Double-tunneled catheter method for continuous peripheral nerve block

Dear Editor,

Continuous peripheral nerve block provided by an infusion through a peripheral nerve catheter is an attractive option for both the patient and the anesthesiologist. One of the main problems is dislodgement of the catheter, which can occur in up to 10% of cases.[1] Methods used to prevent peripheral catheter displacement are dressings, tissue glue, suturing and tunneling. The benefit of a dressing probably decreases with time, as the dressing becomes less sticky with time, and is interfered with by sweat or by ooze from the catheter site. Additionally, the site of catheter, presence of hairy skin and type of dressing have a large impact on occurrence of catheter displacement. Tunneling has been described as a method of reducing catheter displacement and infection rates, and seems to have a high rate of success.[2,3] Byrne *et al*.[4] compared the force requirement for extraction for peripheral nerve catheters under three different situations, tunneled, tunneled and double-tunneled catheters in a porcine model. They concluded that double tunneled catheters were associated with nearly a fourfold increase in force required for displacement compared with single-tunneled catheters, and a 17-fold increase in force of displacement compared with tunneled catheters in porcine model.

Double tunneling is not much tested in human subjects. It could be because of chances of kinking of catheter at the site of second tunnel, lack of enough space, requirement of special care at the time of removal, and increase in infection rate due to two skin punctures. Infection is unlikely to be a major problem due to its very low incidence in short-term peripheral nerve catheters.[5]

Double-tunneling allows catheter to circle the bridge of skin created between two loops of catheter Figure 1. In our case, we double tunneled the continuous catheter in the infraclavicular region after its placement under ultrasound guidance. We did not face any technical difficulty while inserting it. Insertion required the help of an assistant to stabilize the catheter during the procedure. The catheter was maintained for 48 hours and was removed without any problems. The patient did not complain of any scar formation on successive follow up. Catheter dislodgement is prevented due to the tightening of the bridge of skin in case any untoward force pulls it. This benefit of tunneling is less affected by the site of the catheter or the nature of

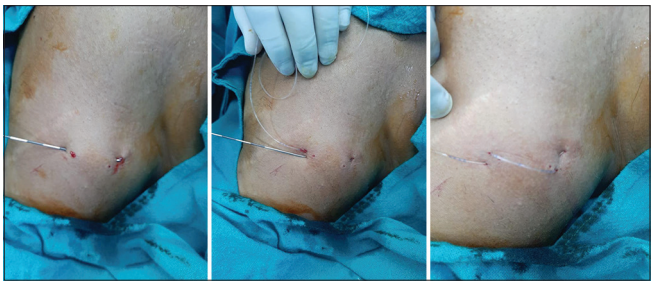

Figure 1: Steps of double tunneling peripheral nerve catheter

the surrounding skin, unlike dressings. We have successfully extended the use of this technique to supraclavicular continuous catheter placements. Double-tunneling is a new technique of peripheral nerve catheter fixation which provides more protection from catheter dislodgement. The incidence of infection and scar formation needs to be studied further.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

Amarjeet Kumar, Chandni Sinha[1], Ajeet Kumar[1], Poonam Kumari[1]

Departments of Trauma and Emergency, [1]Anaesthesia, All India Institute of Medical Sciences (AIIMS), Patna, Bihar, India

Address for correspondence: Dr. Chandni Sinha, All India Institute of Medical Sciences, 112, Block 2, Type 4, AIIMS Residential Complex, Khagaul - 801 505, Patna, India.
E-mail: chandni.doc@gmail.com

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