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Technical Note

Use of fourteen gauge angiocatheter needle in orthopaedics

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ABSTRACT

Backgrounds: Wide-bore angiocatheter is readily available in the hospital in pre-sterilized packed form. There are various uses in medical and surgical field apart from its use for transfusion. Here we are outlining its various uses in orthopaedic surgeries.

Method: Fourteen gauge angiocatheter which internal diameter is 1.3 mm is used in fracture of patella, olecranon to pass the stainless steel (SS) wire, in scaphoid fracture fixation and hip arthroscopy and its efficacy is noted.

Result: Surgical procedure assisted by 14 gauge angiocatheter reduces surgical time, and soft tissues damage and it also helped in scaphoid fixation and hip arthroscopy.

Conclusion: Passing SS-wire through soft tissues and bone causes lots of trouble and time consuming. With the help of angiocatheter it overcomes these problems. So, its use in orthopaedic surgeries are rewarding.

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1. Introduction

Wide-bore angiocatheter is very easily available in a sterile package in the hospitals. Mainly used for transfusion of colloid, crystalloid, blood and blood products. Other than transfusion its use in surgical and medical fields in the form of aspiration of ascitic fluid, pleural tap or any other cavity in body for aspiration of abscess/blood, is frequently used either as a diagnostic or therapeutic.

It is also being used as an assist port in paediatric urology in robotic-assisted laparoscopic surgeries in children.¹ It is also used for needle cricothyrotomy for emergency ventilation.

Use of it in orthopaedics is frequently done in case of joint aspiration and any subcutaneous/intramuscular collection, for various conditions like infections and haematoma.

Here we are outlining the use of 14 gauge angiocatheter needle in various orthopaedic surgeries.

2. Material and methods

Here we have used fourteen gauge, orange colour angiocatheter, which is easily available in hospitals in pre-sterilized packed form. It has internal diameter of 1.3 mm.

We have used it for following surgical procedure...

1-In surgery of fracture of patella, where various surgical procedure are done like circumferential wire loop fixation, Lotke² longitudinal anterior band wiring and Magnusson³ wiring. In all these procedure 16/18 gauge stainless steel wire is used and the wire has to pass through soft tissues and passage through drilled hole in bone. Because of flexibility of

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Fig. 1 – Angiocatheter is used here to pass the wire through patella.

SS-wire it is quite difficult to pass it through the soft tissues and bones. So, in all these cases tip of SS-wire is fitted into the sharp bevelled end of angiocatheter and as the needle is withdrawn, the SS-wire is passed along its required passage (Fig. 1).

2-In surgery of partial patellectomy, where thick non-absorbable suture has to be passed through the drilled holes within the retained proximal fragment of patella. In this circumstance tip of suture is placed at tip of angiocatheter and inserted within the canal and then catheter is withdrawn through the drilled hole and so the suture end at other end of the bone (Fig. 2).

3-Fixation of scaphoid and other small bones are done by Herbert or other headless screws. Accurately passing, a long, very thin (1.1 mm) and flexible threaded guide wire/K-Wire (1 mm) across a fracture line is quite difficult because of wobbling of the guide wire. Moreover this problem is further aggravated by very limited exposure and working on small bones of the body (Figs. 3 and 4). So, here we used angiocatheter needle as a sleeve. Its sharp bevelled end was very easily placed at desired site and then threaded guide wire/K-wire was passed through it easily without any wobbling effect at desired level.

Fig. 2 – Angiocatheter is used in circumferential wiring of patella.

Fig. 3 – A 14 gauge angiocatheter and a guide wire through its needle.

4-In hip arthroscopy where hip joint is located deep to the musculature around it. In that case 14 gauge (G) angiocatheter is first inserted inside the joint under image control and then a thin guide wire is passed through it and then aperture is widened by sequentially passing dilator over it as required for the scope.

5-Similarly like tension band wiring (TBW) of patella it also can be used for TBW of olecranon fracture.

3. Result

Use of angiocatheter in fractures of patella, olecranon, scaphoid and hip arthroscopy gave a better result in term of

Fig. 4 – Angiocatheter is used here as a sleeve to pass the guide wire for scaphoid fracture fixation.

reducing surgical time, reducing soft tissues damage and better alignment of fixation in scaphoid.

4. Discussion

Fourteen gauge angiocatheter needle is very economical, easily available in the hospital and most important it is available in pre-sterilized packet. Its use in medical and surgical condition is well established and documented but its use in orthopaedic surgical management is quite rewarding in various conditions like patella, olecranon fracture fixation, partial patellectomy and scaphoid fracture fixation. Its use reduces surgical time, soft tissues insult and helps in accurate fixation. So we recommend its use in orthopaedics.

Conflicts of interest

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

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