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Thoracic Penetrating Wounds with Cardiac Injury: A Single-Center Experience

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Abstract

Background: Management protocols for patients with penetrating cardiac injury have undergone a dramatic transition during the last decades. However, even today cardiac trauma remains a major medical problem.

Methods: Retrospective single-center case series study, 41 patients with precordial wounds hospitalized at the Institute of Emergency Medicine, Chisinau, period 2005-2020. Mean age - 45.8 ± 8.9 years, M:F/19.5:1. Traumatic event: stabbing (82.9%,n=34) or gunshot wound (17.1%,n=7). Preoperative paraclinical examinations: electrocardiography, chest X-ray, FAST, pleurotomy, pericardial puncture, and thoracoscopy.

Results: 36 (87.8%) patients were hemodynamically unstable at hospitalization, and 19 (52.8%) were immediately transferred to the operating room. Preferred surgical access: left anterolateral thoracotomy - 26 (63.4%), right anterolateral thoracotomy - 13 (31.7%), and left posterolateral thoracotomy - 2 (4.9%). Non-penetrating lesions were discovered in 5 (12.2%) while penetrating trauma in other 36 (87.8%) cases, most frequently the right ventricle being injured. Additional intrathoracic lesions discovered in 29 (70.7%) patients: pulmonary parenchyma rupture - 25 (86.2%), internal mammary artery injury - 3 (10.3%), and intercostal artery injury - 1 (3.5%). The average length of stay was 13.2 ± 4 days, including stay in the Intensive Care Unit - 2.9 ± 1.2. Mortality rate -17.1% (n=7).

Conclusions: Successful cardiac suture determined the survival rate of 82.9%. Lethality increases proportionally to the severity of the cardiac injury, the volume of blood loss, and damage to the right vs left heart chambers.

Key words: Thoracic wound, cardiac injury, hemodynamic stability, cardiac suture, surgical treatment