

'4 in 1' block – expanding the horizon in post-op analgesia for below knee surgeries

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We have read the article by Roy et al.¹ on “ultrasound guided 4 in 1 block – a newer, single injection technique for complete postoperative analgesia for knee and below knee surgeries.” With utmost enthusiasm, we want to congratulate and thank the authors for their detailed description of this promising approach.

We are also using this block for various surgeries around and below the knee joint at distal part of adductor canal or adductor hiatus (Table 1). We believe, this block has more application in distal lower limb surgeries where sciatic nerve block is needed for adequate analgesia. But directly blocking the sciatic nerve in popliteal fossa could be a double-edged sword – as it might prevent early mobilisation especially in day-care surgeries and chances of needle trauma or intraneural injection is also a possibility. In addition to this, some patients are very apprehensive about numbness and mobilisation whereas the surgeons dread the delay in detection of compartment syndrome due to the nerve block. It is still a debatable issue whether regional anaesthesia masks or facilitates timely diagnosis of acute compartment syndrome. But, according to literature, diagnosis of compartment syndrome is possible even in the presence of continuous low dose local anaesthetic infusion.²

Four-in-one block offers blockade of four nerves namely saphenous, obturator, sciatic nerves and nerve to vastus medialis. The main advantages we have observed in our practice are: easy to perform in supine position (even without frog leg position), no need for separate injection or position change to block the sciatic nerve, relatively safer in experienced hand, good choice for post-op analgesia in below knee surgeries, predominantly sensory blockade in the distribution of sciatic nerve. This block requires low concentration and high volume of drugs (0.25% bupivacaine or 0.2% ropivacaine 30-40 ml ± adjuvants) and at least 45 minutes to one hour for onset of effective analgesia in sciatic nerve distribution. The LA from the adductor hiatus slowly gets distributed into the posterior compartment and slowly get distributed in popliteal fossa involving popliteal plexus and sciatic nerve. The sonoanatomy and identification

of target injection point is somewhat difficult in obese patients. Low frequency curvilinear probes will be of great help in such a situation. Possibility of vascular puncture (descending genicular artery or superficial femoral artery) by novice and LA systemic toxicity can be avoided with meticulous scanning and controlled needle advancement with in-plane or out-of-plane technique. We hope, with further research on appreciable number of patients, it will soon be considered as the technique of choice for post-op analgesia in patients undergoing below knee surgeries.

Table 1: “4 in 1 block” can be considered for post-op analgesia in:

No.	Diagnosis	Surgery
1.	Osteoarthritis knee	Total knee replacement
2.	Comminuted # proximal tibia	ORIF with bicolumnar plating (medial + lateral)
3.	Closed both bones # leg	Intramedullary nailing, tibia
4.	Ankle # → Lateral malleolar, Bi-malleolar, tri-malleolar	ORIF + plating/TBW/Screw fixation
5.	Blount's disease	Osteotomy and 8 plate application to proximal tibia

= Fracture; ORIF = open reduction and internal fixation; TBW = Tension band wiring,

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