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A comparison between two techniques of local anaesthesia in lower limb orthopaedic surgeries

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INTRODUCTION

INTRODUCTION

Orthopaedic surgery challenges the anaesthesiologist with its diversity; especially orthopaedic procedures on the lower limb which range from very mild ones as toe surgery, to ultra major techniques such as the insertion of an interlocking nail. Regional anaesthetic techniques play a more important role in orthopaedic surgery than in any other surgical subspeciality; so the successful orthopaedic anaesthesiologist must possess a wide range of anaesthetic skills and knowledge.

Moderate orthopaedic surgical procedures on the lower limb, such as ankle surgery are being recently performed on an outpatient basis. The advantages of regional anaesthesia in ambulatory surgery include less alteration in the central nervous system function, reduced nausea, better postoperative pain relief[1]. Pavlin also reported that the use of peripheral nerve blocks in outpatient procedures provides shorter discharge times than with the use of general anaesthesia[2]. There is also a relative risk reduction in perioperative deep vein thrombosis, pulmonary embolism, intra-operative blood loss, pneumonia and death within 30 days of surgery with regional compared to general anaesthesia[3].

The keys to success of a peripheral nerve block include:

1. Patient and surgeon selection:

Appropriate patient selection is a critical consideration for the safe and successful performance of regional anaesthesia. Most patients are amenable to the idea of regional techniques when they are re-assured that they have the option of preoperative and intraoperative sedation. It may be inappropriate to perform regional anaesthesia on patients with great anxiety, needle phobia or poorly controlled psychiatric disease. The performance of regional anaesthesia in obese patients or those with severe arthritis may be technically more difficult[4].

2. Pick the suitable block:

Knowledge about the extent and limitations of each block is essential for appropriate detection of the suitable block[4].

3. Pick the suitable drug:

Optimal local anaesthetic and adjuvant selection becomes even more important as emphasis moves to rapid discharge from outpatient centers.

4. Centralize the equipment:

Induction room, rolling cart or plastic bins are all acceptable methods of keeping drugs, equipment and needles easily accessible.

5. Know the potential complications[4].

Blockade of the somatic branches of the lumbar plexus along with the sciatic nerve, provide excellent anaesthesia for lower limb surgeries. This technique is becoming increasingly popular for anaesthesia of diagnostic and moderate surgical outpatient procedures. Besides being effective, this technique is very easy to perform, to teach and to master by any anesthesiologist; adding to this, it is also satisfactory for many patients[5].

The performance of such local blocks necessitates the anaesthesiologist not only to have a thorough familiarity with the innervation of the lower limb; but also with its surface anatomy. Thus, an overview of the anatomy of the lumbosacral plexus would be helpful in understanding the basis of the sciatic nerve and lumbar plexus blocks.

Anatomy

The lumbar plexus originates from the first four lumbar ventral rami that join within the substance of the psoas major muscle. The plexus passes anterior to the lumbar transverse processes within the substance of the psoas major. (Figure 1) It lies between:

a) The fleshy slips of the main part of the psoas major muscle, that arise from the antero-lateral part of the vertebral bodies and the intervertebral discs; and

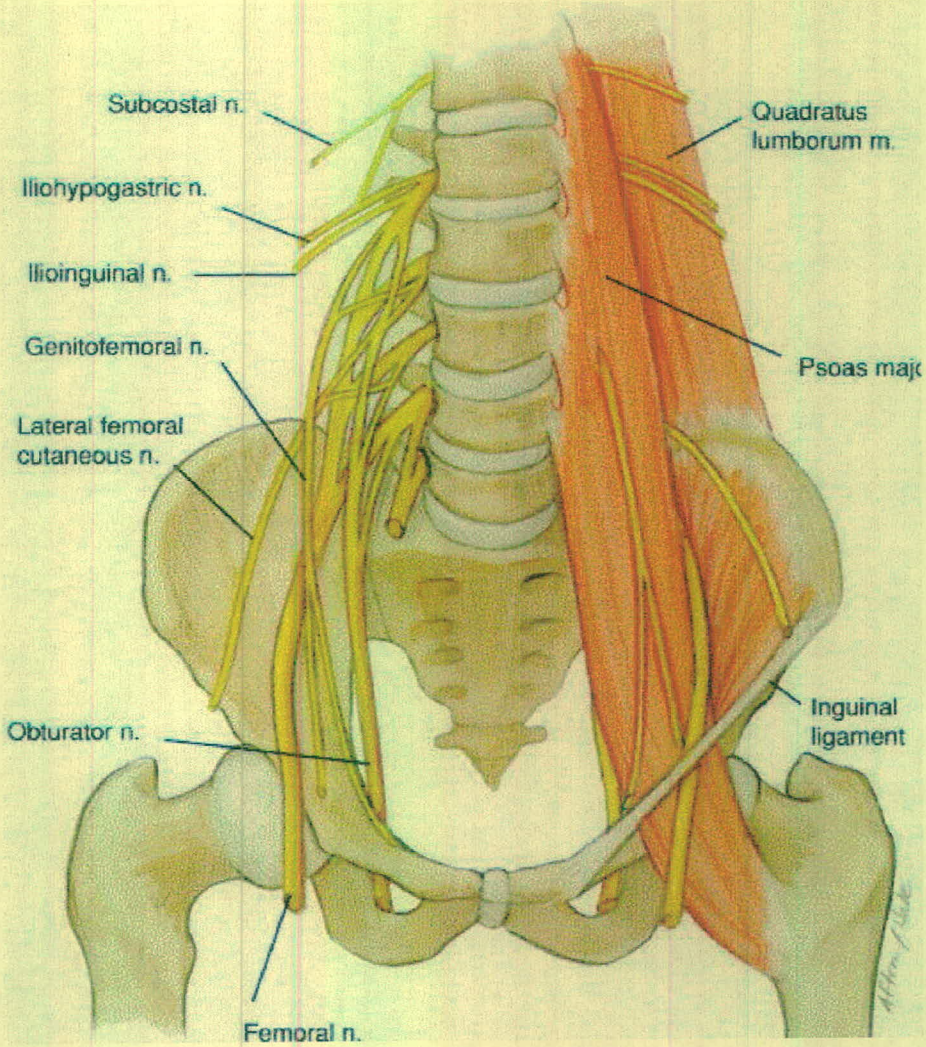

Figure 1: Lumbar plexus anatomy.