

CARDIOTHORACIC TRAUMA

A Scandinavian Perspective

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av

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- I. Rashid MA, Wikström T, Örténwall P.
Nomenclature, classification, and significance of traumatic extrapleural hematoma.
J Trauma 2000; 49:286-290.
- II. Rashid MA, Örténwall P, Wikström T.
Cardiovascular injuries associated with sternal fractures.
Eur J Surg 2001; 167:243-248.
- III. Rashid MA, Wikström T, Örténwall P.
Outcome of lung trauma.
Eur J Surg 2000; 166:22-28.
- IV. Rashid MA, Wikström T, Örténwall P.
Cardiac injuries: a ten-year experience.
Eu J Surg 2000; 166:18-21.
- V. Rashid MA, Lund JT.
Trauma to the heart and thoracic aorta: the Copenhagen experience.
Interact Cardiovasc Thorac Surg 2003; 2:53-57.



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Abstract

Background: Trauma in general is a major cause of morbidity and mortality worldwide, and causes more loss of productive years than ischemic heart disease and malignancy together. Cardiothoracic trauma occurs in 60% of multitrauma patients and is 2-3 times more common than intra-abdominal visceral injuries. It constitutes 25% of traumatic deaths and contributes significantly to at least another 25% of these fatalities. Though only about 15% of chest trauma requires operative intervention, a considerable number of preventable deaths occur due to inadequate or delayed treatment of otherwise an easily remediable injury. **Aims of the study:** The aim of this study was to describe rare but serious and sometimes fatal entities in patients with cardiothoracic trauma sustained in two Scandinavian countries, and to determine the outcome. **Patients and Methods:** This study is a retrospective review of 496 patients of which 477 patients with significant cardiothoracic trauma managed during a ten-year period, between January 1988 and December 1997 (Sahlgrenska University Hospital/Östra, Gothenburg, Sweden) and 19 patients treated between January 1995 and December 2001 (Copenhagen University Hospital/Rigshospitalet, Copenhagen, Denmark). Age, gender, mechanism of injury, co-morbidity, risk factors, clinical diagnosis, associated injuries, complications, treatment, length of hospital stay and follow-up were recorded. Injury severity score (ISS) was calculated using the 1990 Abbreviated Injury Scale **Results:** The mechanisms of injury in penetrating trauma were knife stabs and in blunt trauma were mainly motor vehicular crashes and falls. Associated rib fractures in patients with traumatic extrapleural hematoma (TEH) were found in 31/34 (88.2%), and more than 50% had an associated hemothorax. No cardiovascular injuries have been found in patients with sternal fractures. All patients with penetrating lung injuries survived without major sequelae. ISS averaged 14.9 ± 9.5 SD in all survivors versus 49.9 ± 13.6 SD in those who died ($p < 0.0001$). All patients with penetrating ventricular wounds presented with pericardial tamponade. The incidence of blunt cardiac injury was very low in both the Swedish and Danish centers. Eight patients with aortic ruptures were operated on using left heart bypass and one with cardiopulmonary bypass. One patient had postoperative renal failure, but no incidence of paraplegia. **Conclusions:** This study suggests a nomenclature, and classification of TEH, and depicts its clinical significance. Sternal fractures are not reliable indicator of heart or aortic injuries. Good outcome in penetrating injuries to the lungs can be obtained by an aggressive approach including emergency room thoracotomy when needed. The study reflects the Swedish and Danish experiences of heart trauma: there were few cases, alcohol and drug misuse is the principal risk factor, and there were no gunshot wounds. Left heart bypass is recommended if paraplegia is to be prevented in managing patients with traumatic rupture of the thoracic aorta.

Key words: Cardiothoracic trauma, Trauma, Extrapleural hematoma, Sternal fractures, Heart and lung contusions, Cardiac, pulmonary, and thoracic aortic injuries, Urgent or emergency room/department thoracotomy, Sternotomy, Paraplegia, Outcome.

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