

THE 'CLAMSHELL' APPROACH TO EMERGENCY DEPARTMENT THORACOTOMY

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Dear Sir,

Emergency department (ED) thoracotomy is a resuscitative procedure performed when trauma patients are too unstable to be transferred directly from the resuscitation room to the operating theatre.⁽¹⁾ This procedure aims to relieve tension or tamponade physiology, achieve proximal haemostasis control and restore circulation.⁽²⁾

A 16-year-old man had jumped from the fifth level of an apartment building. When attended to by the Emergency Medical Services, he was described as semi-conscious, confused and combative. At the ED, he was intubated but shortly after went into pulseless electrical activity. ED thoracotomy was performed by making a wide incision extending across the chest, along the fourth intercostal space from midaxillary to midaxillary and through the sternum. A No. 10 scalpel was first used to incise the skin and subcutaneous tissue across the chest from the thoracotomy sites to the sternum, following the convexity of the rib space. Dissection through deep fascia, intercostal muscles and parietal pleural into the pleural cavity was done with curved Mayo scissors, and the sternum was cut with straight Mayo scissors, thus completing the 'clamshell' thoracotomy. The thoracic cavity was then exposed by means of a sternal retractor placed at both ends of the cut sternum.

The pericardium had a large, tense, bluish appearance, which indicated pericardial tamponade. A small incision of the pericardium was done anteriorly and the rest of the pericardium was blunt-dissected inferiorly and superiorly to relieve the tamponade. Upon inspection, the heart had a ruptured right atrium measuring about 1.5 cm. The edges of the rupture were clamped off with an arterial forceps and internal cardiac massage was initiated. Bright red blood was then seen collecting actively within the right haemothorax, indicating the possibility of a pulmonary laceration. The right lung was mobilised by blunt dissection through the inferior pulmonary ligament, followed by a right lung twist, thus successfully arresting haemorrhage.

The findings from the operating room were a ruptured right atrium appendage and a right lung laceration. The repair was successful and the patient survived closure. In conclusion, the 'clamshell' incision is a good first choice for ED thoracotomy. Advantages of this incision include: (a) rapid and easy access to all structures within the thoracic cavity with one incision; (b) improved visualisation, assessment and identification of injuries within the thorax; and (c) immediate exposure of the right hemithorax and that it allows manipulation of right thoracic structures.⁽³⁾

Yours sincerely,

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