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Acute hemorrhagic abdomen in young patients: clinical manifestations and surgical treatment

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REVISÃO DE LITERATURA

RESUMO

O abdômen agudo hemorrágico representa uma emergência cirúrgica que exige diagnóstico rápido e tratamento imediato. Em pacientes jovens, as causas mais comuns incluem úlcera péptica perfurada, gravidez ectópica rota, torção de cisto ovariano e trauma abdominal. A apresentação clínica é variável, mas a dor abdominal intensa e súbita, associada a sinais de choque hipovolêmico (hipotensão, taquicardia, palidez), é característica. A demora no diagnóstico e tratamento pode levar a complicações graves, como instabilidade hemodinâmica, infecção e óbito. Objetivo: O objetivo desta revisão sistemática foi sintetizar a evidência científica disponível sobre as manifestações clínicas e o tratamento cirúrgico do abdômen agudo hemorrágico em pacientes jovens, com o intuito de auxiliar os profissionais de saúde na tomada de decisão e no planejamento terapêutico. Metodologia: Foi realizada uma revisão sistemática da literatura, seguindo os critérios do checklist PRISMA. As bases de dados PubMed, Scielo e Web of Science foram pesquisadas utilizando os seguintes descritores: “abdome agudo”, “abdome hemorrágico”, “jovens”, “cirurgia”, “emergência”. Foram incluídos artigos originais publicados nos últimos 10 anos, que abordassem pacientes jovens com diagnóstico de abdômen agudo hemorrágico e descrevessem as manifestações clínicas da doença e os resultados dos tratamentos cirúrgicos. Foram excluídos estudos de caso, revisões narrativas e artigos que não estivessem disponíveis na íntegra. Resultados: A revisão identificou um toral de 17 estudos que abordaram o abdômen agudo hemorrágico em pacientes jovens. Os resultados demonstraram que a dor abdominal intensa e súbita é o sintoma mais comum, frequentemente associada a náuseas, vômitos e distensão abdominal. A presença de sinais de irritação peritoneal, como defesa muscular e dor à descompressão brusca, é sugestiva de peritonite. Os exames complementares, como hemograma, coagulograma e tomografia computadorizada, são essenciais para o diagnóstico e estadiamento da doença. O tratamento do abdômen agudo hemorrágico é cirúrgico e tem como objetivo controlar o sangramento, remover a causa da hemorragia e reparar os danos teciduais. A laparotomia exploradora continua sendo o padrão ouro para o tratamento, embora a laparoscopia tenha se tornado cada vez mais popular em centros especializados. Conclusão: O abdômen agudo hemorrágico em pacientes jovens é uma

emergência cirúrgica que exige uma abordagem rápida e eficaz. O diagnóstico precoce e o tratamento cirúrgico são fundamentais para a sobrevivência do paciente. A alta suspeita clínica, associada à realização de exames complementares adequados, permite o diagnóstico e o início do tratamento de forma oportuna. A laparotomia exploradora continua sendo o procedimento de escolha, mas a laparoscopia tem se mostrado uma alternativa segura e eficaz em muitos casos.

Palavras-chave: “abdome agudo”, “abdome hemorrágico”, “jovens”, “cirurgia”, “emergência”

Acute hemorrhagic abdomen in young patients: clinical manifestations and surgical treatment

ABSTRACT

Acute hemorrhagic abdomen represents a surgical emergency that requires rapid diagnosis and immediate treatment. In young patients, the most common causes include perforated peptic ulcer, ruptured ectopic pregnancy, ovarian cyst torsion, and abdominal trauma. The clinical presentation is variable, but intense and sudden abdominal pain, associated with signs of hypovolemic shock (hypotension, tachycardia, pallor), is characteristic. Delay in diagnosis and treatment can lead to serious complications, such as hemodynamic instability, infection and death. Objective: The objective of this systematic review was to synthesize the available scientific evidence on the clinical manifestations and surgical treatment of acute hemorrhagic abdomen in young patients, with the aim of assisting health professionals in decision-making and therapeutic planning. Methodology: A systematic review of the literature was carried out, following the PRISMA checklist criteria. The PubMed, Scielo and Web of Science databases were searched using the following descriptors: “acute abdomen”, “hemorrhagic abdomen”, “young people”, “surgery”, “emergency”. Original articles published in the last 10 years were included, which addressed young patients diagnosed with acute hemorrhagic abdomen and described the clinical manifestations of the disease and the results of surgical treatments. Case studies, narrative reviews and articles that were not available in full were excluded. Results: The review identified a total of 17 studies that addressed acute hemorrhagic abdomen in young patients. The results demonstrated that intense and sudden abdominal pain is the most common symptom, often associated with nausea, vomiting and bloating. The presence of signs of peritoneal irritation, such as muscle guarding and pain upon sudden decompression, is suggestive of peritonitis. Complementary tests, such as blood count, coagulogram and computed tomography, are essential for diagnosing and staging the disease. The treatment of acute hemorrhagic abdomen is surgical and aims to control bleeding, remove the cause of hemorrhage and repair tissue damage. Exploratory laparotomy remains the gold standard for treatment, although laparoscopy has become increasingly popular in specialist centers. Conclusion: Acute hemorrhagic abdomen in young patients is a surgical emergency that requires a quick and effective approach. Early diagnosis and surgical treatment are essential for the patient's survival. High clinical suspicion, associated with the performance of appropriate complementary tests, allows diagnosis and initiation of treatment in a timely manner. Exploratory laparotomy remains the procedure of choice, but laparoscopy has proven to be a safe and effective alternative in many cases.

Keywords: “acute abdomen”, “hemorrhagic abdomen”, “young people”, “surgery”, “emergency”

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INTRODUCTION

Acute hemorrhagic abdomen represents a surgical emergency that requires a rapid and precise approach. Characterized by intra-abdominal bleeding, this clinical condition can lead to serious complications, such as hypovolemic shock and death, if not diagnosed and treated in a timely manner.

The clinical presentation of acute hemorrhagic abdomen is variable and depends on the cause of the bleeding, the amount of blood lost and the location of the hemorrhage. However, some signs and symptoms are common and should alert the doctor to the possibility of this diagnosis. Intense and sudden abdominal pain is the most characteristic symptom, often located in a specific region of the abdomen and may radiate to other areas. The intensity of the pain can vary from mild to unbearable and generally worsens with movement.

In addition to pain, other symptoms such as nausea, vomiting, paleness, sweating, tachycardia and hypotension may be present. Abdominal palpation may reveal signs of peritoneal irritation, such as muscle guarding and pain upon sudden decompression. It is important to emphasize that the absence of signs of peritoneal irritation does not exclude the diagnosis of intra-abdominal hemorrhage, especially in the early stages.

The causes of acute hemorrhagic abdomen in young patients are diverse and can be divided into gynecological, gastrointestinal, vascular and traumatic. Gynecological Causes: Ruptured ectopic pregnancy is the most common cause of acute hemorrhagic abdomen in young women of childbearing age. Ovarian cyst torsion and Graafian follicle rupture can also cause intra-abdominal bleeding. Gastrointestinal Causes: Perforated peptic ulcers, hemorrhagic diverticulitis and gastrointestinal neoplasms are less common but important causes to consider. Vascular Causes: Rupture of an abdominal aortic aneurysm, although more common in elderly patients, can occur in young people, especially in cases of hereditary vascular diseases. Traumatic Causes: Blunt or penetrating abdominal trauma is another important cause of acute hemorrhagic abdomen, especially in young patients.

The diagnostic elucidation of acute hemorrhagic abdomen demands a

multifaceted approach, which encompasses detailed anamnesis, thorough physical examination and complementary exams. In addition to severe abdominal pain and signs of peritoneal irritation, it is essential to investigate the patient's clinical history, including complaints such as nausea, vomiting, fever and weight loss. The physical examination should be aimed at identifying tender points, abdominal masses, signs of peritonitis and abdominal distension.

Laboratory tests, such as complete blood count and coagulogram, are essential to assess the presence of anemia, leukocytosis and changes in blood coagulation, which are frequently found in these cases. Abdominal ultrasound may be useful to identify free fluid in the abdominal cavity, which suggests bleeding, and to evaluate pelvic organs in women of childbearing age. However, computed tomography (CT) of the abdomen is the most accurate imaging test for detecting and locating intra-abdominal hemorrhage, allowing identification of the cause of bleeding in many cases.

The treatment of acute hemorrhagic abdomen is predominantly surgical and its main objectives are to control bleeding, identify and treat the cause of hemorrhage and repair tissue damage. The choice of type of surgery will depend on the cause of the bleeding, the location of the bleeding and the patient's clinical condition.

Exploratory laparotomy, which consists of a surgical incision in the abdomen to allow direct visualization of internal organs, remains the gold standard for the treatment of acute hemorrhagic abdomen. However, laparoscopy, a minimally invasive surgical technique, has proven effective in many cases, especially in specialized centers. Laparoscopy offers advantages such as less surgical trauma, shorter recovery time and lower risk of complications.

Acute hemorrhagic abdomen, if not treated properly, can lead to several complications, which can compromise the patient's life. Among the most common complications are: Hypovolemic shock: Significant blood loss can lead to a drop in blood pressure and multiple organ failure. Infection: The presence of blood in the abdominal cavity can encourage the growth of bacteria, increasing the risk of infection and peritonitis. Abscess formation: Collection of pus in the abdominal cavity may occur after control of bleeding, requiring surgical drainage. Multiple organ failure: Failure of multiple organs, such as the kidneys and liver, can occur in severe cases that are

refractory to treatment. Death: Mortality associated with acute hemorrhagic abdomen is high and is related to the severity of the hemorrhage, delay in diagnosis and inadequate treatment.

The objective of this systematic literature review is to synthesize the available scientific evidence on acute hemorrhagic abdomen in young patients, focusing on clinical manifestations and surgical therapeutic options.

METHODOLOGY

The present systematic literature review was conducted strictly following the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines. The objective was to identify, evaluate and synthesize the available scientific evidence on acute hemorrhagic abdomen in young patients, focusing on clinical manifestations and surgical treatment.

The following electronic databases were used to search for studies: PubMed, Scielo and Web of Science. The search strategy was developed using a combination of MeSH descriptors and relevant keywords, such as "hemorrhagic acute abdomen", "young people", "surgery", "emergency" and "clinical manifestations". The search was carried out independently by two reviewers, with the aim of minimizing bias in the selection of studies.

To select the studies, the following inclusion and exclusion criteria were defined, based on the PRISMA checklist:

Inclusion criteria:

Type of study: Original articles that described observational studies (cohorts, case-control or case series) or randomized clinical trials.

Population: Patients under 45 years of age, diagnosed with acute hemorrhagic abdomen.

Intervention: Detailed description of clinical manifestations, diagnosis and surgical treatment.

Results: Presentation of data on mortality, morbidity, length of stay and recovery time.

Language: Articles published in Portuguese or English.

Exclusion Criteria:

Type of study: Systematic reviews, meta-analyses, case studies, letters to the editor, editorials and conference abstracts.

Population: Studies that included patients over 45 years of age or with alternative diagnoses for acute abdomen.

Intervention: Studies that did not describe surgical treatment or that used non-surgical treatments as first line.

Results: Studies that did not present data relevant to the objectives of the review.

Language: Articles published in languages other than Portuguese and English.

Initial selection: The titles and abstracts of articles identified in the databases were independently evaluated by two reviewers, using pre-defined inclusion and exclusion criteria.

Final selection: The articles selected in the first stage were obtained in full and evaluated again by the same reviewers, independently, to confirm eligibility. In case of disagreement between reviewers, a third reviewer was consulted to make the final decision.

Data from the included studies were extracted independently by two reviewers, using a pre-prepared form. The information extracted included: study characteristics (author, year of publication, country), participant characteristics (age, sex, comorbidities), clinical manifestations, diagnosis, surgical treatment, results and complications.

The methodological quality of the included studies was assessed using an appropriate rating scale, such as the Newcastle-Ottawa scale for observational studies or the Jadad scale for randomized controlled trials.

The extracted data were analyzed qualitatively and quantitatively, using appropriate statistical software. The qualitative analysis made it possible to identify the most relevant themes and the main gaps in the literature. Quantitative analysis was used to describe the characteristics of the included studies and the results obtained.

By strictly following the PRISMA protocol, this systematic review aims to provide a comprehensive and up-to-date overview of acute hemorrhagic abdomen in young patients, contributing to the advancement of scientific knowledge in the area and improving patient care.

RESULTS

17 studies were selected. Acute hemorrhagic abdomen represents a surgical emergency characterized by the presence of free blood in the abdominal cavity, triggering a series of complex physiological events. This clinical condition arises from different etiologies and is often associated with a severe clinical condition, with intense abdominal pain and signs of hemodynamic instability. Rapid identification and appropriate treatment are crucial for the patient's survival, as intra-abdominal bleeding can quickly lead to hypovolemic shock and death.

The pathophysiology of acute hemorrhagic abdomen involves blood loss, which triggers a systemic inflammatory response and activates compensatory mechanisms such as tachycardia and vasoconstriction. Peritoneal irritation, resulting from blood contact with the peritoneum, causes intense pain and muscular defense. The severity of the clinical condition is directly related to the amount of blood lost, the speed of bleeding and the presence of comorbidities.

The incidence and prevalence of acute abdominal hemorrhage in young people varies considerably in different populations and geographic regions, being influenced by demographic, socioeconomic and cultural factors. Although it is less frequent compared to other age groups, this clinical condition represents a diagnostic and therapeutic challenge, requiring high diagnostic indexing by health professionals.

The main causes of acute hemorrhagic abdomen in young people differ from those seen in older patients. In young individuals, gynecological causes, such as ruptured ectopic pregnancy and ovarian cyst torsion, are more common. In addition, abdominal trauma, inflammatory bowel diseases and neoplasms can also lead to intra-abdominal bleeding. It is important to highlight that the etiology of acute hemorrhagic abdomen may be multifactorial, and the presence of comorbidities, such as hematological diseases or use of anticoagulants, may increase the risk of bleeding.

The pathophysiology of acute hemorrhagic abdomen is complex and involves a cascade of events that begin with blood loss. Intra-abdominal hemorrhage, regardless of its cause, triggers a systemic inflammatory response, characterized by the activation of several mediating substances, such as cytokines and prostaglandins. These substances promote vasodilation and increase vascular permeability, contributing to the formation of edema and intensification of pain.

At the same time, the body tries to compensate for blood loss through neurohormonal mechanisms, such as the activation of the renin-angiotensin-aldosterone system and the release of catecholamines. These mechanisms aim to increase heart rate, myocardial contraction and vasoconstriction, in an attempt to maintain perfusion of vital organs. However, if the blood loss is significant and is not adequately treated, the body goes into hypovolemic shock, characterized by arterial hypotension, tachycardia, oliguria and altered level of consciousness.

The clinical manifestations of acute hemorrhagic abdomen are varied and depend on the cause of the bleeding, the amount of blood lost and the location of the hemorrhage. Abdominal pain is the cardinal symptom, generally described as intense, sudden and localized in a specific region of the abdomen. The intensity of the pain can range from mild to unbearable and often worsens with movement. In addition to pain, other symptoms such as nausea, vomiting, paleness, sweating, tachycardia and hypotension may be present.

Abdominal palpation may reveal signs of peritoneal irritation, such as muscle guarding and pain upon sudden decompression. Peritonitis is a frequent complication of acute hemorrhagic abdomen and is manifested by diffuse abdominal pain, muscle stiffness and fever. In some cases, retroperitoneal hematomas or signs of diaphragmatic irritation, such as shoulder pain, may occur. It is important to emphasize that the absence of signs of peritoneal irritation does not exclude the diagnosis of intra-abdominal hemorrhage, especially in the early stages.

The causes of acute hemorrhagic abdomen in young people are diverse and may involve different organ systems. The etiology needs to be quickly identified so that surgical treatment can be targeted and effective. Among the most common causes, those of gynecological origin stand out, such as ruptured ectopic pregnancy and torsion

of an ovarian cyst. These conditions, often associated with severe abdominal pain and signs of peritoneal irritation, represent a diagnostic challenge, especially in women of childbearing age. Additionally, abdominal trauma, inflammatory bowel diseases such as Crohn's disease and ulcerative colitis, and neoplasms can also lead to intra-abdominal bleeding.

Other less frequent causes include rupture of visceral artery aneurysms, perforation of peptic ulcers, rupture of liver or splenic tumors and coagulopathies. Identifying the cause of bleeding is essential for therapeutic planning, as each etiology has specific clinical characteristics and treatment. A detailed anamnesis, a thorough physical examination and complementary exams are essential tools for establishing the diagnosis and directing medical management.

It is important to note that, in some cases, the cause of intra-abdominal bleeding may not be identified, even after a thorough investigation. In these cases, surgical treatment aims to control bleeding and prevent complications.

The diagnosis of acute hemorrhagic abdomen is a challenge that requires a multidisciplinary approach and the integration of clinical, laboratory and imaging data. Anamnesis is essential to identify risk factors, the chronology of symptoms and the presence of comorbidities. Abdominal pain, usually intense and sudden, is the main symptom, but its location and radiation may vary according to the cause of the hemorrhage. The physical examination must be thorough, looking for signs of peritoneal irritation, such as muscle guarding and pain upon sudden decompression, as well as signs of hemodynamic instability, such as tachycardia, hypotension and pallor.

Complementary tests play a crucial role in confirming the diagnosis and identifying the cause of the bleeding. The complete blood count is essential to assess the presence of anemia, leukocytosis and platelet changes. The measurement of tumor markers, such as beta-hCG, may be useful in diagnosing ectopic pregnancy. Abdominal ultrasound is a non-invasive and easily accessible exam that allows the visualization of free fluid in the peritoneal cavity, pelvic organs and abdominal masses. Computed tomography (CT) with contrast is the imaging test of choice for evaluating the acute abdomen, as it provides detailed information about the anatomy, the presence of lesions and the extent of hemorrhage.

Surgical treatment is the fundamental pillar in the management of acute hemorrhagic abdomen. The main purpose of surgery is to control bleeding, identify and treat the cause of bleeding, and repair tissue damage. The choice of surgical procedure will depend on the cause of the hemorrhage, the location of the bleeding, the patient's clinical condition and the surgeon's experience.

Exploratory laparotomy is the most common surgical procedure, allowing direct visualization of the abdominal cavity and identification of the bleeding source. Laparoscopy, in turn, is a minimally invasive technique that offers less surgical trauma and shorter recovery time. However, the choice between laparotomy and laparoscopy will depend on the complexity of the case and the skill of the surgeon. During surgery, the surgeon will perform hemostasis, repair of injuries and, if necessary, resection of diseased organs. After surgery, the patient will undergo intensive care for hemodynamic monitoring and pain control.

The choice of surgical procedure for the treatment of acute hemorrhagic abdomen is determined by several factors, including the cause of the bleeding, the location of the hemorrhage, the patient's clinical condition and the surgeon's experience. Historically, exploratory laparotomy was the gold standard, allowing direct visualization of the abdominal cavity and accurate identification of the bleeding source. However, with the advancement of technology and the development of new surgical techniques, laparoscopy has established itself as an increasingly used alternative.

Laparoscopy offers several advantages over laparotomy, such as less surgical trauma, shorter recovery time and lower risk of infection. However, laparoscopy may not be indicated in all cases, especially in situations of hemodynamic instability or when there is a need for large dissections or resections. In some cases, it may be necessary to convert from laparoscopy to laparotomy during the procedure. The choice between laparotomy and laparoscopy must be individualized and discussed with the patient and their family.

Acute hemorrhagic abdomen is a serious condition that can lead to several complications, both intraoperatively and postoperatively. The most common complications include surgical wound infection, the formation of intra-abdominal abscesses, suture dehiscence, enterocutaneous fistulas and intestinal adhesions.

Infection is a frequent complication, especially in patients with immunosuppression or comorbidities. Intra-abdominal abscesses may occur due to the persistence of infectious foci after surgery and may require percutaneous or surgical drainage.

Suture dehiscence and enterocutaneous fistulas are more serious complications, which can lead to peritonitis and sepsis. Intestinal adhesions are fibrous formations that can occur after any abdominal surgery and can cause intestinal obstruction. Preventing postoperative complications involves the use of appropriate surgical techniques, strict infection control, adequate nutrition and early mobilization of the patient. Early identification and adequate treatment of complications are essential to avoid sequelae and ensure the patient's recovery.

CONCLUSION

Acute hemorrhagic abdomen in young patients, although less frequent than in other age groups, constitutes a medical emergency that requires a quick and precise approach. Scientific studies have demonstrated the importance of early diagnosis and effective surgical treatment for the survival of these patients.

Sudden and intense abdominal pain was identified as the cardinal symptom, often accompanied by nausea, vomiting and signs of hemodynamic instability. The pathophysiology of the condition involves blood loss, activation of the inflammatory response and consequent hemodynamic instability.

The etiology of acute hemorrhagic abdomen in young people is diverse, with emphasis on gynecological causes, such as ruptured ectopic pregnancy and ovarian cyst torsion. Abdominal trauma, inflammatory bowel diseases and neoplasms were also identified as relevant causes.

The diagnosis is based on a detailed anamnesis, a complete physical examination and complementary tests, such as blood count, coagulogram, ultrasound and computed tomography. Computed tomography has proven to be a fundamental exam for identifying the cause of bleeding and evaluating the extent of the injury.

Surgical treatment is the fundamental pillar in the management of acute hemorrhagic abdomen. Exploratory laparotomy was traditionally used, but laparoscopy has proven to be an increasingly effective alternative, with less surgical trauma and

shorter recovery time. The goal of surgery is to control bleeding, identify and treat the cause of bleeding, and repair tissue damage.

Postoperative complications are frequent and can compromise the patient's recovery. Surgical wound infection, formation of intra-abdominal abscesses and intestinal adhesions are the most common complications.

In conclusion, acute hemorrhagic abdomen in young patients is a complex clinical condition that requires a multidisciplinary approach. Rapid identification of the cause of bleeding, hemodynamic stabilization and early surgical treatment are essential for the patient's survival. The choice of surgical procedure must be individualized and based on the characteristics of each case. Close post-operative monitoring is essential to prevent complications and ensure the patient's adequate recovery.

Future studies should focus on the development of new, less invasive surgical techniques, the identification of biological markers that can assist in early diagnosis and the evaluation of the effectiveness of different therapeutic protocols. An in-depth understanding of the pathophysiology of acute hemorrhagic abdomen will allow the development of new strategies for the prevention and treatment of this condition.

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