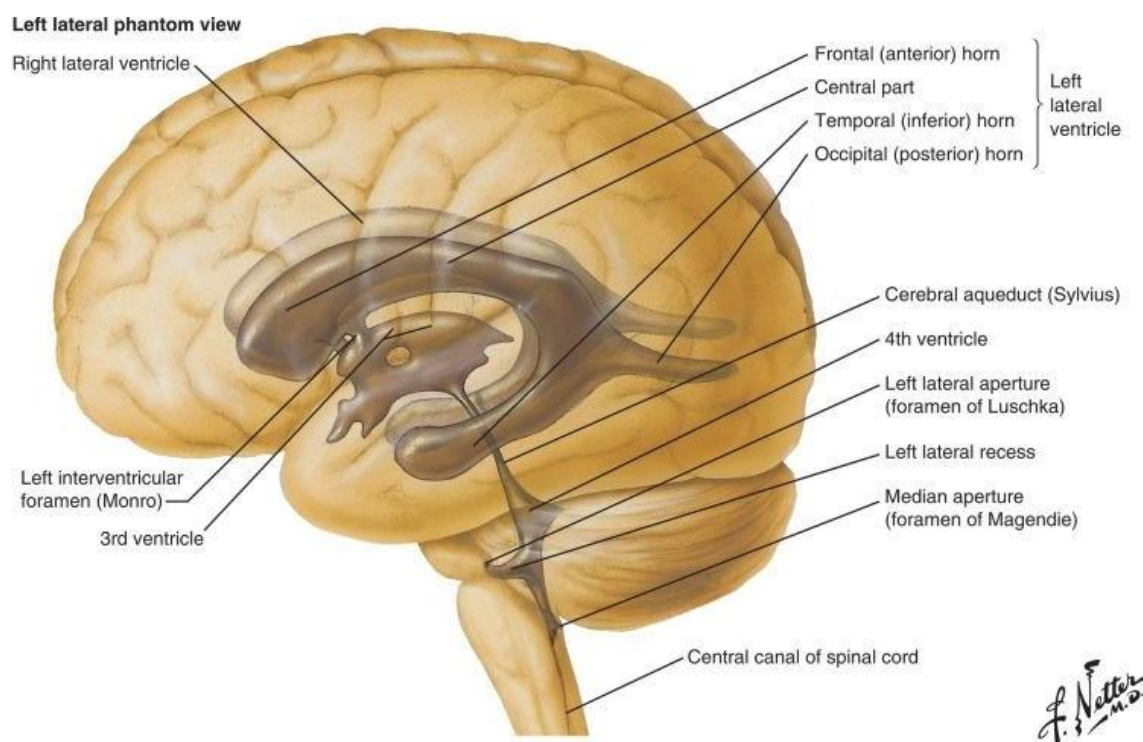


Figure 1: Normal ventricular anatomy and CSF composition. (Felten DL et al., 2015).

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