

### 3) Bedside Procedures - Dr. Hiwa

#### ABC

Esp. in emergency surgical conditions, care of patient must be organized. This simply is expressed as ABCDEF.

#### A: Airway

##### Tracheostomy

- *Definition:* tracheostomy is an operative procedure that creates a surgical airway in the cervical trachea.
- *Indications*
  1. To bypass obstruction
  2. Neck trauma
  3. Subcutaneous emphysema (*air trapped under the skin*)
  4. Palpable fractures (e.g. mid-face, hyoid, thyroid, cricoid, mandible)
  5. Tumor (*not an emergency*)
  6. Bilateral vocal cord paralysis (*cords come to death position*)
  7. Edema
    - Trauma → from intubation
    - Burns
    - Infection
    - Anaphylaxis
  - Indicated to provide a *long-term route for mechanical ventilation* in cases of respiratory failure (not enough oxygen in)
  - To provide *pulmonary toilet* in inadequate cough due to chronic pain or weakness, aspiration and the inability to handle secretions.
  - Prophylaxis (as preparation for extensive head and neck procedures and the convalescent period)
- *Complications*
  - Airway obstruction and aspiration of secretions (rare)
  - Bleeding
  - Damage to the larynx
  - Infection
  - Air trapping in the surrounding tissues or chest. In rare situations a chest tube may be required.
  - Scarring of the airway or erosion of the tube into the surrounding structures (rare)
  - Impaired swallowing and vocal function
  - Scarring of the neck

##### Cricothyroidotomy (*needle, tube, transverse incision-surgical*)

- *Indications*
  - Intubation is not possible via the oral or nasal route
  - Need to avoid neck manipulation (e.g. basal skull/cervical spine injury or fracture)
  - Severe maxillofacial trauma
  - Edema of throat tissues preventing visualization of the cords (e.g. angioneurotic edema, anaphylaxis, burns, smoke inhalation)
  - Severe oropharyngeal/tracheobronchial hemorrhage
  - Foreign body in the upper airway
  - Lack of equipment for endotracheal intubation
  - Technical failure of intubation
  - Severe trismus/clenched teeth
  - Masseter spasm after succinylcholine

- Compared to an emergency tracheostomy
  - quicker
  - easier to perform
  - associated with fewer complications
- There are three techniques:
  - needle
  - intubation (with purpose-built kits)
  - surgical
- Contraindications
  - Availability of a less invasive means of securing the airway
  - Patients < 5 years old (needle technique may be used but formal tracheostomy is preferred)
  - Laryngeal fracture
  - Pre-existing or acute laryngeal pathology
  - Tracheal transection with retraction of trachea into mediastinum
  - Anatomical landmarks obscured by gross hemorrhage/surgical emphysema

## **B: Breathing**

**ET Intubation** (*Easiest, imp*)

**CT Insertion**

## **C: Circulation**

**IV Line**

- Optimal:
  - On the non-dominant arm
  - Away from the joint
  - In straight vein
  - Away from burn, infection
  - Better in upper limb

**Venous cut down**

- *Introduction*
  - It is an emergency procedure that is potentially life-saving.
  - It is taught in the ATLS (Advanced Trauma Life Support) course and might often need to be performed by the inexperienced in severely ill trauma patients.
  - It is one of the few modern surgical procedures in which speed is a crucial factor due to the presence of hypovolemic shock.
  - An important drawback is the difficulty in cannulation of the vein. We describe simple modifications in the conventional technique that make the procedure safer and faster.
- *Contraindications*
  - Coagulopathy or bleeding diathesis
  - Vein thrombosis
  - Overlying cellulitis

- The *great saphenous vein* at the ankle is commonly used for the procedure; although other sites are also available. After isolation of the vein in the usual manner, a loop of thread is passed under the vein.
- The apex of the loop is then divided.
- Then suture the skin
- Secure the catheter
- Dress the wound
- *Complications*
  - Cellulitis
  - Hematoma
  - Phlebitis
  - Perforation of the posterior wall of the vein
  - Venous thrombosis and nerve and arterial damage

### **Peripheral Intravenous Central Catheters**

- Although the lines are placed peripherally, usually in the antecubital or superficial saphenous vein, the distal tip remains in a large central vein.
- PICC lines are indicated in children who require intermediate-term IV access for prolonged home or hospital therapy
- PICC placement should be attempted as soon as the need for intermediate-term access is apparent.

### **Umbilical artery catheters and umbilical vein catheters**

- Useful in the first few days of life
- The umbilical vein can be used for access during the first 5-7 days but is rarely used beyond 7 days.
- Both and UACs and UVCs can be used: *UAC* is used for *blood pressure monitoring* and *UVC* is used for *central venous pressure monitoring*.

### **Central lines**

1. Measurement of CVP
  2. To deliver larger volumes of irritating solutions such as antibiotics, blood products, parenteral nutrition media and sclerosing chemotherapeutic agents.
  3. If patients need prolonged IV access
  4. When peripheral access cannot be achieved
- However, in an emergency situation, an intraosseous needle is probably the primary choice according to Pediatric Advanced Life Support (PALS) guidelines.

### **D: Dysfunction**

- To diagnose dysfunction of kidney
- Circulation
- Treatment as rehydration