

Chest Drainage Tubes: Tool for Managing Thoracic Pathologies

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Description

Chest drainage tubes, also known as thoracotomy tubes or chest tubes are crucial medical devices used to manage a variety of thoracic pathologies. These tubes play a vital role in removing air, blood, or other fluids that accumulate within the pleural space, allowing for improved lung expansion and preventing potentially life-threatening conditions.

This article provides an overview of chest drainage tubes, their indications, insertion techniques, maintenance, and potential complications.

Indications for chest drainage tubes

Chest drainage tubes are used in various clinical scenarios, including:

Pneumothorax: Chest tubes facilitate the evacuation of air from the pleural cavity, re-establishing negative intra thoracic pressure and promoting lung re-expansion.

Hem thorax: Chest tubes help evacuate blood from the pleural space, reducing the risk of clot formation, infection, and impaired respiratory function.

Pleural effusion: Chest drainage tubes aid in the removal of excessive fluid accumulation, such as in congestive heart failure, malignancies, or infections.

Empyema: In cases of infected pleural effusion, chest tubes are used to drain the purulent fluid, promoting resolution and preventing abscess formation.

Chest tube insertion techniques

Chest tube placement requires careful consideration and adherence to sterile techniques. The procedure typically involves the following steps

Patient preparation: The patient is positioned appropriately, and the area of insertion is sterilized and anesthetized.

Incision and dissection: A small incision is made between the ribs, followed by dissection of the soft tissues down to the pleural space.

Tube insertion: A trocar or blunt-tipped introducer is used to penetrate the parietal pleura and enter the pleural space. The tube is then advanced over the introducer and secured in place.

Chest drainage system connection: The distal end of the chest tube is connected to a drainage system that allows for fluid evacuation, usually a closed underwater seal or a digital system.

Verification and securement: Correct positioning of the chest tube is confirmed by chest X-ray. The tube is then secured to the skin with sutures or an adhesive dressing.

Chest tube maintenance and monitoring

Proper maintenance and monitoring of chest drainage tubes are essential for effective management. Key considerations include:

Drainage system evaluation: Regular assessment of the chest drainage system is necessary to ensure appropriate suction levels, proper functioning of the underwater seal, and absence of air leaks.

Drainage measurement: Regular measurement and recording of fluid output help monitor patient progress and identify any sudden changes.

Chest tube site care: The site should be inspected for signs of infection or dislodgement, and proper aseptic techniques should be followed during dressing changes.

Patient mobility: Patients with chest tubes require careful positioning and mobility management to prevent accidental dislodgement or tension on the tube.

Patient education: Patients and caregivers should be educated on chest tube care, signs of complications, and instructions for emergency situations.

Potential complications and troubleshooting: Although chest drainage tubes are generally safe and effective, complications may arise. Common complications include infection, bleeding, tube dislodgement, and lung or organ injury. Troubleshooting measures involve close monitoring, early recognition of potential issues, and prompt intervention. Proper education of healthcare providers and patients regarding potential complications and the necessary steps to address them is crucial for optimal patient outcomes.

Conclusion

Chest drainage tubes play a pivotal role in managing thoracic pathologies such as pneumothorax, hem thorax, pleural effusion and empyema. Understanding their indications, insertion techniques, maintenance, and potential complications is essential for healthcare professionals involved in thoracic care.

By effectively utilizing chest drainage tubes, clinicians can alleviate symptoms, prevent complications, and enhance patient outcomes. Continued research and technological advancements in chest drainage systems will further improve their safety, efficacy, and overall patient comfort.