Tibial-IPAC block is a new addition to femoral-IPACK block in total knee arthroplasty

Infiltration between the popliteal artery and capsule of the knee (IPACK block) is commonly used to provide analgesia for knee arthroplasty or posterior meniscus repair. IPACK block is a muscle strength-sparing technique meant to be used as an alternative analgesic supplement to the femoral or adductor canal blocks to cover the posterior knee pain.[1] Genicular nerves provide sensory innervation to your knee and include the superolateral genicular nerve, superomedial genicular nerve, inferomedial genicular nerve (IMGN), and inferolateral genicular nerve (ILGN) which innervate primarily each corresponding quadrant. The anesthesiologist can safely target all of these nerves for a genicular nerve block except for the ILGN. This is because ILGN is situated very close to the peroneal nerve. It is very difficult to identify individual genicular nerves and their trajectory by ultrasound because of their tiny size. As per description, IPACK block was performed by injecting the drug between the popliteal artery and the femoral shaft just above the femoral condyle.[2,3] This will lead to a blockade of the superior genicular nerve supplying the upper posterior portion of knee joint. However, there occurred sparing of the inferior genicular nerve supplying lower posterior components of the knee joint. To provide complete analgesia for knee joint surgeries, both superior and inferior genicular nerves need to be blocked. Here we are going to describe a novel tibial IPAC (T-IPAC) block which was given along with femoral IPAC (F-IPAC) in a patient who underwent total knee replacement surgery. In T-IPAC block, the drug was injected between popliteal artery and shaft of tibia at the level just below the tibial condyle [Figure 1]. The block was performed in the lateral position following general anesthesia. The sonoplex needle was inserted from lateral to medial direction. Following negative blood aspiration 20 ml, 0.2% ropivacaine was injected between the popliteal artery and tibia. We have chosen lateral to medial because the common peroneal nerve escapes to the anterolateral quadrant of leg after wrapping to the fibular neck. Written and informed consent for publication was taken from the patient. In our patient, we have successfully given both F-IPAC and T-IPAC in patients scheduled for total knee joint replacement to ensure blockade of both superior and inferior genicular nerve as a component of multimodal analgesia. The patient was pain-free in the postoperative period and was mobilized successfully in the evening.

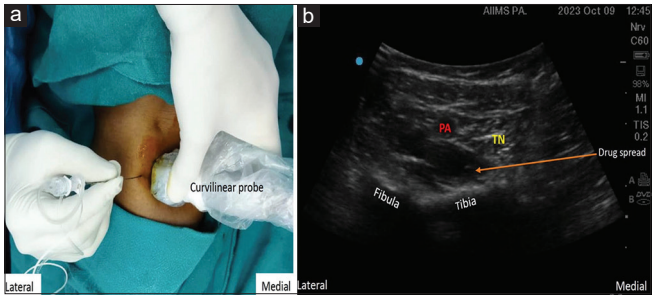

Figure 1: (a) Needle probe position, (b) sonoanatomy of tibial-IPAC block. PA: Popliteal artery, TN: Tibial nerve

Sciatic nerve block is commonly used to provide analgesia for the posterior aspect of the knee. But sciatic nerve block is associated with motor weakness of the lower extremity and thus preventing early rehabilitation. The intraoperative common peroneal nerve injury also masked due to prior sciatic nerve blockade. We hypothesized that on spreading the drug between the tibia and popliteal artery will block both IMGN and ILGN. Cadaveric studies will further validate our findings.

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Conflicts of interest

There are no conflicts of interest.

Amarjeet Kumar, Chandni Sinha, Ajeet Kumar

Department of Anaesthesiology, All India Institute of Medical Sciences, Patna, Bihar, India

Address for correspondence:
Dr. Chandni Sinha,
Room No 502, B-Block, OT Complex, AIIMS, Patna, Bihar, India.
E-mail: Chandni.doc@gmail.com

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