DIAPHRAGMATIC TRAUMA

József Furák
University of Szeged, Hungary

A diaphragmatic trauma (DT) can develope in cases of thoraco-abdiminal injuries and it can be associated with other organs injuries in very high chance. In some cases the DT itself can cause life-threatening complications, but generally the outcome of the injury with DT depends on the lesions and complications of the associated organs lesions. The aetiology of the DT can be blunt diaphragmatic injuries (37%) and penetrating injuries (63%): decelerating motor vehicle accidents, falls from great heights and crushing injuries to the lower chest and upper abdomen are the most frequent causes in blunt diaphragmatic injuries, and stab and gunshot wounds are the most common causes of penetrating injuries. The diaphragmatic trauma (DT) was around 0.5% of all trauma patients and in 1.9% amoung blunt trauma patients,and it is located most commonly on the left side (80%). The diagnosis is sometimes very difficult: a chest X-ray can verify the DT only in 25-70% of cases, but the specificity of a multidetector computed tomography (MDCT) was 100% and 83% for left and right-sided ruptures. The proposed classification system for diaphragmatic injury and its incidences are as follows: acute diaphragmatic herniation (30.4%); tears (47.8%); and contusions (21.7%). When the DT is a part of a polytrauma, the management of the patient must be done by the ATLS (Advanced Trauma Life Support) rules. If during the primary survey a resuscitative thoracotomy or laparotomy is indicated, the diahragm rupture could be reconstructed after the treatment of the life-threatening injuries. If the primary survey can be managed without resuscitative thoracotomy or laparotomy and it is completed and the patient is stable, the second survey can be performed with the reconstruction of the DT. In the daily surgical routine, in cases of acute DT a laparotomy provides the best mode to manage of the associated injuries and diaphragmatic ruprure, but a transthoracic approach is favoured in cases of delayed DT. In a stable patients with thoraco-abdominal trauma who do not have any abdominal injury and do not require laparotomy, a video-assisted thoracic surgery (VATS) can be an excellent tool for the diagnosis and treatment of diaphragmatic injury. If during the exploration (laparotomy or thoracotomy), any sign of an injury (bleeding, sign of perforation) through the diaphragm rupture is verified in the other cavity (abdomen or chest vica versa), we can enlarge the rupture of the diaphragm, and explore and manage the injury with transdiaphragmal method.. Usually, the simple and small rupture upto 5-6 cm can be reconstructed with No. 0 or 1 monofilament non-absorbable or absorbable interrupted sutures, while for larger defects, interrupted figure-of-eight or horizontal mattress sutures are required. In contrast to acute injuries, different meshes might be used in chronic traumatic hernias in order to perform a tension-free repair

Key words: diaphragm, polytrauma, thoraco-abdominal injury, diagnosis.