

Conflicts of interest

The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

Authors' contributions

Bang-Jiang Wen and Wen-Yi Gong authors contributed equally. The conception and design of the study was conceived by Kun Fan and Bang-Jiang Wen. The study was planned and conducted by Wen-Yi Gong, and should be considered co-first author. Chen-Guang Li and Nai-Yu Yu was responsible for getting informed consent from participants and acquiring data. Kun Fan prepared the first draft of the manuscript. Bang-Jiang Wen edited and interpreted the manuscript. All authors read and approved the final version of the manuscript.

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History

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Anatomical spread of local anesthetic in circumsoas block: a cadaveric study

Achieving complete sensory loss in total hip replacement surgery requires blocking both lumbar and sacral plexus branches.¹ The lumbar plexus, including the femoral nerve, lateral femoral cutaneous nerve (LFCN), and obturator nerve, is located within the psoas major (PM) muscle, which is surrounded by the psoas fascia.^{1, 2} The circumsoas block (CPB) is a novel technique where local anesthetic is injected deep into the anterior psoas fascia (APf) under ultrasound (US) guidance to block these lumbar plexus elements and provide effective analgesia during total hip replacement surgery.¹ CPB offers several advantages: it effectively blocks the femoral nerve, LFCN, and obturator nerve, providing comprehensive postoperative analgesia and potentially reduc-

ing opioid requirements.¹ The sonoanatomy of CPB is straightforward, and the spread of local anesthetic can be easily visualized using US. Although recent studies suggest that CPB is effective,² no cadaveric studies have investigated the spread of local anesthetic in this block technique. This study aimed to evaluate the local anesthetic spread during CPB using a cadaveric model. This study was conducted at Istanbul Medipol University's anatomy laboratory using a fresh frozen cadaver. A high-frequency linear US probe was placed under the iliocostalis muscle at the inguinal ligament and psoas tendon to identify the femoral nerve and artery. The probe was then directed cephalad to visualize the suprainguinal portion of the PM. A block needle was inserted deep into the anterior psoas fascia and the anterior aspect of the PM. After hydrolocation with 5 mL of 0.9% saline, 20 mL of methylene blue solution was injected. Anatomical dissection is performed twenty minutes later, identified stained structures, including the anterior surface of the erector spina muscle along the lumbar vertebral level, roots of the intervertebral nerves and their dorsal and ventral rami, thoracolumbar fascia, quadratus lumborum muscle, pararenal adipose tissue at the iliac crest,

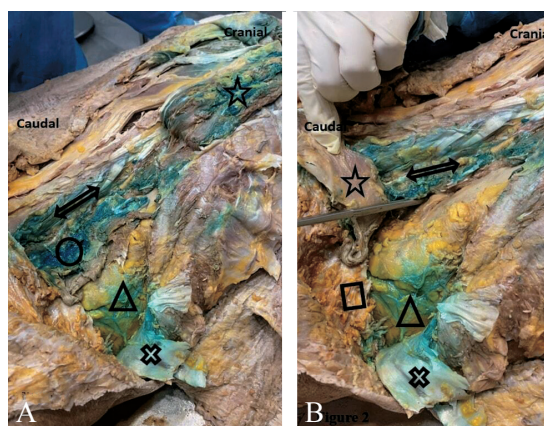


Figure 1.—A) Anterior aspect of musculus erector spina, posterior aspect of the musculus quadratus lumborum, pararenal adipose tissue, middle layer of the thoracolumbar fascia, transverse processes of the lumbar vertebrae and the origin of the roots of the spinal nerves. B) M. quadratus lumborum anterior face, Pararenal adipose tissue, Middle layer of the thoracolumbar fascia, Transverse processes of the lumbar vertebrae and the origin of the roots of the spinal nerves, and iliac crest line.

In panel A: star symbol represents anterior aspect of musculus erector spina, circle indicates posterior aspect of the musculus quadratus lumborum, triangle refers to pararenal adipose tissue, cross indicates middle layer of the thoracolumbar fascia and the arrow refers to transverse processes of the lumbar vertebrae and the origin of the roots of the spinal nerves. In panel B: star symbol represents m. quadratus lumborum anterior face, triangle indicates pararenal adipose tissue, cross refers to middle layer of the thoracolumbar fascia, arrow indicates transverse processes of the lumbar vertebrae and the origin of the roots of the spinal nerves, and rectangle represents the iliac crest line.

and lumbar plexus branches (iliohypogastric, ilioinguinal, and lateral femoral cutaneous nerves) (Figure 1). The regional blocks, such as the quadratus lumborum block (QLB), suprainguinal fascia iliaca block (SIFIB), and CPB, are increasingly used for postoperative analgesia in total hip replacement. However, QLB is limited by its block level (T7-L1) and injection site dependency, reducing its effectiveness.³ SIFIB risks include failure to block the obturator nerve, quadriceps muscle weakness, and higher volumes of local anesthetic, which increases toxicity risk.⁴ In contrast, CPB potentially offers a broader spread (from T8-11 to S1-3), effective analgesia with lower anesthetic doses, and avoids quadriceps muscle weakness.⁵ It is also known that Pascarella *et al.* avoided motor weakness of the quadriceps muscle by using lower volumes of local anesthetic in PENG block.⁶ However, compared to PENG block, it is possible to provide analgesia in a larger dermatomal area in CPB. This cadaveric study confirms CPB's ability to block the necessary nerve dermatomes and branches for comprehensive analgesia in total hip arthroplasty. However, further clinical studies are needed to assess the impact of anatomical variations on CPB's efficacy and its suitability for surgical anesthesia. In addition, the fact that this study was performed on a single cadaver is one of the limitations of this study.

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Authors' contributions

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BRILMA block for analgesia in adolescent fibroadenoma excision

Fibroadenomas are common benign breast lesions frequently encountered in adolescents. While they are usually asymptomatic, surgical excision may be warranted for larger or symptomatic lesions. Effective pain management is essential for ensuring patient comfort and facilitating a smooth recovery, particularly in the pediatric population, where minimizing opioid use is desirable to avoid potential side effects. This case report presents the successful use of a Breast Intercoastal Lateral Mammary (BRILMA) block for postoperative pain management in a 14-year-old female undergoing fibroadenoma excision.

A 14-year-old female, weighing 50 kg, presented with a painless, firm, mobile lump in her right breast. Ultrasound examination confirmed the presence of a 3 cm fibroadenoma. Given the size and characteristics of the lesion, surgical excision was indicated. The patient