Supraclavicular brachial plexus block and continuous supraclavicular catheter infusion for successful upper limb immobilisation and analgesia following pedicled groin flap

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The Oxford Bone Infection Unit at the Nuffield Orthopaedic Centre is a UK tertiary and quaternary referral unit for all aspects of bone or joint infection. Patients with chronic osteomyelitis are referred for multidisciplinary input +/- orthoplastic management. Treatment usually comprises surgical excision of infected bone and soft tissue, dead space management, and soft tissue closure.[1] If the defect post-excision is too large for direct closure, flap closure will be required.

Despite the current popularity of free-flap procedures, pedicled flaps remain a reliable and versatile technique in hand surgery worldwide, with low donor-site morbidity.[2] Immobilisation of the upper limb (UL) until division of the pedicle is key to success, with various methods described including axillary block, elastic dressing wraps, plaster and external fixators.[3]

This is a case of successful supraclavicular brachial plexus block (SCBPB) and continuous supraclavicular block (ContSCB) for analgesia and complete upper limb immobilisation following pedicled groin flap.

Case Report

62-year old 79Kg ASA 2 male patient with a distal radius lesion (Fig. 1) treated 30 years prior with excision, radiotherapy and fibular head reconstruction.

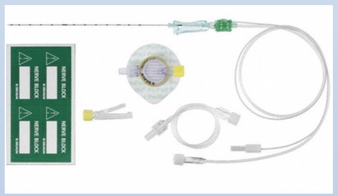
3-month history of discharging wound and visible bone.

Fixed and deviated wrist with overlying ulcer consistent with osteomyelitis and malunion of fibular head bone graft.

PMHx: Non-insulin dependent diabetes mellitus, Hypercholesterolaemia

After multidisciplinary planning, he underwent combined orthoplastic surgical excision of necrotic distal radius, insertion of antibiotics and bone graft substitute, and resurfacing with pedicled groin flap. (Fig. 2)

Fig.1. Osteomyelitis of right distal radius



To ensure good pain relief and decrease risk of flap disruption on emergence from GA, a SCBPB and ContSCB catheter were placed under GA.

Ropivacaine 0.75% 30ml bolus was followed by 0.125% levobupivacaine infusion via nerve catheter. This provided excellent analgesia throughout the case and also ensured smooth emergence from general anaesthesia with complete motor and sensory regional block of the operated right arm for the next 20 hours.

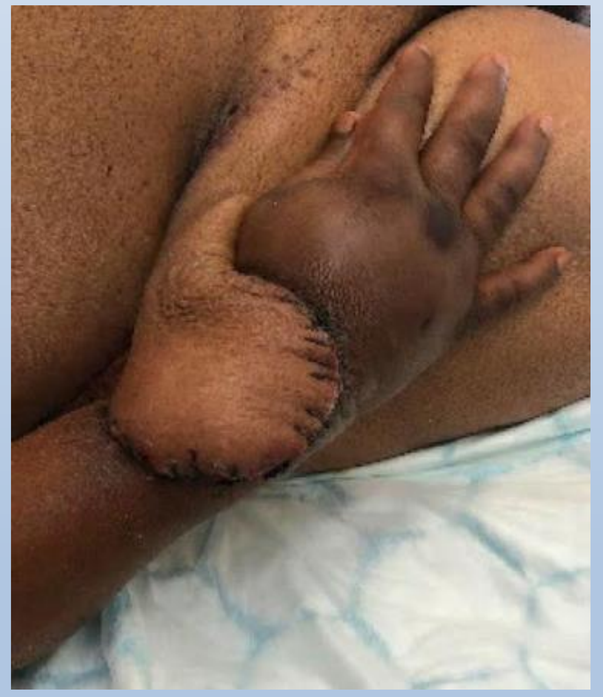


Fig. 2. Pedicled groin flap

Discussion

Anaesthetic planning was vital as wrist movement at time of waking and recovery from GA risked pedicle tension or torsion, and potential flap failure.

While axillary block is described in the literature, the SCBPB ensured motor block from shoulder down and complete immobilisation of the wrist, and also provided excellent regional analgesia for the crucial post-operative period.

Outcome

Pedicled groin flaps require a delay period (2-3 weeks) during which the pedicle flap remains attached to both the recipient and donor sites.[4] After this delay, the pedicle is divided, the donor site closed, and the flap inset.

The patient had his arm physically immobilised for a 3-week period followed by uncomplicated GA for pedicle division (Fig. 3) and closure of donor site. (Fig.4)

There was no recurrence of osteomyelitis at time of review 3 months later.

Fig. 3. Divided pedicled groin flap

Fig. 4. Donor site post closure

Conclusion

Supraclavicular brachial plexus block ensured both upper limb immobilisation and analgesia, thereby contributing to the success of the flap. With practical advantages over the axillary site, we advocate this, in combination with GA, as an appropriate anaesthetic technique for patients undergoing pedicled groin flap procedures.

References:

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