




MANAGEMENT OF PATIENTS WITH BLUNT ABDOMINAL TRAUMA: A NARRATIVE REVIEW OF THE LITERATURE

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ABSTRACT

Objective: To analyze the management of patients with blunt abdominal trauma.

Bibliographic Review: Trauma is understood as a condition that involves the exchange of energy between the environment and the body, causing injuries that can affect different systems in the human body (PARREIRA, 2017). The spleen represents the largest organ of the lymphatic system, accounting for about 30% of the mononuclear phagocytic system, in addition to participating in the removal of altered erythrocytes and microorganisms in the circulation, thus representing an important organ (MATOS FILHO, ARGOS SOARES DE et al, 2018). In blunt abdominal trauma, it is one of the most frequently affected organs, associated with a mortality rate that increases as treatment is postponed (JÚNIOR et al., 2021) (CARDOSO, DANIEL LINHARES et al., 2018). **Final considerations:** Among the injuries, splenic and hepatic trauma, as well as kidneys, spleen, pancreas, intestinal loops and blood vessels, stand out. Due to the risk to life, it is necessary that such injuries be respected and sought from physical and imaging examination.

Keywords: Abdominal trauma. Injury. Abdomen.

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INTRODUCTION

Trauma is understood as a condition that involves the exchange of energy between the environment and the body, causing injuries that can affect different systems in the human body (PARREIRA, 2017). It is known that trauma has had a significant increase in the number of cases in recent years, becoming the third cause of death (BROSKA et al., 2017).

In this sense, abdominal traumas are divided into two strands. Open traumas refer to injuries where there is a solution of continuity in the case of penetrating, or when there is a visceral involvement, characterizing an open perforating trauma. In addition, there is the closed trauma - of interest in this article - which is characterized by keeping the skin intact and the damage caused is transmitted to the organs through the abdominal wall or occurs by deceleration. Blunt abdominal trauma has a high recurrence within the context of emergencies, most of which results from car accidents, denoting the importance of addressing the subject (FONSECA, 2018).

As already highlighted, most blunt traumas are caused by car accidents (about 70%). The severity of the injury determined by blunt abdominal trauma depends on which organs or structures are being affected, the extent of the injuries, and the presence of association with other injuries, especially thoracic and cranioccephalic injuries. A good prognosis for this condition depends on an initial quality approach, establishing an early diagnosis and managing accordingly. (RIBAS-FILHO, 2008).

Accurate and timely diagnosis of blunt intra-abdominal injury is a dilemma. The accuracy of the physical examination has been questioned by many, while others have suggested that the best method of diagnosis is through serial examinations performed by an experienced surgeon. The abdomen is the third most affected region in blunt trauma and major traumatic injury may not be recognized quickly enough, becoming a preventable cause of death.

In order to minimize mortality in cases of abdominal trauma, risk factors for mortality should be identified and systematically studied. In recent years, risk factors including gender, the length of the interval between injury and abdominal surgery, shock at admission, and head trauma have been demonstrated.

LITERATURE REVIEW

The spleen represents the largest organ of the lymphatic system, accounting for about 30% of the mononuclear phagocytic system, in addition to participating in the removal of altered erythrocytes and microorganisms in the circulation, thus representing an important organ (MATOS FILHO, ARGOS SOARES DE et al, 2018). In blunt abdominal trauma, it is one of the most frequently affected organs, associated with a mortality rate that increases as treatment is postponed (JÚNIOR et al., 2021) (CARDOSO, DANIEL LINHARES et al., 2018).

Splenic lesions are classified into grades by the American Association for the Surgery of Trauma (AAST). Grade I and II lesions have a risk of rebleeding of less than 20%, while lesions of grade III to V have a risk of more than 20%, a probability that increases according to the other concomitant problems. The approach to these patients who are victims of blunt trauma with involvement of the spleen will be guided by the patient's degree, the stability or instability of the condition, and the association of other involvements (JÚNIOR et al., 2021).

It is evident that in recent decades there has been a trend towards a less invasive and non-surgical treatment even in more severe cases. However, it is the parameters of hemodynamic stability that will guide the choice of a more conservative or surgical approach. In patients where there is hemodynamic stability, computed tomography angiography is performed to determine whether the patient in question should choose not to perform surgery and to analyze whether or not angioembolization is necessary. Patients who have hemodynamic instability, on the other hand, need damage control surgery to prevent splenic loss, since patients without a spleen have a higher rate of infection. However, when there is persistence of bleeding even after surgery, splenectomy is chosen (SERNA et al., 2021).

It is worth noting that grade I and II patients have a good response to nonoperative treatment. However, grade III to V patients can also start non-invasive treatment, as long as they meet the criterion of being hemodynamically stable. In addition, angiography improves the patient's response to nonoperative treatment. Despite the clear indication of being less invasive in the initial management, especially in stable patients, the literature still lacks more studies that accurately establish the real benefits of this type of therapy. There is still nothing concrete about how to conduct a



patient undergoing this type of therapy, and more studies are needed to clarify this issue (DE LIMA, 2021).

In the evaluation of patients with suspected abdominal trauma, the most frequent clinical picture is the presence of hemorrhagic shock with no apparent cause, and the main cause of death is hemorrhage and hypovolemic shock. The management for patients with hemodynamic instability and obvious signs of abdominal trauma is immediate surgical exploration. We found that patients with blunt abdominal trauma who go to exploratory laparotomy who are hemodynamically unstable have a 2.4 times greater chance of death than those without circulatory alterations, which is a risk factor for mortality. According to Gad et al., hemodynamically unstable patients with abdominal injury or suspected abdominal injury who required laparotomy have a mortality rate above 56%, especially those with systolic blood pressure below 60 mmHg. These patients, therefore, need rapid and efficient management in the pre-hospital and initial care, as well as greater attention in the postoperative period, since aggressive surgical management in patients with signs of shock must be maintained.

Patients with clinical signs of intra-abdominal injury - pain and signs of peritonitis - as an indication for surgical approach have a significant relationship with hospital discharge. In general, these are patients with a hollow viscus lesion, without significant bleeding. Jones et al. demonstrated that patients with no immediate indication for laparotomy and who could be followed up with serial physical examination who required intervention after blunt trauma presented signs or symptoms of the injury within nine hours, and most of them within the first 60 minutes after arrival at the emergency room. We can conclude that, when present, changes in the patient's physical examination are reliable justifications for intervention, as well as a sign of a better prognosis for the patient. The absence of these signs, however, does not exclude intra-abdominal injury.

Most of the deaths in this study are related to multiple intra-abdominal lesions, with a predominance of massive viscera lesions, and 80% of the deaths had another associated intra-abdominal lesion, most of them massive viscera. These findings are in agreement with the study by Hildebrand et al., which evaluated a series of 342 blunt abdominal traumas submitted to laparotomy, and all patients who died had liver or splenic lesions, even if in lesser degrees of severity. Closed abdominal trauma with multiple massive viscera lesions has higher mortality, greater need for ICU, more days of hospitalization, and greater need for blood transfusions, which is in agreement with



our study. The presence of any intraoperative massive visceral lesion increases the chance of death by 4.4 times. The gold standard for the treatment of massive visceral lesions is conservative and, generally, those who require surgical intervention have more severe lesions, which confer higher mortality.

We found that an isolated hollow viscera lesion is a good prognostic factor after blunt abdominal trauma. Even if surgical intervention is the mandatory conduct in suspected hollow viscus injury, the absence of other concomitant intra-abdominal injuries in the trauma is consistent with a significantly lower risk of mortality. Although rare in blunt trauma, the diagnosis and rapid management of patients with hollow viscera lesions remain imperative, a delay of more than 24 hours to intervene is associated with higher mortality than in those with immediate repair.

FINAL CONSIDERATIONS

Among the injuries, splenic and hepatic trauma, as well as kidneys, spleen, pancreas, intestinal loops and blood vessels, stand out. Due to the risk to life, it is necessary that such injuries be respected and sought from physical and imaging examination. There are a large number of occurrences and it is essential to research the subject in order to safeguard the lives of these patients.



REFERENCES

1. Silva, L. A., et al. (2022). Trauma abdominal fechado: Uma revisão de literatura. *Revista Científica do Tocantins*, 2(1), 1-14.
2. Agresta, V. M., et al. (2021). Trauma abdominal. *Brazilian Journal of Health Review*, 4(5), 23346-23353.
3. Pimentel, S. K., et al. (2015). Fatores de risco para óbito no trauma abdominal fechado com abordagem cirúrgica. *Revista do Colégio Brasileiro de Cirurgiões*, 42, 259-264.
4. Anciotto, K., et al. (2018). Pancreatite aguda no trauma abdominal fechado: Relato de caso. *Revista Uningá*, 55(S1), 89-96.
5. Arêdes, F. M. P., et al. (2022). Atualizações científicas sobre a avaliação inicial e o manejo do trauma abdominal fechado em adultos. *Brazilian Journal of Health Review*, 5(5), 20857-20875.
6. Schwambach, C. B., et al. (2016). Abordagem ao trauma abdominal fechado. *Acta Médica (Porto Alegre)*, [7]-[7].
7. Ramires, B. D., et al. (2021). Conduta expectante (não cirúrgica) em pacientes pediátricos vítimas de trauma abdominal contuso com lesão de baço e/ou fígado. *Brazilian Journal of Development*, 7(3), 32407-32425.
8. Bordoni, P. H. C., et al. (2017). Óbitos por trauma abdominal: Análise de 1888 autopsias médico-legais. *Revista do Colégio Brasileiro de Cirurgiões*, 44, 582-595.
9. Ajitimbay, T. N. P., et al. (2022). Trauma abdominal cerrado. Manejo inicial en urgencias. *RECIMUNDO: Revista Científica de la Investigación y el Conocimiento*, 6(2), 112-119.
10. Lage, H. G. G., et al. (2022). Laparoscopia no trauma abdominal. *Brazilian Journal of Health Review*, 5(1), 761-764.