

**Belous M.***Kharkiv National Medical University***Zamiatin P.N.***Kharkiv National Medical University; DU "Institute of General and Emergency Surgery named after V.T. Zaitsev NAMS of Ukraine"*

## TYPES OF SURGICAL INTERVENTIONS IN SUFFICIENTS WITH TRAUMATIC INJURIES TO THE Spleen, DEPENDING ON THE NATURE OF THE INJURY

**Resume.** *The aim: to determine the structure of traumatic injuries to the spleen: the nature of injuries, severity, localization and macromorphological characteristics to determine the tactics of managing such victims. Materials and methods. With traumatic injuries of the spleen, 114 victims were hospitalized. They were divided into two clinical groups: 1 - main (52 people) and 2 - comparison group (62 people). Results and discussion: Most often, there were multiple closed injuries of the spleen, which were accompanied by damage to the liver, small intestine and its mesentery, greater omentum, pancreas, large intestine, and stomach. In 79% of cases, traumatic injuries were of I-II severity according to the AAST classification. Conclusions. According to the clinic, in the main group of victims, the priority direction of treatment of victims with traumatic injuries of the spleen was modern minimally invasive surgical technologies in the form of organ-preserving, organ-replacing operations, while the victims of the comparison group underwent mainly splenectomy.*

**Key words:** *spleen, organ-saving operations, traumatic injuries.*

Based on the results of studies on the functions of the spleen and the consequences of splenectomy, more and more surgeons prefer organ-sparing tactics. To establish the tactics of managing the victims, it is necessary to clearly determine the severity and degree of damage: if, with superficial injuries, it is sufficient to use hemostatic drugs (I and II), then with deeper injuries, splenorrhaphy and the use of plastic materials (III) are indicated, and with extensive injuries, anatomical resection of the spleen is indicated. (IV) or splenectomy (V).

**The aim:** to determine the structure of traumatic injuries to the spleen: the nature of injuries, severity, localization and macromorphological characteristics to determine the tactics of managing such victims.

**Materials and methods.** With traumatic injuries of the spleen, 114 victims were hospitalized. They were divided into two clinical groups: 1 - main (52 people based on materials from 2014-2019) and 2 - comparison group (62 people based on materials from 2004-2019). Group 1 includes 48.7% of victims who underwent organ-saving operations, which is 58.5% of all victims with traumatic injuries of the spleen. In group 2 - 51.3%, victims who underwent

splenectomy.

**Results and discussion:** Closed injuries in the main group occurred in 76.3% of the victims, open injuries in 11.0% (iatrogenic - in 12.7%), respectively, in the comparison group, there were 73.6% closed injuries, 16 open injuries. , 5% (iatrogenic - 9.9%).

In the main group, isolated injuries of the spleen were observed in 48%, multiple injuries in 52%, including 3 (5.8%) patients with thoraco-abdominal injuries. In the comparison group, respectively, isolated injuries were noted in 43.4% of cases, multiple injuries in 56.6%, incl. thoraco-abdominal wounds - in 5 (8.2%) victims. The distribution of victims by the nature of the spleen injury is presented in Tabl. 1.

Most often, injuries to the abdominal organs, along with damage to the spleen, were accompanied by damage to the liver, small intestine and its mesentery, greater omentum, pancreas, large intestine, stomach (Tabl. 2).

In 27.6% of cases, spleen injuries were combined. In 11% of patients with traumatic injuries of the spleen, concomitant craniocerebral trauma, in 9% - trauma of the musculoskeletal system, in 4.2% - trauma of the genitourinary system (Tabl. 3).

Table 1

General characteristics of traumatic injuries of the spleen in the study groups

Damage nature	Damage (n,%)				Total (n,%)		
	Isolated		Multiple		1 group	2 group	Total
	1 group	2 group	1 group	2 group			
I. Closed	16/31,2 %	18/28,0 %	23/45,1 %	28/45,6 %	39/76,3 %	46/73,6%	85/74,9 %
II. Open stab-cut firearms	2/4,0%	3/5,5%	4/6,9%	7/11,0%	6/11,0%	10/16,5%	16/13,8 %
	2/4,0%	3/5,5%	4/6,9%	6/9,3%	6/11,0%	9/14,8%	15/25,3 %
	-	-	-	1/1,7%	-	1/1,7%	1/0,8%
III. Iatrogenic	7/12,7%	6/9,9%	-	-	7/12,7%	6/9,9%	13/11,3 %
Total	25/48,0 %	27/43,4 %	27/52,0 %	35/56,6 %	52/100 %	62/100%	114/100 %

Table 2

Distribution of victims with the combined nature of injuries to the spleen and other organs

Serial number	Damaged organ	n (% <sup>1</sup> / % <sup>2</sup> )
1.	Spleen	(100%)
2.	Liver	(18,3%/26,5%)
3.	Small intestine	(12,7%/18,4%)
4.	Big gland	(13,8%/20,0%)
5.	Mesentery	(8,2%/11,8%)
6.	Pancreas	(5,4%/7,8%)
7.	Colon	(3,1%/4,5%)
8.	Stomach	(2,5%/3,7%)
9.	Kidney	(1,7%/2,4%)
10.	Duodenum	(1,1%/1,6%)
11.	Bladder	(1,1%/1,6%)
12.	Light (with thoraco-abdominal injury)	(1,1%/1,6%)
Total		(100 %)

Note: <sup>1</sup> – percentage of the type of damage from the total number of victims; <sup>2</sup> - the structure of damage to other organs of the abdominal cavity with damage to the spleen

As you can see from the table. 3, with traumatic injuries of the spleen, there is no definite tendency in the predominant damage to any part of the spleen. The most common localization was in the lower section, which is probably associated with the relatively greater mobility of the lower pole and the mechanism of injury. Also, in about a third of the victims,

Table 3

Localization of spleen injuries in the affected study groups

Localization damage	Number of cases, n (%)	
	Main group	Comparison group
Upper pole	8 (16,1 %)	9 (14,3 %)
Lower pole	17 (30,1 %)	17 (26,9 %)
Goal		13 (21,4 %)
Diaphragmatic surface	9 (17,3 %)	8 (12,6 %)
Visceral surface	6 (12,1 %)	15 (24,7 %)
Total	52 (100 %)	62 (100 %)

multiple damage was noted - 32.4%.

To determine the tactics of managing the victims, the division of the victims according to macromorphological types of injuries, regardless of the size, depth of damage and the amount of blood loss, was of certain importance (Tabl. 4).

The more severe nature of injuries in the victims of the comparison group is understandable. If it was impossible to perform organ-preserving surgeries due to massive blood loss and extensive lesions, splenectomy was performed - an operation aimed at stopping the ongoing bleeding as soon as possible. The nature of surgical interventions performed in the main group with closed and open injuries is presented in Tabl. 5.

**Conclusions.** According to the clinic, in the main group of victims, the priority direction of

Table 4

Distribution of the affected study groups with spleen injuries by macromorphological characteristics

Views damage	Number of cases, n (%)	
	Main group	Comparison group
Tearing capsule	7 (13,9)	4 (6,0)
Capsule rupture	9 (17,9)	7 (11,5)
Superficial parenchymal rupture	15 (27,7)	12 (18,7)
Deep rupture of the parenchyma	6 (12,1)	13 (21,4)
Total rupture of the parenchyma	2 (4,6)	8 (13,7)
Subcapsular hematoma	12 (22,0)	13 (20,3)
Organ pole separation	0	1 (2,2)
Separation, crushing of the spleen	1 (1,8)	4 (6,0)
<b>Total</b>	<b>52 (100 %)</b>	<b>62 (100 %)</b>

Table 5

The nature of surgical interventions in the victims of the main group with closed and open injuries

Indicators	Damage nature					Total
	Closed		Open		Iatrogenic	
Types of surgical interventions	Isolated	Combined	Isolated	Combined		
<b>1. Without surgery</b>	5					5
a) conservative management	2	-	-	-	-	2
b) diagnostic laparoscopy	3	-	-	-	-	3
<b>2. Organ replacement interventions:</b>	4	11	1	3	3	22
a) splenectomy with autologous spleen tissue transplantation	3	11	1	3	3	21
b) laparoscopic splenectomy with autotransplantation of spleen tissue into the round ligament of the liver	1	-	-	-	-	1
<b>3. Organ-saving interventions:</b>	8	11	1	1	4	25
<b>A) open laparotomy operations</b>	4	12	1	1	4	22
a) coagulation hemostasis	1	3	-	-	2	6
b) film hemostasis	-	1	-	-	-	1
c) packing the wound with hemostatic material	1	3	-	-	2	6
d) splenorrhaphy	1	3	1	1	1	7
f) hemostasis by tamponade of the greater curvature of the stomach	-	1	-	-	-	1
g) organ resection	-	1	-	-	-	1
h) frame methods of hemostasis	1	2	-	-	-	3
<b>B) minimally invasive operations:</b>	3	1	-	-	-	4
a) laparoscopic hemostasis by coagulation	2	-	-	-	-	2
b) laparoscopic tamponade Tachocomb	1	-	-	-	-	1
c) suture wound from minilaparotomic access	1	-	-	-	-	1
<b>TOTAL</b>	<b>17</b>	<b>22</b>	<b>2</b>	<b>4</b>	<b>7</b>	<b>52</b>

treatment of victims with traumatic injuries of the spleen was modern minimally invasive surgical technologies in the form of organ-preserving, organ-replacing operations, while the victims of the comparison group underwent mainly splenectomy.

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