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Abstract Title: Ultrasound Guided Trans-sartorial Continuous Saphenous Nerve Blockade – A Technique for Relief of Postoperative Medial Incisional Foot and Ankle Pain

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ABSTRACT BODY

Introduction:The saphenous nerve (SaN) innervates the region from the upper medial thigh to the medial aspect of the foot and ankle. A femoral nerve block (FNB) is effective for blockade of the SaN but this causes quadriceps weakness and reduced patient mobility that is unsuitable in an ambulatory surgical setting. The SaN originates from the femoral nerve (FN) at a point near the femoral canal and nerve blockade performed distal to this point results in quadriceps weakness and absence of analgesia for any procedure performed on the medial foot and ankle. Direct blockade of the SaN using several different approaches has a variable success rate and all avoid the quadriceps weakness that results from FNB. Trans-sartorial SaN blockade (SaNB) at the level of Hunter’s canal is a technique with a high success rate that has increased with the adjunct of ultrasound (US) guidance. Continuous SaNB by an anatomic trans-sartorial approach has also been described. A novel technique is available for US guided continuous SaNB using the trans-sartorial approach to provide prolonged analgesia for medial incisions of the foot and ankle.

Materials and Methods:The SaN and adjacent descending artery were visualized by US on the medial aspect of the thigh at a point 7 to 10 cm cephalad to the superior margin of the patella where the sartorius and vastus medialis muscles lie in proximity to the adductor canal. A 19-gauge nerve block needle was introduced postero-laterally from the antero-medial aspect of the thigh in plane with the transducer and advanced into the fascial plane containing the SaN, with a confirming ‘pop’ upon entering this space. In difficult cases placement was facilitated by a nerve stimulator to assess the decline of the sartorial twitch upon entering this fascial plane. US visualization of sterile saline injection in relation to the fascial plane also aided placement. After 20 ml 0.375% bupivacaine with 1/200,000 epinephrine was injected, a catheter was advanced 5 cm beyond the needle and its correct position was confirmed by visualization of saline injection in the fascial plane. An infusion of 0.25% bupivacaine at a rate of 8 ml/hr was continued for 72 hours.

Results:Patients had prolonged decreased medial incisional foot and ankle pain and intact quadriceps function that permitted greater postoperative mobility not possible with FNB, that increased patient and surgeon satisfaction. Adjunctive analgesic requirements for the duration of the infusion and risk of catheter migration and infection associated with continuous FNB were reduced.

Discussion:US guided trans-sartorial continuous SaNB differs from continuous FNB for the relief of medial foot and ankle incisional pain because it does not interfere with quadriceps strength and has a lower risk of catheter migration and infection. The technique is easily performed and provides greater postoperative patient mobility than FNB. In combination with continuous sciatic nerve blockade, this technique will provide prolonged analgesia for ambulatory foot and ankle surgical patients and reduce hospital length of stay.