A Novel Mediastinal Drainage Tube for Mediastinitis

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Mediastinitis is a life-threatening disease, and effective drainage is needed to treat mediastinitis with abscess formation. We recommend an alternative drainage method using chest tube binding with a Silastic Penrose drainage tube. The use of a Silastic Penrose drainage tube may help to manage mediastinitis with abscess formation. This method facilitates effective draining and prevents tissue adhesion.

Key words: 1. Mediastinitis
2. Mediastinal abscess

Mediastinitis is a highly lethal disease. Prompt diagnosis is paramount, and aggressive surgical mediastinal drainage is the treatment of choice [1]. Most acute mediastinal infections result from either esophageal perforation or descending necrotizing mediastinitis from odontogenic deep neck infection [2]. Long-term effective drainage is needed until the esophageal perforation site heals or the infection leading to acute mediastinitis is controlled.

Wide-spectrum antibiotics and total parenteral nutrition are also helpful in the management of acute mediastinitis [3]. However, effective surgical drainage is considered to be the primary principle of mediastinitis management. Mediastinal abscesses usually form with multiple pus loculations.

In thoracic surgery, surgeons have frequently used chest tube drainage for the evacuation of air, blood, and purulent pleural effusions. A chest tube has several holes for effective drainage at its distal part. However, chest tubes are made with hard silicone material. A more flexible drainage tube may help ensure effective drainage.

We have employed another method for pleural space drainage, in which a Silastic Penrose drainage tube is linked with the distal part of the usual chest tube by suturing. The Silastic Penrose drainage tube gives us the ability to place the tube at the loculating space and creates a patent space for drainage while preventing tissue adhesion. The longitudinal Silastic Penrose drainage groove keeps the space patent in order to prevent adhesion processes.

The connection is made with large-bored non-absorbable sutures between the chest tube and the Silastic Penrose drainage tube (Fig. 1). We customized the Silastic Penrose drainage tube portion with multiple oblique half-cuts for more effective drainage (Fig. 2).

We recommend the use of three fixations between the chest tube and the Silastic Penrose drainage tube. Large-bore sutures are preferred to fix the tube. We have used this chest tube in the management of acute mediastinitis for the last 10 years. Over 20 patients have been treated with this drainage tube (Fig. 3). This type of chest tube may be another method
The drainage tube is made with a chest tube and a Silastic Penrose drainage tube. The suture is performed three times using large-bored, non-absorbable material.

Fig. 2. Diagonal cuts are made on the Silastic Penrose drainage tube in an alternating fashion for effective drainage. The diagonal cuts should not be larger than one half of the width of the diameter of the Silastic Penrose tube.

Fig. 3. This computed tomography image shows (A) a mediastinal abscess and (B) mediastinal drainage using a chest tube with a Silastic Penrose drainage tube in the mediastinal space.

for managing mediastinal abscesses.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

REFERENCES