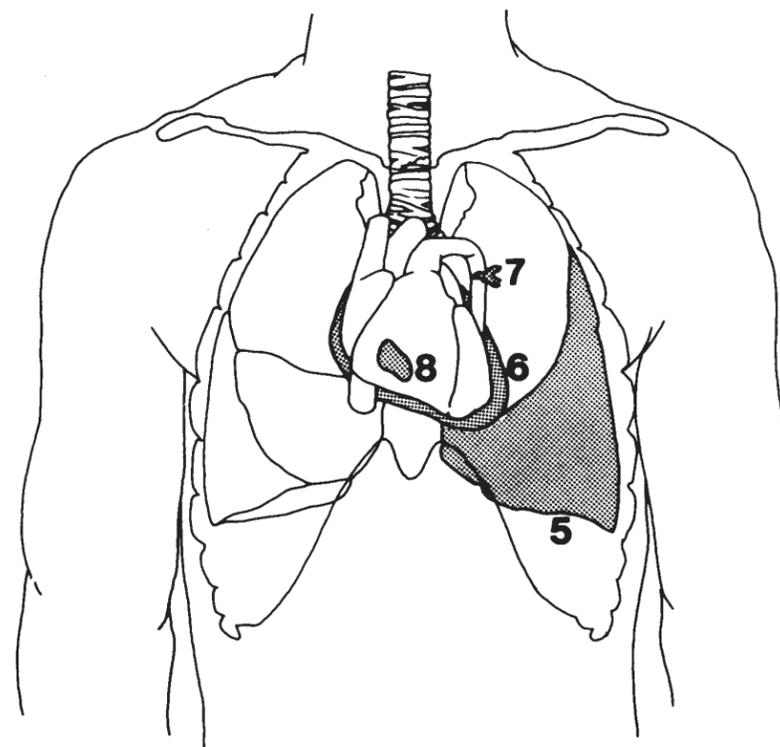
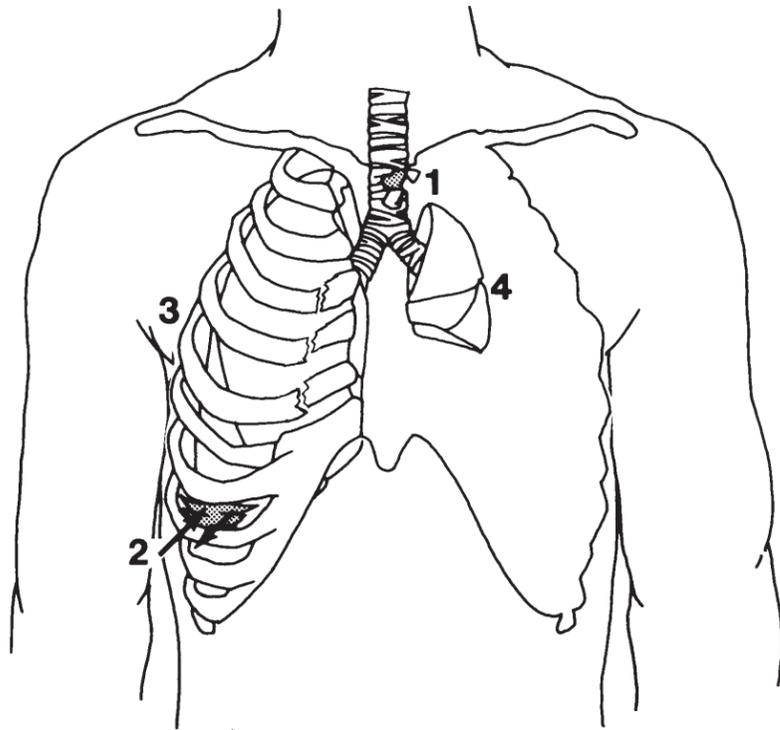


# Managing Life-Threatening Thoracic Injuries

## Injury: Physiologic Disturbance

### Goal: To Establish and Maintain Adequate Oxygenation, Ventilation, and Circulation



Injury	Diagnosis	Therapy
<b>Ventilatory Compromise</b>		
1 Tracheobronchial disruption .....	<ul style="list-style-type: none"> <li>Hypoxia plus inability to move air</li> <li>Chest does not move with ventilation</li> <li>Hemoptysis, subcutaneous emphysema, or both may be present</li> </ul>	<ul style="list-style-type: none"> <li>Intube over a flexible bronchoscope</li> <li>Perform tracheostomy<sup>A</sup></li> </ul>
2 Open pneumothorax (sucking chest wound) ....	<ul style="list-style-type: none"> <li>Hypoxia plus chest wound</li> <li>Sound of air passing in and out through chest wound</li> </ul>	<ul style="list-style-type: none"> <li>Apply occlusive dressing (Vaseline gauze plus sponge)</li> <li>Insert chest tube at site remote from wound<sup>A</sup></li> </ul>
3 Flail chest .....	<ul style="list-style-type: none"> <li>Hypoxia and impaired ventilation</li> <li>Paradoxical chest movement</li> <li>Multiple rib fractures (confirmed on roentgenogram)</li> </ul>	<ul style="list-style-type: none"> <li>Is respiration compromised? Yes: Perform endotracheal intubation No: Observe patient and control pain</li> </ul>
<b>Circulatory and Ventilatory Compromise</b>		
4 Tension pneumothorax .....	<ul style="list-style-type: none"> <li>Respiratory distress (cyanosis is a later finding)</li> <li>Unilateral absence of breath sounds</li> <li>Distended neck veins common<sup>B</sup></li> <li>Tracheal deviation to opposite side</li> <li>Hypotension may be present</li> </ul>	<ul style="list-style-type: none"> <li>Insert 18-gauge needle into second interspace at midclavicular line</li> <li>Insert chest tube into fifth interspace if air escapes or if patient improves with needle insertion</li> </ul>
5 Massive hemothorax .....	<ul style="list-style-type: none"> <li>Respiratory distress and hypotension</li> <li>Decreased breath sounds plus dullness to percussion</li> <li>Diagnosis confirmed on roentgenogram</li> </ul>	<ul style="list-style-type: none"> <li>Replace volume</li> <li>Insert chest tube<sup>A</sup></li> </ul>
<b>Circulatory Compromise</b>		
6 Cardiac tamponade .....	<ul style="list-style-type: none"> <li>Shock plus cyanosis</li> <li>Distended neck veins<sup>B</sup></li> <li>Bilateral breath sounds present</li> </ul>	<ul style="list-style-type: none"> <li>Perform pericardiocentesis for temporary therapy</li> <li>Perform thoracotomy for definitive therapy</li> </ul>
7 Aortic disruption .....	<ul style="list-style-type: none"> <li>History of blunt trauma</li> <li>Suspicious chest roentgenogram<sup>C</sup></li> <li>Aortography is diagnostic (computed axial tomographic scan less sensitive)</li> </ul>	<ul style="list-style-type: none"> <li>Repair during operation</li> </ul>
8 Myocardial contusion .....	<ul style="list-style-type: none"> <li>Hypotension, dysrhythmia, or both are most common manifestations</li> <li>Echocardiogram, electrocardiograms, cardiac enzymes</li> </ul>	<ul style="list-style-type: none"> <li>Admit for cardiac monitoring</li> </ul>

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Because each of these conditions are immediately life-threatening, only minutes may be available for diagnosis and therapy. Diagnosis is usually straightforward and is based on vital signs, physical examination, and an upright chest roentgenogram.

**A.** Definitive therapy generally requires operative therapy.  
**B.** Distended neck veins are commonly observed in patients with tension pneumothorax, as well as in patients with pericardial tamponade.  
**C.** Radiologic findings: (1) widened mediastinum, (2) fractures to first and second ribs, (3) obliteration of aortic knob, (4) deviation of trachea to right, (5) pleural cap, (6) elevation and rightward shift of right mainstem bronchus, (7) depression of left mainstem bronchus, (8) obliteration of space between pulmonary artery and aorta, and (9) deviation of esophagus (nasogastric tube) to right.