

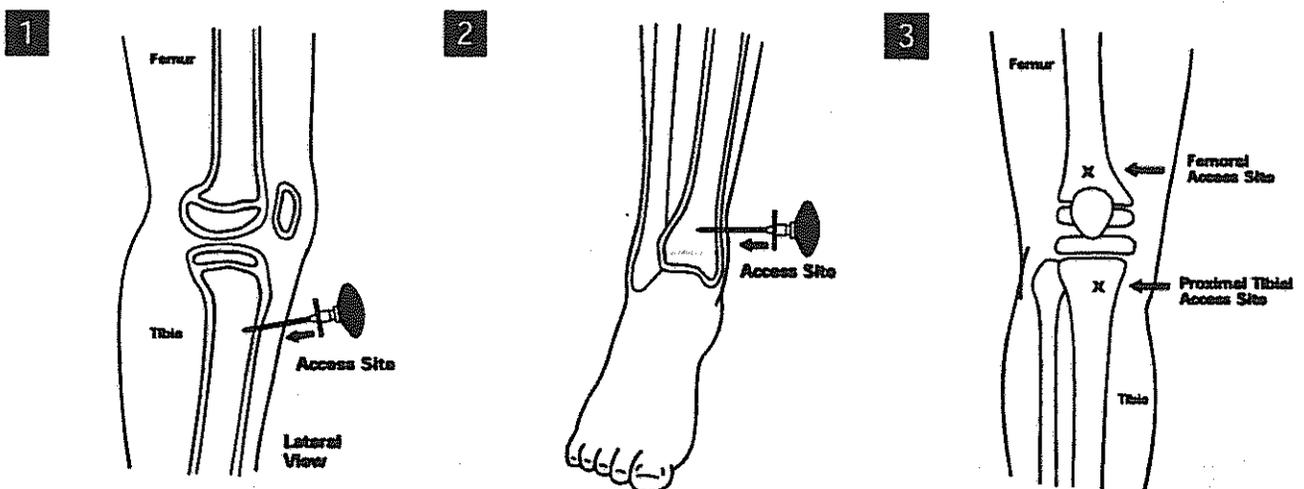
Paediatric Intraosseous Needle and Infusion

Introduction

- Establish rapid venous access in an emergency situation when peripheral venous access is impossible
- Children 6 years or below
- The bone marrow cavity has an extensive non-collapsible vascular network communicating with the systemic circulation.
- All the standard IV drugs and fluids can be administered via the I.O. route
- Bone marrow aspirated can be used for type and screen and other blood tests

Site

- Proximal Tibia (The preferred site)
- Distal Tibia
- Other sites: Distal femur, humerus and sternum can be used in adult (Different I.O. Set)



Equipment

- Sterile gloves and gown
- Antiseptic solution to prepare the skin
- I.O. needle set
- 5ml syringe with NS flush
- I.V. line set
- Dressing, tape and splint

Procedure

1. Preparation of the site

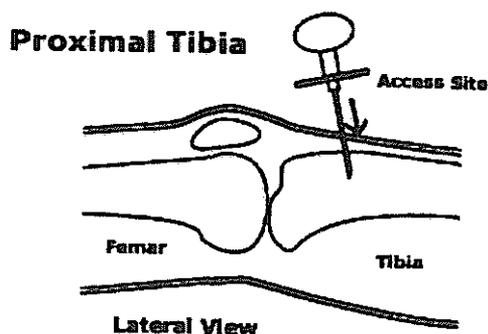
- Universal precaution
- Supine position
- Immobilize the extremity
- Identify the puncture site: Anteromedial surface of proximal tibia, 1-3cm below the tibial tuberosity
- Prepare the site with antiseptic and drape the area
- Consider use of local anaesthetic if time allows

2. Insertion of needle

- Needle handle is held in the palm of the hand while the thumb and forefinger grip the shaft about 1cm from the point
- Firm pressure is applied while using a controlled screwing action until the bone cortex is transversed (approx 1cm or less below the skin)
- Needle should be directed caudal away from the upper tibial epiphysis
- Loss of resistance on entry into bone marrow
- Remove the stylet
- Attempt bone marrow aspiration
- Flush the needle with 5-10ml of NS
- Attach IV tubing for fluids and drugs administration

3. Points should be noted

- Distinctive pop or loss of resistance is felt
- Needle stands without support
- Bone marrow is easily aspirated and fluid can be flushed without subcutaneous swelling



Complications

- Extravasation of fluids and drugs into skin or periosteum
- Blockage of needle if no inner stylet is used
- Cellulitis, skin necrosis and osteomyelitis
- Through and through puncture if advanced too far
- Tibial fracture
- Fat, bone marrow or air emboli
- Compartment syndrome

Contra-indications

Absolute

- Osteogenesis imperfect
- Osteopetrosis

Relative

- Traumatized limb or fracture
- Infection

Further information

1. Insertion of Cook intraosseous needle

www.cookgroup.com

2. I.O. Needle insertion video on Youtube

<http://www.youtube.com/watch?v=JVbPANbgxQM&feature=related>