32.2°C or less [5]. Aggressive efforts must be undertaken if patients with accidental cardiac arrest have any chance to survive. The most efficient technique for rewarming is cardiopulmonary bypass because it provides both rewarming and circulatory support [4]. Unfortunately, facilities for extracorporeal rewarming are not always available and other rewarming techniques have to be used. We do not have cardiopulmonary bypass or extracorporeal membrane oxygenation therapy available in our hospital. To our knowledge, there are 14 case reports (1966–2004) of patients with accidental hypothermic cardiac arrest who were rewarmed with thoracic lavage. Of these patients, 4 (29%) died within 2 weeks of hospital admission. The core temperature was 22°C or less in 3 patients (21%). Nine patients (64%) presented with ventricular fibrillation, and the remaining 5 (36%) presented with asystole. Of the 5 patients with asystole, 3 died and only 1 made a full recovery [6].

We describe a successful resuscitation of a patient with deep accidental hypothermia (core temperature of 22°C) and asystole. This was achieved by internal cardiac massage and thoracic lavage. Unfortunately, after successful rewarming and almost complete neurologic recovery, the patient died of pancreatitis 39 days after his hospital admission. Hypothermia has been documented as a precipitating factor for pancreatitis. About half of patients with hypothermia have elevated serum amylase levels, and postmortem studies of patients with accidental hypothermia have shown evidence of acute pancreatitis in 20% to 30% of cases [7]. Our patient most probably also had a history of alcohol abuse, which is a well-known risk factor for the development of acute pancreatitis.

In conclusion, victims of severe hypothermia with cardiac arrest can be effectively treated using prolonged cardiac massage and thoracic lavage in hospitals that are not suitably equipped for cardiopulmonary bypass procedures.

References

Chest Tube Entrapment: A Simple Solution for Technical Error
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Unrecognized chest tube entrapment by surgical closure is a technical error. We present a rare case of chest tube entrapment that was successfully treated with a simple and safe solution in an elderly man after coronary artery bypass grafting (CABG). We visualized the suture using a small endoscope through the chest tube and incised it with the help of thoracoscopic scissors. The tube was then removed without the need for surgical exploration.


Chest tube placement is a requirement after coronary artery bypass grafting (CABG) to drain the mediastinal and pleural spaces. Although rare, this routine part of the operation is not without its own complications. For instance, simple yet devastating chest tube entrapment by means of suture does occur. It is an avoidable complication with diligent suture technique. Once it occurs, it poses a therapeutic dilemma to the attending surgeon. We present a simple and safe solution to this problem.

A 64-year-old man with known 3-vessel coronary artery disease underwent CABG. Before sternotomy closure, 2 standard 32F chest tubes were inserted into the mediastinal and left pleural spaces. In an attempt to remove the mediastinal tube on postoperative day 2, we encountered significant resistance, which led us to suspect chest tube entrapment. We inserted a small laparoscopic scissors (5 mm), together with a flexible pediatric 3-mm endoscope through the lumen (Fig. 1), and the culprit (Fig. 2) was identified and released (Fig. 3). The mediastinal tube was then removed in the usual manner without any complication. Our patient had an uneventful recovery and he was discharged home on day 6 postoperatively.

Comment
Unintentional sutured chest tube is a rare iatrogenic complication, with an incidence of 0.6% after median sternotomy [1]. Such an error is a dilemma to the attending surgeon because reopening the wound is a concern to both patient and surgeon. This minor but unforgiving mistake

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usually occurs from rushing to finish the operation and most of the time involves junior surgeons.

Chest tube entrapment can be classified into 3 types [2]. Type I is suture through the wall of the tube; type II is suture through the tube, and type III is suture around the tube. Our case falls into type II. As mentioned, 5-mm thoracoscopic scissors was inserted next to a pediatric 3-mm endoscope, with the tip of the scissors ahead of the endoscope. Once the suture was visualized, the scissors was used to cut the suture opened. The previously trapped mediastinal tube was then removed in the usual manner without any difficulty.

A few other techniques have been reported in the literature. One technique advocated the use of holmium laser to cut the suture [2]. This, however, is more expensive and not available in many centers. Another technique described was a blind technique to incise the suture by means of thoracoscopic scissors [3]. This technique is dangerous in our view because it may result in injury if not carefully performed, especially in the hands of young and inexperienced surgeons. Our technique, however, is suitable only for chest tube size 32F and larger and for type II tube entrapment.

In conclusion, such a potential complication must be kept in mind. Surgeons should always have proper visualization before embarking on any decision to remove a trapped chest tube. Other than operative approaches and techniques, interaction of devices, instruments, and augmented risks need to be taken into consideration.

References

Salvage Operation for Late Recurrence After Stereotactic Body Radiotherapy for Lung Cancer: Two Patients With No Viable Cancer Cells

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We report two patients who underwent salvage lung resection for suspected local recurrence on computed...