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Potential Indications of Chest Drain Systems and Key Points for Treating Patients with Chest Drains

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INTRODUCTION

Under water sealed drainage (UWSD), thoracic catheter, tube thoracostomy, and intercostal drain are all names for chest drains. A technique for removing air and fluids from the pleural space is provided by chest drains. The goal is to develop a mechanism that only allows fluid or air to exit the pleural space while preventing fluid or air from the outside from entering it. An underwater seal is used to accomplish this. They use flexible plastic tubes that are inserted through the chest wall and into the pleural space between the 5th and 6th intercostal spaces in the mid-axillary line, venting the space and allowing air to return. The accumulation of CO2 levels in the bloodstream stimulates breathing.

DESCRIPTION

There is an increase in interthoracic space and a decrease in interthoracic pressure when the diaphragm descends. Because the pressure outside the lungs is greater than the pressure inside, this decrease in intrapulmonary pressure also draws air into the lungs [1]. Feeble stomach diminishes the accessible volume making it harder to attract air and furthermore builds the gamble of creating pneumonia. The pleura, a layer of fluid between the lungs and the rest of the body, surrounds them. The parietal pleura connect to the ribs, whereas the visceral pleura connect to the lungs [2]. The negative pressure that causes the lungs to expand is caused by the elasticity of the lungs, which want to recoil with the pleura. The intrapleural pressure is always negative, but it is higher during inspiration (-8 cm H2O) and lower during expiration (-4 cm H2O) when the diaphragm relaxes. A chest drain will be required to restore the proper pressures if this intrapleural pressure is lost, such as during a stabbing. This loss of negative pressure will cause the lung to collapse. Air is prevented from returning to the pleural space by the underwater seal [3]. In most cases, the drainage (or collection) chamber's distal end is 2 centimeters below the water's surface level. The drainage chamber experiences a hydrostatic resistance of +2 cmH20 as a result of this. Positive intrapleural pressure is typical. However, intrapleural pressure becomes positive when air or fluid enters the pleural space. When the intrapleural pressure is greater than +2 cmH20, air enters the drainage chamber from the pleural space. As a result, air travels along a pressure gradient from a higher to a lower pressure. A vent in the drainage chamber lets air out and doesn't build up inside the chamber [4]. Liquids will deplete by gravity into the waste chamber, and won't spill once more into the pleural space assuming the container is constantly kept beneath the level of the patient's chest. The tubing should be briefly double clamped as close to the patient as possible if the bottle needs to be lifted above the chest.

CONCLUSION

To reduce clamping time, the movement and unclamping should occur as quickly as possible. Because the procedure is painful, intravenous anesthesia and local anesthetic are required. Because it has the potential to exacerbate the patient's clinical condition, the use of sedation should always be discussed with a senior emergency physician.

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CONFLICT OF INTEREST

The author declared no potential conflicts of interest for the research, authorship, and/or publication of this article.

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