

About "Thorax batiente"

Sobre el "Tórax batiente"

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The purpose of this communication is to present some considerations on the paper *Tratamiento quirúrgico del tórax inestable. ¿Dónde nos encontramos? Experiencia de un hospital privado* (Surgical treatment of flail chest. Where are we? Experience in a private hospital), published in *Cirujano General*, 2017, Vol. 39 Num. 4, pages 237-246. Above all, we wish to congratulate the authors for an excellent review and the results obtained.

The treatment of flail chest has changed according to the understanding of its physiopathology: when instability of the chest wall was considered the essential problem, external compression methods or subcutaneous or skeletal traction with weights and pulleys were used. During the Second World War (1939-1945), anesthetic block and physical therapy were recommended and, in some cases, mechanical ventilation. Progress in endotracheal intubation led E.E. Avery to advocate internal pneumatic stabilization (IPS) in 1956,¹ a method that was also used during the Vietnam War (1959-1975). Prolonged intubation meant the need for tracheostomy and increased the possibility of tracheal stenosis. Years later, it was pointed out that the injured rib segment remained static while the rest of the chest wall moved, giving the impression of paradoxical movement. External fixators, bone cerclage and rib clips were developed. In 1975, J.K. Trinkle² reported that the underlying pulmonary contusion and pain were the factors that increase mortality, due to infection and respiratory failure; he advocated non-surgical treatment, with efficient chest clearance, pain relief with an intercostal block, vigorous pulmonary

physiotherapy, fluid restriction, and the use of colloids, steroids, and oxygen.

In 1995, we created at our hospital an external fixator for the flail chest and sternum, using a subperiosteal cerclage and artificial metallic ribs. We achieved excellent results and eliminated prolonged hospitalization (*Figure 1*).^{3,4}

Currently, most of these trauma cases are treated with conservative measures: mechanical ventilation if the respiratory rate is below eight or above 30 breaths per minute, PaO₂ under 60 mmHg at room air or under 80 mmHg with supplemental O₂, PaCO₂ above 50 mmHg, Qs/Qt greater than 15 to 20% and a PaO₂/FiO₂ ratio below 250. Surgical treatment is reserved for cases with an extensive or bilateral flail chest, if there is sternal involvement or in patients requiring a thoracotomy due to intrathoracic injury. The method of choice is fixation with staples and titanium plates; besides, the use of bioresorbable materials has also been introduced.⁵



Figure 1: Removal of external fixator.

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