

## Ultrasound guided bilateral ilioinguinal and iliohypogastric nerve block after bilateral groin dissection

Suresh Seelam; Abhijit Nair\*; Asiel Christopher; Basanth Kumar Rayani

### \*Abhijit Nair

Department of Anesthesiology, Basavatarakam Indo-American Cancer Hospital and Research Institute, Hyderabad- 500034

Phone: +91-99-6318-0495; Email: abhijitnair95@gmail.com

### Abstract

Ilioinguinal and iliohypogastric nerve (IIIH) blocks provide excellent pain relief for lower abdominal and groin surgeries. When given under ultrasound guidance, the success rate increases compared to landmark technique. We provided bilateral IIIH nerve block to a patient under USG who underwent bilateral groin node dissection successfully. Patient did not require morphine or non-steroidal anti-inflammatory drug postoperatively for 24 hours.

### Keywords

ultrasonography; anesthesia; iliohypogastric; ilioinguinal; postoperative pain

### Introduction

Landmark based ilioinguinal and iliohypogastric (IIIH) nerve blocks has been performed since several years, however it carries a very high failure rate (around 10-25%) [1]. To increase the success rate, anaesthesiologists started using a field block technique using a large volume of local anaesthetics in an attempt to block the nerves satisfactorily. With the use of ultrasound for performing this block, the success rate has increased thereby providing good quality analgesia for surgeries involving groins and lower abdomen [2].

### Case Presentation

A 37 year old male, weighing 80 kg with no systemic co-morbidities, having biopsy proven squamous cell carcinoma of penis was posted for a partial penectomy and bilateral groin node dissection. All investigations were within normal limits. Tread mill test was done for cardiac risk stratification which was negative for inducible ischemia at 10 metabolic equivalents (METS). We planned for a general anaesthetic with endotracheal intubation and a lumbar epidural catheter in an awake state under asepsis. When this was informed to the patient, he refused for epidural catheter placement. Considering it as a contraindication, we decided to proceed with general anaesthesia. However, we informed to the patient that at the end of the surgery we'll be injecting local anaesthetics (LA) at surgical site for a pain free post operative period. After obtaining an informed consent, we shifted the patient to the operation room. Standard monitoring in the form of cardioscope, non-invasive blood pressure, pulse oximetry was done. Anaesthesia was induced with 200 mg propofol intravenously after premedicating with 2mg

midazolam and 150 µg fentanyl. Tracheal intubation was done with 8.0 mm internal diameter cuffed endotracheal tube after achieving neuromuscular blockade with 8 mg IV vecuronium bromide. Anaesthesia was maintained with oxygen, medical air, isoflurane with controlled ventilation over anaesthesia work station. One gram paracetamol was infused at the time of skin closure. Bilateral IIIH block was given using a linear array, high frequency probe ( Sonosite EDGE, Washington: United States) with in-plane approach using 15 ml of 0.375% of bupivacaine in the fascial plane between internal oblique and transverses abdominis after negative aspiration of blood and after ensuring proper spread of the drug in the plane( figure 1 ). We extubated the trachea after thorough oral suction and after reversing neuromuscular blockade with 4 mg neostigmine and 0.8 mg glycopyrollate intravenously. We shifted the patient to surgical intensive care unit for monitoring and for pain relief. Post operative pain relief orders was only 1 gm paracetamol infusion every 6<sup>th</sup> hourly. The nursing staff was instructed to administer 4 mg morphine intravenously if pain on a visual analogue score was more than 4 and to note the time and total morphine consumption in 24 hours. Patient didn't require morphine postoperatively in 24 hours. We shifted the patient to the ward after 24 hours with pain relief consisting of paracetamol 1 gm every 6<sup>th</sup> hourly and gabapentin 300 mg 12<sup>th</sup> hourly, both in the form of tablets.

## Discussion

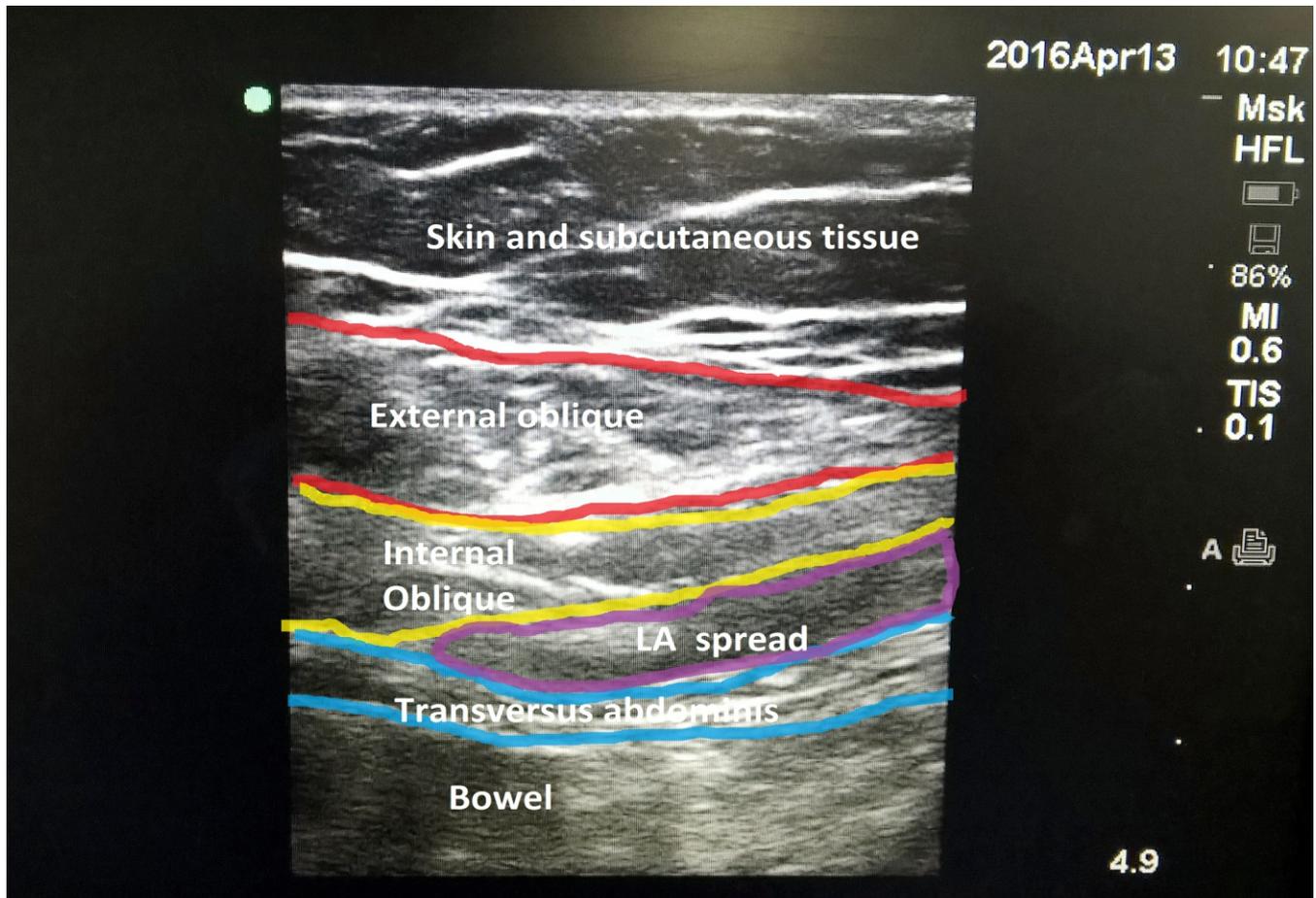
Ilioinguinal and iliohypogastric ( IIIH ) nerves arises from L1 spinal root. The nerves pierce the transverses abdominis muscle superomedial to anterior superior iliac spine (ASIS) to occupy the fascial plane between internal oblique (IO) and transverses abdominis (TA). Later, internal and external oblique muscle and ends up giving cutaneous branches. Grossly, the iliohypogastric nerve innervates the skin over inguinal region and ilioinguinal nerve supplies the skin of anteromedial aspect of thigh [3].

Eichenberger et al conducted anatomic cadaveric dissections almost a decade ago and proved that the ultrasound guided IIIH block is accurate and suggested that it should be practised instead of the blind technique to increase the success rate [4]. Use of ultrasound increases the success rate of IIIH nerve block, drug deposition can be done accurately in real time in the correct fascial plane, chances of drug toxicity is less. The block technique is simple and can be done comfortably if one is used to transverses abdominal plane (TAP) blocks. The sonoanatomy relevant to IIIH block is similar i.e. one needs to identify the 3 abdominal muscles viz. external oblique, internal oblique and transverses abdominis by placing the transducer at the line joining ASIS and umbilicus, more towards the ASIS. The fascial plane between IO and TA is targeted for LA injection with an in-plane approach with the direction of needle entry from the umbilical end towards ASIS. With practice, the nerves can also be visualised that has an owl-eye appearance when seen with USG probe. Bilateral IIIH blocks can be considered for bilateral hernia surgeries, bilateral groin node dissection. Sakalli et al compared the efficacy of bilateral IIIH block with sham block after caesarean sections and found the vas scores and rescue analgesia requirement significantly less in the block group [5]. However, centres which don't use intrathecal morphine can consider it as a good option.

## Conclusion

USG guided IIIH block is easy to train and perform and provided good analgesia for surgeries involving groin and infraumbilical region like caesarean sections, hysterectomies. Along with acetaminophen and/ or non-steroidal anti-inflammatory drugs, the block can reduce postoperative consumption significantly.

## Figures



**Figure 1:** Picture showing the local anaesthetic spread between internal oblique and transversus abdominis.

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**Manuscript Information:** Received: March 08, 2017; Accepted: June 15, 2017; Published: June 20, 2017

**Authors Information:** Suresh Seelam; Abhijit Nair\*; Asiel Christopher; Basanth Kumar Rayani

Department of Anesthesiology, Basavatarakam Indo-American Cancer Hospital and Research Institute, Hyderabad-500034.

**Citation:** Seelam S, Nair A, Christopher A, Rayani BK. Ultrasound guided bilateral ilioinguinal and iliohypogastric nerve block after bilateral groin dissection. Open J Clin Med Case Rep. 2017; 1275

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