Standard Operating Procedure

ICD Tube Insertion

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1. Purpose

To provide a standardized approach for safe insertion and management of intercostal chest drain (ICD) in patients with pleural pathology, ensuring effective drainage and minimizing complications.

2. Scope

Applicable to all healthcare providers (ER doctors, surgeons, anesthetists, medical officers, and nursing staff) involved in the management of patients requiring ICD insertion.

3. Responsibilities

- Physician/Surgeon: Assess indication, obtain consent, perform ICD insertion.
- MO/Nursing Staff: Assist with procedure, monitoring, and tube care.
- Anesthetist (if needed): Provide analgesia or sedation.

4. Indications

- Pneumothorax (traumatic, spontaneous, tension)
- Haemothorax
- Pleural effusion (malignant, infective, empyema)
- Postoperative drainage (thoracic/upper abdominal surgery)
- Chylothorax

5. Contraindications (Relative)

- Uncorrected coagulopathy
- Severe skin infection at insertion site

6. Procedure

A. Preparation

- Explain procedure, obtain informed consent.
- Check coagulation profile if possible.
- Monitor vitals, provide oxygen if required.
- Analgesia ± sedation (local infiltration with lignocaine).
- Position: Patient supine/semi-reclined, arm raised above head.

B. Equipment Required

- Sterile chest tube (appropriate size: 28–32 Fr for adults, smaller for children)
- ICD tube insertion set
- Underwater seal drainage system
- Antiseptic solution, sterile drapes, gloves, gown

C. Insertion Technique

1. Identify safe triangle.
2. Prepare and drape site aseptically.
3. Infiltrate local anesthetic into skin, subcutaneous tissue, periosteum.
4. Make 2–3 cm incision over rib.
5. Use artery forceps for blunt dissection through muscle layers into pleural cavity.
6. Insert gloved finger to confirm entry.
7. Advance chest tube into pleural space (upward for pneumothorax, downward for fluid/hemothorax).
8. Connect tube to underwater seal drain immediately.
9. Secure tube with sutures and apply sterile dressing.

D. Post-Insertion Care

- Confirm placement with chest X-ray.
- Monitor vitals, oxygenation, drainage volume, and bubbling.
- Ensure water seal remains intact and below chest level.
- Pain management.
- Observe for complications.

E. Removal of Tube

- Criteria: Minimal drainage (<100 ml/3 days for fluid), no air leak, lung fully expanded on X-ray.

- Remove during end-expiration or Valsalva maneuver.

- Apply occlusive dressing.

- Observe patient for recurrence.

7. Documentation

- Admission notes (history, examination findings)
- Complications (if any).
- Consent form
- Procedure notes
- Daily progress notes
- Discharge summary and follow-up instructions