بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

MONA MAGHRABY

Us Guided vs Landmark Guided in Paramedian Spinal in Elderly

Thesis

For Partial Fulfillment of Master Degree in Anaesthesia

By

Ahmed Ashraf Abdelaziz Bayoumi
M.B.B.CH., Faculty of Medicine, Ain Shams University

Under supervision of

Prof. Dr. Hala Gomaa Salama
Professor of Anesthesia, Intensive Care and Pain Management
Faculty of Medicine-Ain Shams University

Dr. Hanan Mahmoud Farag
Assistant Professor of Anesthesia, Intensive Care and Pain Management
Faculty of Medicine-Ain Shams University

Dr. Wael Abdelmoneim Mohamed
Lecturer of Anesthesia, Intensive Care and Pain Management
Faculty of Medicine-Ain Shams University

Faculty of Medicine
Ain Shams University
2021

Acknowledgment

First and foremost, I feel always indebted to ALLAH, the Most Kind and Most Merciful.

I'd like to express my respectful thanks and profound gratitude to ***Prof. Dr. Halah Gomaa Salama,*** *Professor of Anesthesia, Intensive Care and Pain management, Faculty of Medicine-Ain Shams University for her keen guidance, kind supervision, valuable advice and continuous encouragement, which made possible the completion of this work.*

I am also delighted to express my deepest gratitude and thanks to ***Dr. Hanan Mahmoud Farag,*** *Assistant Professor of Anesthesia, Intensive Care and Pain management, Faculty of Medicine, Ain Shams University, for her kind care, continuous supervision, valuable instructions, constant help and great assistance throughout this work.*

I am deeply thankful to ***Dr. Wael Abdelmonem Mohamed,*** *Lecturer of Anesthesia, Intensive Care and Pain Management, Ain Shams University, for his great help, active participation and guidance.*

I would like to express my hearty thanks to all my family for their support till this work was completed.

Last but not least my sincere thanks and appreciation to all patients participated in this study.

List of Contents

List of Tables

List of Figures

List of Figures (Cont...)

Fig. No.	Title	Page No.

List of Abbreviations

Abb.	Full term
ASRA	*American Society of Regional Anesthesia and Pain Medicine*
CNS	*Central nervous system*
CSF	*Cerebrospinal fluid*
LAST	*Local anesthetics systemic toxicity*
SD	*Standard deviation*

INTRODUCTION

The ideal technique for spinal anaesthesia requires successful dural puncture with a single needle pass. Multiple puncture attempts are associated with an increased risk of needle trauma, postdural puncture headache, spinal haematoma, backache and paraesthesia ***(Chin et al., 2011).*** minimising the number of attempts is desirable to reduce the risk of complications and improve patient satisfaction ***(Vogt et al., 2017).***

Spinal anaesthesia has traditionally relied on a technique guided by surface landmarks, something that may be challenging in the elderly because of degenerative changes in the spine ***(Srinivasan et al., 2015).***Ultrasonography might improve the efficacy of spinal anaesthesia by improving the accuracy of identification of intervertebral level, depth measurement of the intrathecal space and location of the interlaminar window that permits needle passage Compared with the landmark guided technique, ultrasound assisted spinal anaesthesia decreases the number of puncture attempts and improves the success rate at the first attempt in patients with potential technical difficulties ***(Ekinci et al., 2017).***

However, previous studies that have employed ultrasound assisted anaesthesia in surgical patients in general have reported no significant advantages compared with the landmark guided technique. There is little support for the

routine use of ultrasound for spinal anaesthesia. In particular, it is unclear which groups of patients might benefit from this technique, moreover, previous trials have mainly employed the midline approach, and the ultrasound assisted paramedian approach has not been fully evaluated ***(Srinivasan et al., 2015).*** As the paramedian sagittal oblique view provided by ultrasound provides a consistently superior view compared to the transverse midline view, offers promise for an ultrasound assisted technique**.** In a previous trial, the ultrasound assisted paramedian approach required fewer needle passes than the landmark guided technique. However, as the paramedian approach has been shown to facilitate spinal anaesthesia in elderly, it remains to be determined whether the ultrasound assisted paramedian technique is better than the landmark guided or not ***(Rabinowitz et al., 2007).***

AIM OF THE WORK

The study aims to evaluate whether ultrasound assisted paramedian spinal anaesthesia in the elderly can achieve successful dural puncture with fewer needle passes compared with the conventional landmark guided paramedian technique.

Chapter 1

ANATOMY

Anatomy relevant to subarachnoid blockade:

The spinal canal has a protective sheath composed of three layers. From the outside to the inside they are: dura mater, arachnoid and pia mater ***(Figure 1)***. These membranes concentrically divide the vertebral canal into three distinct compartments: the epidural, subdural, and subarachnoid spaces ***(Snell, 2007).***

The epidural space contains fat, epidural veins, spinal nerve roots, and connective tissue. The subdural space is a potential space between the dura and the arachnoid and contains a serous fluid. The subarachnoid space is traversed by threads of connective tissue extending from the arachnoid mater to the pia mater. It contains the spinal cord, dorsal and ventral nerve roots, and cerebrospinal fluid (CSF). The subarachnoid space ends at the S2 vertebral level ***(Reina et al., 1988).***

The nerve root is the main site of action for spinal anesthesia. In spinal anesthesia the concentration of LA in CSF is thought to have minimal effect on the spinal cord itself ***(Mulroy, 2002).***

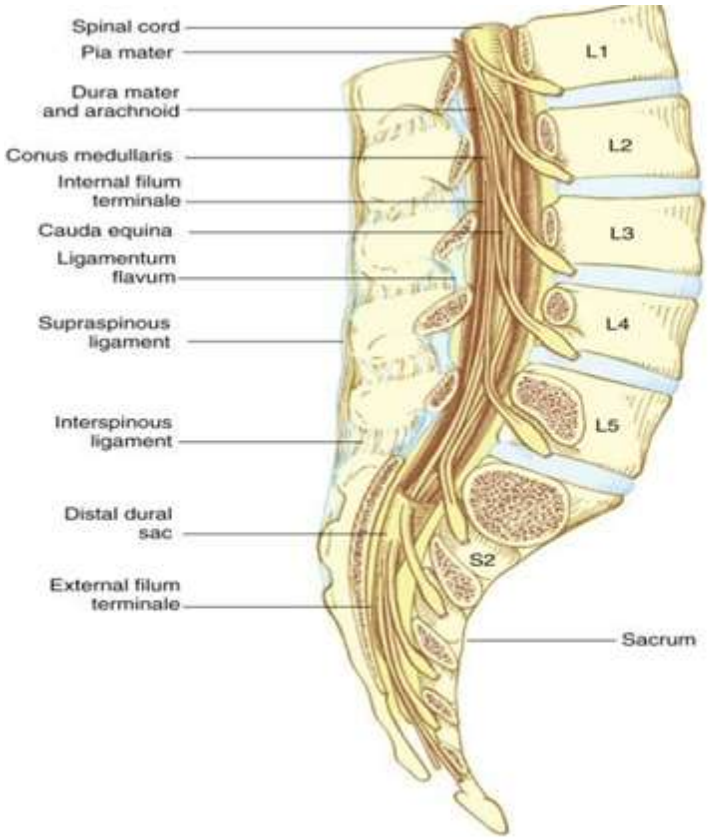

Figure 1: Longitudinal section of spinal cord ***(Reina et al., 2000).***

Technique

Spinal block:

Spinal anesthesia is a type of neuraxial anesthesia; LA is injected into CSF in the lumbar spine to anesthetize nerves that exit the spinal cord. Spinal anesthesia is always performed below L1 in an adult and L3 in a child to avoid needle trauma to the spinal cord. A useful landmark is the line from the top of both iliac crests, which coincides with the L3-L4 interspace.