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INTESTINAL INJURY AT COMBINED ABDOMINAL INJURY

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ABSTRACT
In recent years, there has been a steady increase in injuries all over the world. Man-made and natural disasters, local military conflicts, transport and industrial accidents in 50-60% of cases of all injuries lead to combined and multiple injuries to organs and systems of the human body, and, as a result, to high sanitary losses in the first hours and days [1,2,5,13,19,21]. This article discusses intestinal injuries in combined abdominal trauma.

Keywords: trauma, gunshot wounds of the colon, closed abdominal trauma.

Introduction

Concomitant injury is a simultaneous injury to two or more of the seven anatomical regions of the body by one traumatic agent. Among the causes of deaths from injuries, the share of concomitant traumatic injuries accounts for more than 60%, although they account for 8-10% of inpatients with injuries [3,4,6,7,17].

The share of abdominal injuries accounts for 1.5 to 36.5% of peacetime injuries, but their frequency and severity continue to grow [18]. According to A.N. Tulupov. (2015), in severe concomitant trauma, abdominal injuries are present in almost 30% of victims. Due to the severity of damage to internal organs and difficulties in diagnosis, such an injury is characterized by a high rate of complications and mortality, which, according to various authors, ranges from 25 to 65%. According to Shapot Yu.B. (1990) and Afonina A.A. (1998), with an isolated injury of one abdominal organ, the lethality ranges from 5.1 to 20.4%, and with a combined injury - from 18.3 to 64% [8,10,15,16].

Closed abdominal injuries are accompanied by a large number of complications and high mortality due to difficulties in diagnosis and frequent combination with injuries of other organs and systems [9,14,22]. A special problem is the diagnosis and treatment of concomitant closed abdominal trauma, accompanied by shock. Hospital mortality in this variant of the pathology ranges from 17.3 to 72.7% [11.23]. Over the past 5 years, the mortality rate from road accidents in Russia has increased by 65%,

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and the death toll, according to the traffic police, reaches 33-35 thousand people per year [9,12,13,20].

Materials and Methods

The intestine is the most frequently damaged organ in both closed abdominal trauma and injuries. During the Great Patriotic War, among those wounded in the abdomen, injuries to the hollow organs were found in 83.8%. Although over the past century, mortality in case of intestinal damage has decreased from 100 to 5%, which was largely facilitated by the use of antibiotics in the early stages, but among those hospitalized against the background of general peritonitis, it is 30-50%. Mortality remains high with gunshot wounds to the large intestine - from 11 to 31%; it should be borne in mind that damage to the colon in local wars of the last decade occurs in 38-41% of the wounded [15, 16].

These are only the immediate results of the treatment. And how many young people remain disabled! It should be noted that the literature data are difficult to compare, since many authors do not carry out a differentiated analysis of the trauma outcome taking into account the etiological factor, the severity and level of intestinal damage, the presence of associated injuries, and the timing of surgery. [14.18].

So, some surgeons equate mesenteric damage of any severity with intestinal trauma; others include only such damage to the mesentery, in which the nutrition of the regional part of the intestine is disturbed, which results in its necrosis or possibly the development of enteritis with scarring of the corresponding segment of the intestine, mortality is reported in 17% of cases. Among the analyzed contingent, 63% were victims, in whom, during laparotomy, only a hematoma of the intestinal wall or mesentery, a rupture of the intestinal serosa, that is, an injury in which even the need for surgical intervention was discutable, was revealed; if we take into account only the victims, in whom the integrity of all layers of the intestinal wall was violated and with a rupture of the mesentery, then the lethality would have turned out to be 50%. There is a great number of postoperative complications - 40-70%, the recognition and correction of which are significant difficulties. [6].

One of the formidable complications is the failure of the sutures of the sutured bowel wound and interintestinal anastomoses. Especially often (up to 50%), the inconsistency of the sutures develops after suturing the gunshot wounds of the colon, which is due to the underestimation of the contusion zone. Such complications, usually accompanying peritonitis, as paralytic and adhesive obstruction of the intestine, abscesses of the abdominal cavity, eventration are not uncommon.

Treatment of rectal injuries remains an urgent problem for surgery in peacetime and especially in wartime, which is due to the increasing frequency and severity of injury, the complexity of choosing the optimal surgical tactics, a large number of complications and high mortality. [8.20].

Among the early postoperative complications life-threatening are peritonitis, phlegmon of pelvic tissue, sepsis. In the long term, often lead to disability osteomyelitis of the pelvic bones, stricture of the anal canal, dysfunction of the anal pulp. [12].

Diagnosis of intestinal injuries is based on the recognition of wound peritonitis, the clinic of which is not always clear even with isolated abdominal trauma and, moreover, combined, especially against the background of shock and acute blood loss. It should be borne in mind that the clinic of colon trauma is less pronounced and extended over time. These circumstances are the reason for the late

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appeal and untimely surgical intervention.

According to [14,18]. in the first 3 hours, 25% of victims with closed trauma and 85.3% - with intestinal injuries are admitted. And yet, it is the clinical manifestations that form the basis of diagnosis. Almost all victims note abdominal pain. The pain can be local in nature, and then spread throughout the abdomen, which is usually combined with an increase in pulse rate. Vomiting, at first of a reflex nature, soon becomes one of the signs of intoxication syndrome. The tension of the muscles of the anterior abdominal wall is detected in 81.8% of the victims. However, this sign can also be in situations where there is only a contusion of the abdominal wall. As for the Blumberg-Shchetkin symptom, it occurs no more often than in 35% of victims [1,3].

Auscultation of the abdominal cavity is also advisable - the absence of intestinal murmurs occurs in 64.3% of patients with rupture of all layers of the intestine or injury to the intestine. A pathogenic symptom is the detection of free air in the abdominal cavity by percussion or, more reliably, by means of an X-ray examination. However, this symptom again occurs in only 25% of patients with damage to the small intestine and 40% - to the large intestine.

Of the instrumental research methods, laparocentesis is widely used. However, the resolving diagnostic ability of laparocentesis in isolated intestinal damage, even if lavage of the abdominal cavity is used followed by microscopy of centrifugate, does not exceed 70%.

At the same time, there are reports on the specificity of enzymatic markers contained in the fluid aspirated from the abdominal cavity during lavage, depending on the damaged organ; in particular, when the intestine is damaged, the level of alkaline phosphatase produced by the mucous membrane of the small and large intestines increases.

Laparoscopy is undoubtedly a more informative research method. However, there is a danger of not detecting all the damage even during surgery. To avoid such a mistake, it is necessary to carefully examine all parts of the intestine, including those located retroperitoneally. If a penetrating wound of the ascending or descending intestine is found, the corresponding segment of the intestine should be mobilized by dissection of the transitional fold of the peritoneum and, in order to exclude the through nature of the wound, examine the posterior wall of the intestine.

Results and Discussions

When recognizing damage to the retroperitoneal rectum, the presence of complaints such as pain in the perineum, rectal bleeding, tenesmus, and sometimes dysuric phenomena are taken into account. The diagnosis is clarified by digital examination of the rectum and sigmoid monoscopy - without prior preparation. Radiography is advisable, according to indications - radiopaque examination, including vulnerography. [15,20].

With trauma to the small intestine in most patients, surgical intervention consists in suturing the wounds in the transverse direction with single sutures. In conditions of peritonitis, N.I. Pirogov's suture is used, in which the first row of sutures passes through the serous, muscular and submucosal layers without stitching the mucous membrane, ensuring close contact of the edges of the latter.

Small intestine resection is performed according to the following indications: crushing of the

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segment; the presence of multiple wounds in a small area, the suturing of which would lead to deformation or narrowing of the intestine; detachment of the mesentery or significant damage to it with the development of an extensive hematoma; doubts that have arisen about a sufficient blood supply to the intestinal segment; necrosis of the intestinal loop that has fallen out through the wound of the abdominal wall; with a gunshot wound - the presence of a wall defect is greater than the semicircle of the intestine, and the side-to-side anastomosis is more reliable, although functionally less beneficial than the end-to-end anastomosis.

Resection of the distal ileum is often complicated by the failure of the sutures of the small bowel anastomosis. Therefore, in emergency situations, ileoascendoanastomosis is safer, applying ileocecо- or ileoascendoanastomosis, the end of the terminal section of the ileum is not sutured, but leads to the abdominal wall and through it intubates the intestine to the interintestinal anastomosis.

If it is necessary to resect the distal ileum against the background of severe peritonitis or extreme severity of the victim's condition, caused by multiple organ damage, blood loss, it is considered permissible to limit oneself to the terminal ileostomy; It is recommended to supplement the ileostomy with intestinal intubation with polyvinyl chloride during resection of the ileum in conditions of general peritonitis, a U-shaped enterostomy is formed. The essence of the operation consists in resection of the damaged part of the intestine, after which a side-to-side or end-to-side anastomosis is applied between the adductor gut and the abducent gut disconnected over 12-16 cm, the end of which is brought out to the anterior abdominal wall in the right iliac region. [1.6].

The management of colon injuries is much more complicated. According to the majority of surgeons, the improvement in the results of treatment of colon injuries is primarily due to a decrease in the number of primary reconstructive surgeries. [12].

Undoubtedly, this is facilitated by the timely intervention and highly effective antibacterial therapy. Fresh stab and cut wounds are subject to suturing - no later than 6-8 hours after injury, in the absence of massive contamination of the abdominal cavity, severe blood loss or life-threatening concomitant injuries, and the size of the wound should not exceed half the circumference of the intestinal tube. Some surgeons limit the time for initial restoration of colon passage to as little as two hours. [22].

In case of a gunshot wound to the mobile sections of the colon, it is recommended to cross it at the site of injury and bring both ends to the anterior abdominal wall in the form of a stoma. In case of injury to fixed (mesoperitoneally located) sections of the intestine, the wound after excision of the edges is sutured with a double-row suture and the damaged area is turned off by imposing a full proximal colostomy, and the retroperitoneal space in the area of the damaged intestine is drained with double-lumen drainages or a single-lumen tube with a diameter of at least 1 see [5,8].

When the wound is localized in the ascending part of the colon, after its suturing, it is necessary to remove the ileum 25 cm from the ileocecal angle in the form of a loop or terminal ileostoma. The end ileostomy is easier to care for. Cecostomy is unsuitable for these purposes, since it does not interfere with the passage of intestinal contents and, in addition, paracolostomy complications often occur. [4,7].

With a difficult-to-predict outcome of the primary restorative operation, a compromise solution is

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extraperitonization of the damaged segment of the intestine. [8.14].

Undoubtedly, two-stage intervention is safer for gunshot wounds of the colon. Even timely suturing of gunshot wounds of the colon in 38% of victims is complicated by the failure of the sutures, which is due to the presence of a zone of primary traumatic necrosis within 2 cm from the edges of the wound, and the zone of molecular concussion reaches 9 cm [10, 11].

Therefore, most surgeons consider the primary restoration of the passage to be expedient only in case of damage to the right flank of the intestine, namely, hemicolectomy with the imposition of ileotransverse anastomosis, and in case of injury of other departments - colostomy at the wound site, resection of a segment of the intestine with the removal of both ends of the intestine, or obstructive resection - a Hartmann-type operation.

However, there are reports, the authors of which prefer the primary restoration of intestinal continuity out of 74 victims with a gunshot wound to the colon, 50 sutured the wound, made a bowel resection with a primary anastomosis 15, a Hartmann type operation - only 9; mortality was 12% [12].

The author considers the early admission of victims to the hospital and stable hemodynamics to be an indispensable condition for restoring the integrity of the intestine, the volume of intervention also depends on the degree of contamination of the abdominal cavity, the severity of associated injuries. And yet, in a later message, he recommends colonic anastomoses to be applied as rarely as possible, moreover, with an additional proximal colostomy. He adheres to the same tactics, according to which primary colonic anastomoses are accompanied by failure of sutures in 66.4% and mortality in 71.4% of cases. [20].

With ruptures of the colon, the indications for the imposition of a colostomy should be wider than for penetrating stab-cut wounds, since with the contusion-compression mechanism of a closed injury, as with gunshot wounds, it is not always possible to determine with certainty the true area of wall damage intestines.

The tactics for damage to the rectum depends on many factors: where the wound is located in relation to the peritoneum (intra-, extraperitoneal or simultaneous damage to both parts of the intestine), to the lumen of the intestine (penetrating, non-penetrating wound), and in case of injury with the side of the intestinal lumen, it is important to take into account the depth of the wound, the nature of the wound (rupture, stab-cut, gunshot, barotrauma, etc.); the severity of damage to the anal sphincter; the presence of associated injuries - most often the bladder, urethra, pelvic bones; the degree of contamination of the perineal wound; the prevalence of the inflammatory process in pararectal fiber; the time elapsed since the moment of injury, as well as the condition of the sufferer. [13.15].

In case of extraperitoneal lesions of the rectum, primary surgical treatment of the perineal wound is performed, excision of the edges of the intestinal wound and its closure with a two-row suture, devulsion of the anus, drainage of the perrectal and presacral cellular tissue space with two-lumen or several silicone tubes, which makes it possible to conduct postoperative period of flowing washing with antiseptic solutions. Some surgeons also consider it necessary to impose a loop sigmostomy, especially with gunshot wounds to the intestine, localized above the pelvic diaphragm.

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Most surgeons turn off the rectum from the passage after suturing large bowel defects, with a through wound or simultaneous damage to the bladder, when it is also necessary to impose an epicystostomy, significant destruction of the obturator apparatus, as well as late hospitalization, when an infected bowel wound is not sutured. [12.19].

In case of extraperitoneal lesions of the rectum, combined with fractures of the pelvic bones, a loop sigmoidostomy should also be formed, and the rectum should be rinsed on the operating table to prevent osteomyelitis of the pelvic bones.

It is also necessary to introduce a prophylactic dose of antigangrenous serum and timely prescription of broad-spectrum antibiotics.

In case of late hospitalization of the victims, in addition to creating a colostomy, drainage of the pelviorectal cellular space by means of wide pararectal incisions is shown. Artificially imposed fecal fistulas are closed within a period of 1.5 to 6 months.

CONCLUSIONS

Most often, abdominal injuries were associated with craniocerebral and thoracic trauma (263 - 55.02% of cases). It is important to mention the fact that in 94.1% of cases, injuries of two or more anatomical areas were detected. We noted two prevailing syndromes: developing peritonitis syndrome and intra-abdominal hemorrhage syndrome. The syndrome of developing peritonitis occurs when trauma to the hollow organs.

Until now, the issues of diagnostics and treatment tactics for abdominal trauma remain relevant and far from resolved. The complexity of diagnosis is due to the blurring of clinical manifestations, simultaneous damage to various organs of the abdominal cavity and the presence of associated injuries.

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