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Posterior femoral cutaneous nerve block improves regional anaesthesia for below-knee surgery

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Editor—We read with great interest the article by Feigl and colleagues,¹ who reported a significant role of the posterior femoral cutaneous nerve (PFCN) in regional anaesthetic block techniques for surgical procedures distal to the popliteal region. So far, to our knowledge, there is no clinical report describing the importance of the PFCN block for below-knee surgery. We hypothesised that the PFCN block, when combined with femoral and sciatic nerve blocks, would improve regional anaesthesia for below-knee surgery.

In our institution, ultrasound-guided peripheral neural block (PNB) combined with laryngeal mask general anaesthesia is the routine practice for lower-extremity surgery. From March 2020, ultrasound-guided single-shot PNB with PFCN block has been used as sole anaesthesia for below-knee surgery. In practice, anaesthetists discuss with patients (or their relatives) whether to combine general anaesthesia with PNBs or not before obtaining written consent. On arrival in the operating theatre, sufentanil 5 µg or fentanyl 50 µg was administered i.v. to ameliorate pain associated with neural block. After femoral nerve block, the patient was turned to the lateral position with the surgery side up. A linear probe was placed cephalic and parallel to subgluteal crease.² The PFCN is medial and superficial to sciatic nerve (Fig. 1). Using an in-plane approach, a total of 20 ml of ropivacaine 0.5% was injected for both nerves, with the proportion used for each nerve at the anaesthetist's discretion, as was the use of dexmedetomidine or additional opioids during the procedure. After surgery, patients left the operating theatre directly back to their wards bypassing the recovery room.

There were 45 consecutive patients undergoing PNBs as sole anaesthesia for their 57 surgical procedures. None converted to general anaesthesia. The patient characteristics and operative information are listed in Table 1. Seven patients had repeated operations, and one patient had six repeated operations under PNBs. All patients were satisfied with the anaesthesia provided. No patient requiring repeated surgery requested the addition of general anaesthesia for their subsequent procedures.

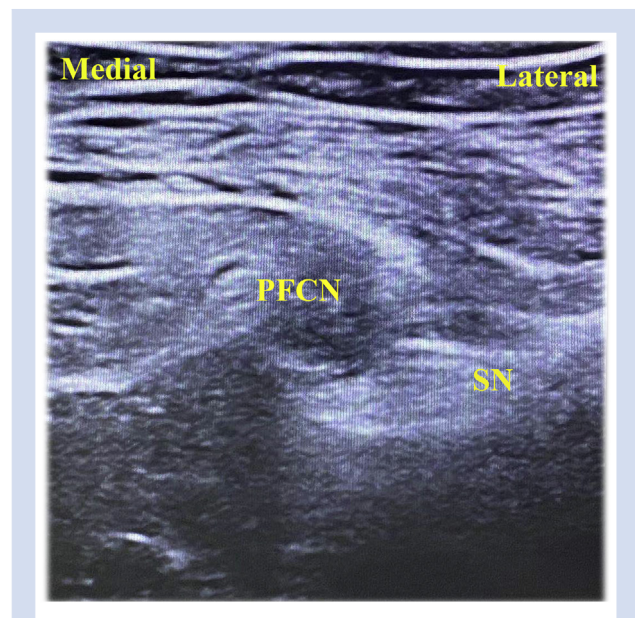


Fig 1. Ultrasound image of PFCN and SN at the subgluteal crease. PFCN, posterior femoral cutaneous nerve; SN, sciatic nerve.

The use of PNB for lower-extremity surgery is not as frequent as in the upper extremity. One possible reason is the uncertainty of anaesthesia quality. A previous report revealed that the failure rate of triple nerve block (tibial, common peroneal, and saphenous nerve) at the knee for foot and ankle surgery was ~10%.³ Another study found that PFCN block was not useful for tourniquet tolerance compared with popliteal sciatic nerve block for below-knee surgery, mainly foot and ankle surgery.⁴ According to Feigl and colleagues,¹ nearly half of PFCNs examined terminated at the distal lower leg; therefore, PFCN block

Table 1 Characteristics of patients and surgeries. *Sufentanil 1 µg=fentanyl 10 µg. †The duration of anaesthesia effect defined as the duration between the finish of PNBs to the time the patient felt pain in the operation site. PNB, peripheral nerve block

	Operations (n=57)
Sex (male), n (%)	30 (52.6)
Age (yr)	50.8 (16–81)
BMI (kg m ⁻²)	23.0 (3.5)
ASA physical status, n (%)	
1	37 (64.9)
2	19 (33.3)
3	1 (1.8)
Emergency, n (%)	11 (19.2)
Time from finish of PNBs to start of surgery (min)	26.2 (17.2)
Type of surgery, n (%)	
Open reduction and internal fixation of fractures	10 (17.5)
Removal of internal fixation	10 (17.5)
Deep wound debridement and suture	37 (64.9)
Site of surgery, n (%)	
Patella and leg	35 (61.4)
Foot and ankle	22 (38.6)
Duration of surgery (min)	55.4 (32.9)
Time of surgery, median (range)	1 (1–6)
Total use of fentanyl or equivalent* (µg)	99.4 (69.7)
Dosage of dexmedetomidine (µg)	29.1 (2.9)
Postoperative complications	None
Duration of anaesthesia effect† (h)	16.5 (5.6)

should be considered in future guidelines of regional anaesthetic block techniques for surgical procedures distal to the popliteal region. Nevertheless, although those studies were focused on foot and ankle surgery, over half of the surgical interventions in our study were in the upper leg (up to patella level), proximal to the ankle and foot. Even though the success rate in our study was

high, we are cautious about extending the technique for longer-duration surgery, as tourniquet pain and discomfort from long periods in one position can both be problematic for patients.

In conclusion, our experience suggests that adding PFCN block to PNB techniques can improve anaesthesia quality for below-knee surgery. However, because of the natural limitations of our observational study, the small sample size, and many confounders (e.g. various doses of intraoperative opioids and local anaesthetics), a further prospective randomised controlled study is warranted to ascertain the role of PFCN block for below-knee surgery.

Declarations of interest

The authors declare that they have no conflicts of interest.

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Clinical validation of pharmacokinetic and pharmacodynamic models for propofol infusion. Comment on *Br J Anaesth* 2021; **126**: 386–94

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