

Transthecal digital block

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SUMMARY

Transthecal digital nerve block is performed by a palmar percutaneous injection of local anaesthetic into the flexor tendon sheath. Total analgesia of the digit is achieved rapidly. This technique was carried out on 46 patients in the accident and emergency department. Successful anaesthesia was obtained in 45 patients. There were no complications.

INTRODUCTION

Regional anaesthesia of a single finger is commonly achieved by ring block (Eriksson, 1979; Quinton, 1989). Transthecal digital block was first described by Chiu in 1990. It was observed that following injection of steroid and lignocaine into the flexor tendon sheath in the treatment of trigger finger, anaesthesia of the entire digit ensued rapidly. Further investigation on cadaver tissue showed that injection of methylene blue into the flexor tendon sheath stained the entire sheath and diffused around the proximal phalanx and stained all four digital nerves.

A prospective study was undertaken using transthecal digital block to provide regional anaesthesia of the finger for minor operative procedures in the accident and emergency department.

METHODS

Over a 2-month period 46 patients attending the A&E department with conditions requiring local anaesthesia to the finger or thumb had transthecal digital block

carried out by the author. A record was made of the volume of local anaesthetic used; the time to loss of pin prick sensation; and any complications that occurred.

Technique

The hand is positioned palm upwards and the injection site is prepared with isopropyl alcohol. The flexor tendon is palpated on the palmar surface over and just proximal to the metacarpo phalangeal joint. It may be made more obvious by gentle flexion of the appropriate finger. A 2-mm syringe with a 25 gauge needle attached is used to introduce the local anaesthetic (lignocaine 1%). The skin is penetrated at an angle of 45 degrees at the level of the distal skin crease of the palm (Fig. 1) just proximal to the metacarpo phalangeal joint, and the needle is advanced to the level of the flexor tendon sheath. If the sheath has been entered local anaesthesia should flow freely when gentle pressure is applied to the plunger. If this does not occur it is likely that the tendon has been entered and the needle should be withdrawn gradually, maintaining pressure on the syringe, until free flow of local anaesthesia commences. Two millilitres of lignocaine are injected, the needle withdrawn and pressure is applied just proximal to the injection site to encourage distal spread. The patient may complain of slight discomfort or a feeling of pressure in the finger as the lignocaine is injected.

The volume of local anaesthetic injected is scaled down appropriately in a child. In this series 1 ml of lignocaine 1% was used for a 7-year-old and 1.5 ml for an 11-year-old child.

RESULTS

The age range of patients who had a transthecal digital nerve block performed was

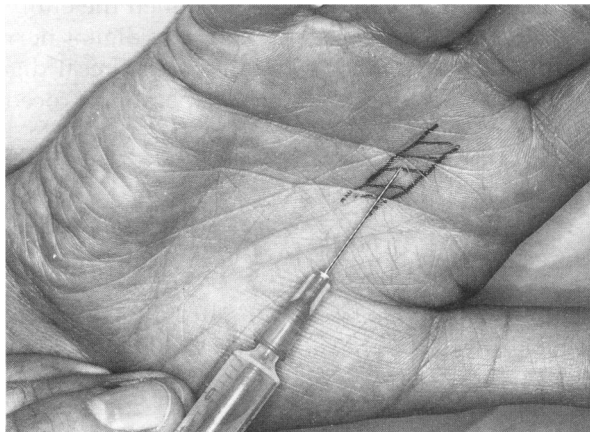


Fig. 1. Site of injection for transthecal digital block of middle finger.

7–77 years with a mean of 32.5 years. Forty-five of the 46 blocks were successful with an average time to loss of pin prick sensation of 3 min 16 s (range 1 min 50 s–4 min 45 s). One failure occurred in an index finger. This was the third block performed in the series and it was felt that the bulk of the local anaesthetic was deposited subcutaneously rather than intrathecally. A ring block was subsequently carried out.

The conditions for which the blocks were carried out are shown in Table 1.

DISCUSSION

Transthecal digital nerve block provides adequate anaesthesia for carrying out painful procedures on the fingers. The volume of local anaesthetic required and the time to loss of pin prick sensation are both less than in conventional ring block (Reichl & Quinton, 1987). The possible danger of interference with the vascular supply of the digit by injection into the confined space at the base of the finger in conventional ring block is avoided. The technique also has the advantage of requiring only one injection.

The theoretical disadvantages of possible introduction of infection to the tendon sheath or injury to the flexor tendon itself are reduced by careful attention to sterile technique and limiting the size of the needle to 25 gauge.

The transthecal digital nerve block is recommended therefore as a rapid, reliable and safe method of obtaining anaesthesia of the finger in the A&E department.

ACKNOWLEDGEMENT

I would like to thank Staff Nurse M. Browning for drawing this technique to my attention.

Table 1. Conditions for which transthecal digital block was performed

Treatment	No. of patients
Repair of laceration	12
Wound debridement	7
Incision of paronychia	6
Removal of foreign body	6
Reduction of dislocation	6
Manipulation of fracture	4
Partial removal of nail	2
Repair extensor tendon	2
Incision pulp abscess	1

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