

Comparative Evaluation of the Nearest Results of Treatment of Sigmoid Volvulus in Elderly

D. M. Khakimov, M. M. Nosirov*

Andijan State Medical Institute, Andijan, Uzbekistan

Abstract The aim of the research work is - in a comparative aspect, to study the nearest results of treatment of sigmoid volvulus in elderly. **Materials.** The authors studied nearest results of treatment of sigmoid volvulus in 122 elderly patients. **Methods.** Comparative analysis of coming results of the non-operative and surgical treatment. **Conclusion.** Improving the tactical aspects of choosing the optimal type of treatment for SV in the elderly has reduced the risk of ineffective conservative therapy from 10.3% to 3.1%, reduced the share of reassessment of indications for resection interventions from 8.6% to 6.3%, and reduced the frequency of palliative interventions with the possibility of radical surgery from 22.4% to 3.1%, which generally led to an increase in the rate of the right tactics from 58.6% to 87.5%, reduce the incidence of specific complications from 35.7% to 15.3%, general complications from 19.6% to 10.2% and mortality from 22.4% to 10.9%.

Keywords Sigmoid volvulus, Surgical treatment, Nearest results

1. Introduction

The sigmoid volvulus (SV) in urgent surgery is still one of the most serious diseases of the abdominal organs [1-3].

To date, aspects of surgical epidemiology and clinical features in various regions of the world with large intestine inversions are well covered in the literature, according to which, for example, SV is often found in people of mature and old age (average age - 65 years), and blind inversion gut develops at a younger age. The average age of occurrence is 50 years. In some regions, for example, in India, the average age of the onset of the disease is 33 years. In different age groups and different regions, the sex ratio is different. According to averaged estimates, men predominate, but cecum inversion is much more common in women [2-7].

Today, cases of such patients being admitted to clinics are not uncommon, clinicians have sufficient experience, however, mortality in this disease reaches 11.5–40% or more [4-8], the number of complications of the early postoperative period, in general, is 8-32% and do not tend to reduce their frequency [9-12].

In our region, the occurrence of SV and the features of its clinical course with verification of risk factors for an adverse outcome have not yet been studied.

Aim of study is - in a comparative aspect, to study the

nearest results of treatment of sigmoid volvulus in elderly.

2. Materials and Methods

In order to objectively evaluate the results of optimization of the tactics of surgical treatment of patients with advanced cardiovascular diseases, we performed a comparative analysis between the groups, conditionally divided into the main group, which included 64 patients who were admitted to the surgical hospital from 2009 to 2018 (treatment was carried out in the aspect of tactical optimization approaches) and a comparison group, which included 58 patients admitted with SV in the period 2000 to 2008 (the treatment of which was carried out in accordance with the surgical tactics adopted at that time).

The evaluation of the results of treatment of patients in the compared groups was carried out after the distribution of patients according to the final type of treatment, which is presented in the diagram Figure 1.

As can be seen from Figure 1, conservative therapy was used in only 2 (3.4%) patients from the comparison group and in 5 (7.8%) patients from the main group. The use of palliative interventions for SV prevailed in the comparison group (38 (65.5%) versus 16 (25.0%), respectively), while the number of resection interventions significantly exceeded in the main group (34 (53.1%) versus 10 (17.2%), respectively). Two-stage surgical interventions were performed in almost the same number of patients in both groups.

In this regard, the distribution of patients according to the final type of treatment is presented in Figure 2.

* Corresponding author:

nmuzaffar@mail.ru (M. M. Nosirov)

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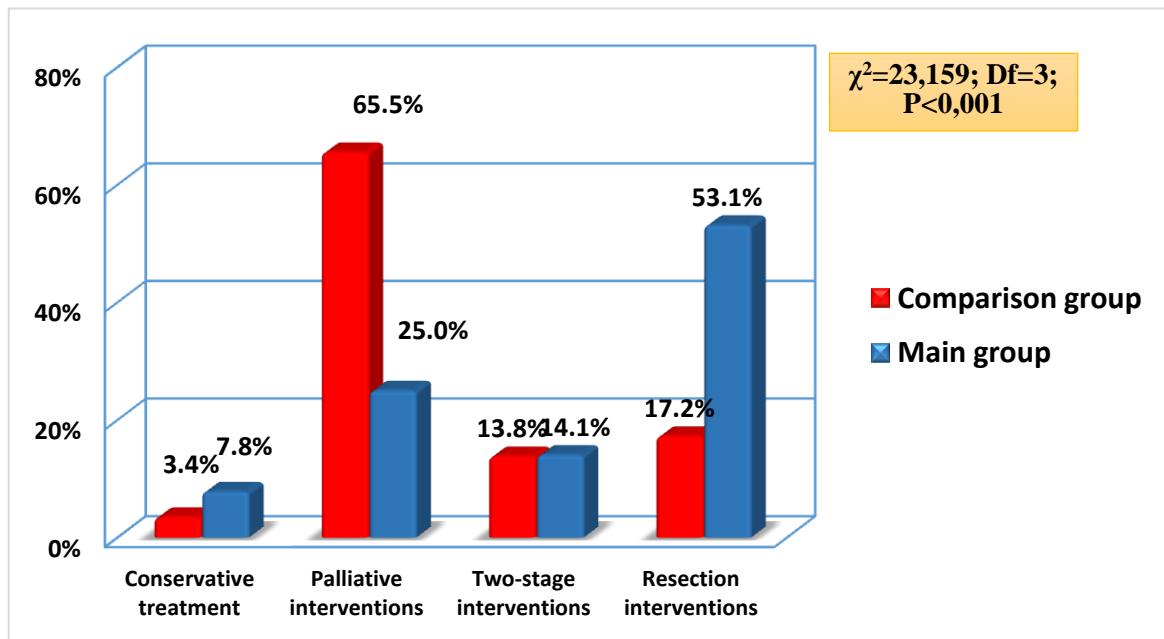


Figure 1. The distribution of patients by the final type of treatment

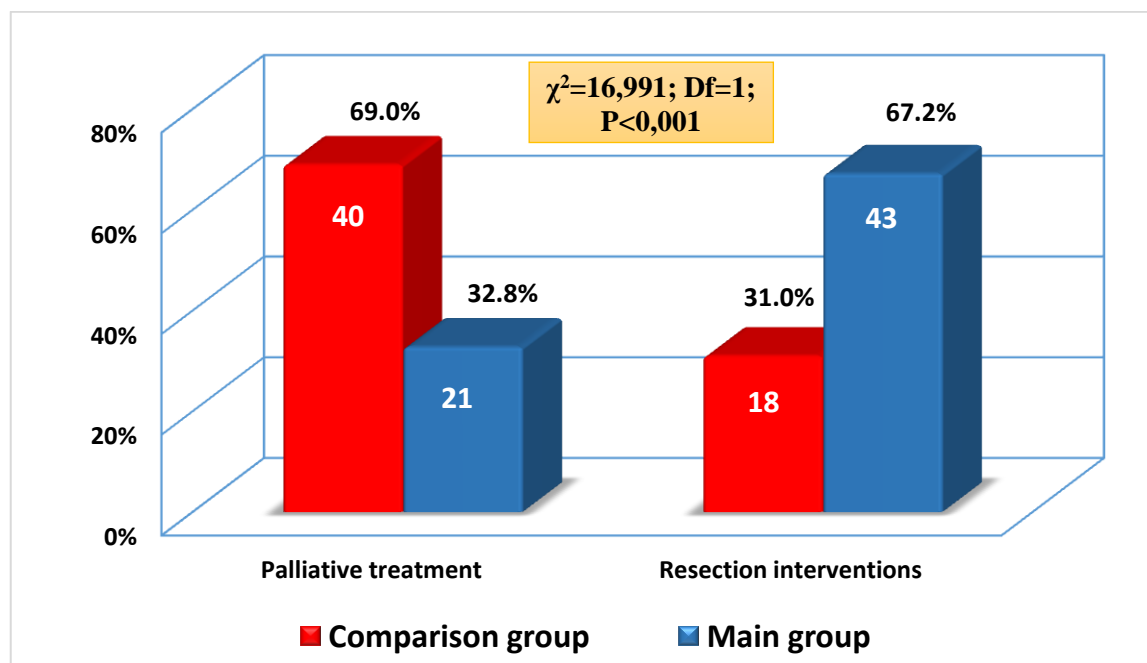


Figure 2. The distribution of patients by the final type of treatment

As can be seen from Figure 2, palliative treatment was mainly observed in the comparison group (40 (69%) versus 21 (32.8%), respectively), while optimization of tactical aspects led to a change in tactics in favor of resection radical interventions in the main group of patients (43 (67, 2%) versus 18 (31%) respectively).

3. Results

A detailed study of adverse outcomes and factors contributing to them in the near postoperative period allowed us to identify the main tactical shortcomings in the choice of

treatment for SV, which are presented in the diagram Figure 3. Thus, ineffective conservative therapy occurred in 6 (10.3%) patients from the comparison group and in 2 (3.1%) patients from the main group. Reassessment of indications for sigmoid colon resection (SCR) was almost identical in both groups: in 5 (8.6%) patients from the comparison group and in 4 (6.3%) from the main group. The possibility of performing one-stage surgical treatment was noted in 13 (22.4%) patients from the comparison group and only 2 (3.1%) patients from the main group. The correct tactics were evaluated by us in 34 (58.6%) patients in the comparison group and in 56 (87.5%) patients in the main

group ($\chi^2 = 15.297$; Df = 3; P = 0.002).

Thus, improving the tactical aspects of choosing the optimal type of treatment for SV in the elderly reduced the risk of ineffective conservative therapy from 10.3% (in 6 of 58 patients in the comparison group) to 3.1% (2 of 64 patients in the main group), reduced the share of the reassessment of indications for resection interventions from 8.6% (5 patients) to 6.3% (4 patients, respectively), to reduce the frequency of palliative interventions (detorsion with mesosigmoidoplication or sigmoidopexy) if it is possible to perform a radical operation (resection of the sigmoid colon)

from 22, 4% (13) to 3.1% (2), which generally led to an increase in the indicator of the right tactics from 58.6% (34) to 87.5% (56) ($\chi^2 = 15.297$; Df = 3; P = 0.002).

As for the nature and frequency of postoperative complications, they are presented in Figure 4 and in Table 1. As expected in coloproctology, we divided all the complications into local ones (anastomotic leakage, eventration, colostomy retraction, wound infection) and general (acute cardiovascular failure, broncho-pulmonary and thromboembolic complications).

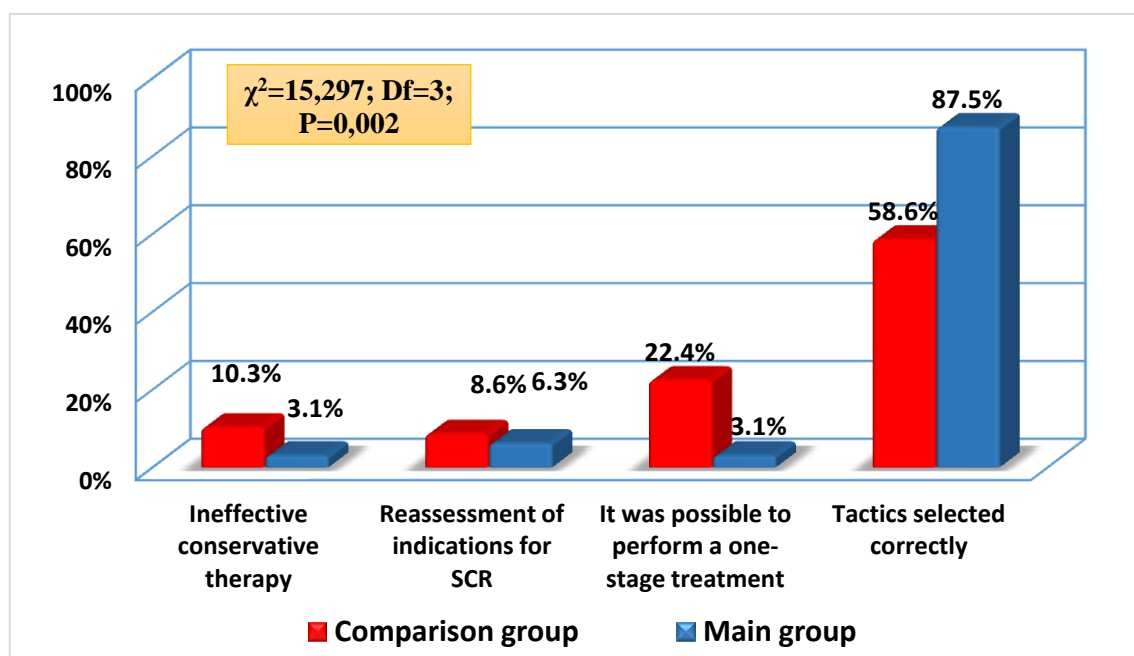


Figure 3. Tactical flaws in choosing a method for the treatment of SV

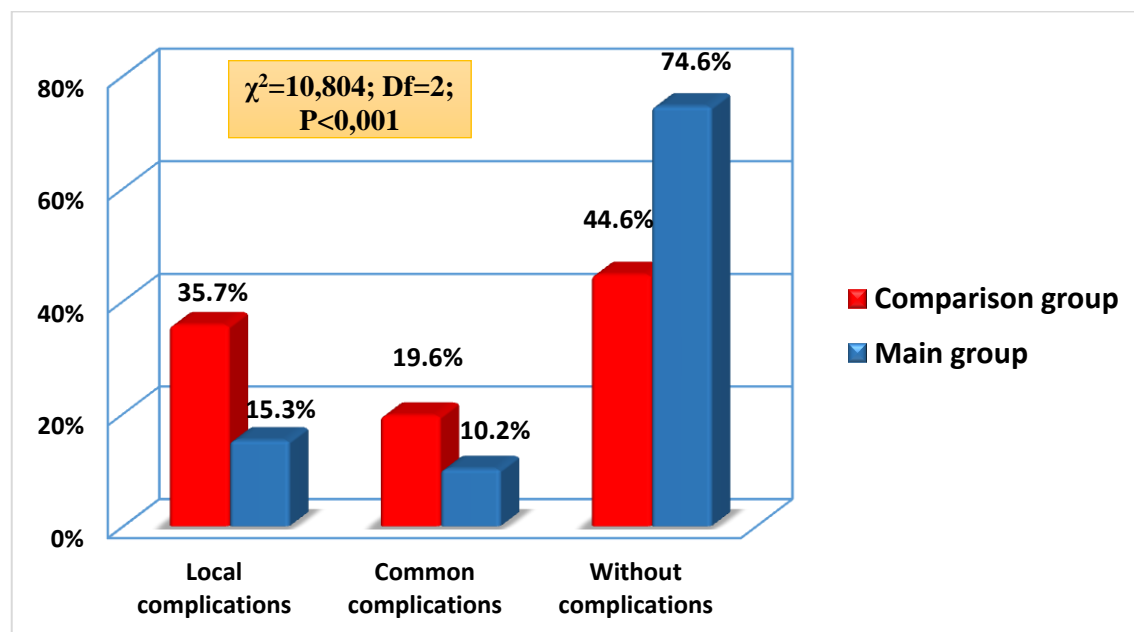


Figure 4. Tactical flaws in choosing a method for the treatment of sigmoid volvulus

As can be seen from the diagram in Figure 4, in the comparison group the number of both local (35.7% versus 15.3%, respectively) and general (19.6% versus 10.2%, respectively) complications significantly prevailed. Uncomplicated course was observed in only 44.6% of patients in the comparison group and in 74.6% of patients in the main group.

Table 1. The frequency of postoperative complications in comparison groups

Complications	Comparison group (n=56)		Main group (n=59)	
	abs.	%	abs.	%
Local character:				
Anastomotic leakage	7	12,5%	5	8,5%
Eventration	2	3,6%	0	0,0%
Colostomy retraction	2	3,6%	0	0,0%
Wound infection	9	16,1%	4	6,8%
Quantity:	20	35,7%	9	15,3%
	$\chi^2=6,378$; Df=1; P=0,012			
General:				
Acute cardiovascular failure	4	7,1%	3	5,1%
Broncho-pulmonary	3	5,4%	2	3,4%
Thromboembolic	4	7,1%	1	1,7%
Quantity:	11	19,6%	6	10,2%
	$\chi^2=2,047$; Df=1; P=0,153			
Total	31	55,4%	15	25,4%
	$\chi^2=10,726$; Df=1; P=0,002			

As can be seen from table 1, in the comparison group, the whole spectrum of local complications was noted, which exceeded the main group in frequency of development. Thus, anastomotic suture failure was observed in 7 (12.5%) patients in the comparison group and in 5 (8.5%) patients in the main group; suppuration of the postoperative wound was

noted in 9 (16.1%) patients in the comparison group and in 4 (6.8%) patients in the main group. Eventration (3.6%) and colostomy retraction (3.6%) were noted only in the comparison group.

Fatal outcome was observed in 13 (23.2%) patients from the comparison group and in 7 (11.9%) patients from the main group. The mortality rate depending on the nature of postoperative complications is presented in Figure 5. As can be seen from diagram 5.5, local complications caused death in 5 patients (8.9%) from the comparison group and 2 (3.4%) patients from the main group. General complications caused mortality in 8 (14.3%) patients from the comparison group and in 5 (8.5%) patients from the main group.

A more detailed description of the causes of death is presented in Table 2.

Table 2. Causes of postoperative mortality in comparison groups

Cause of mortality	Comparison group (n=56)		Main group (n=59)	
	abs.	%	abs.	%
Anastomotic leakage	5	8,9%	2	3,4%
Acute cardiovascular failure	3	5,4%	3	5,1%
Broncho-pulmonary complications	1	1,8%	1	1,7%
Thromboembolic complications	4	7,1%	1	1,7%
Total	13	23,2%	7	11,9%

As can be seen from table 2, the failure of the anastomotic sutures was the cause of death in 5 (8.9%) patients in the comparison group and in 2 (3.4%) patients in the main group. Among the general complications, pulmonary embolism prevailed, which was mainly observed in 4 (7.1%) patients from the comparison group and only 1 (1.7%). ASCH was the cause of death in 3 (5.4%) patients from the comparison group and 3 (5.1%) patients from the main group.

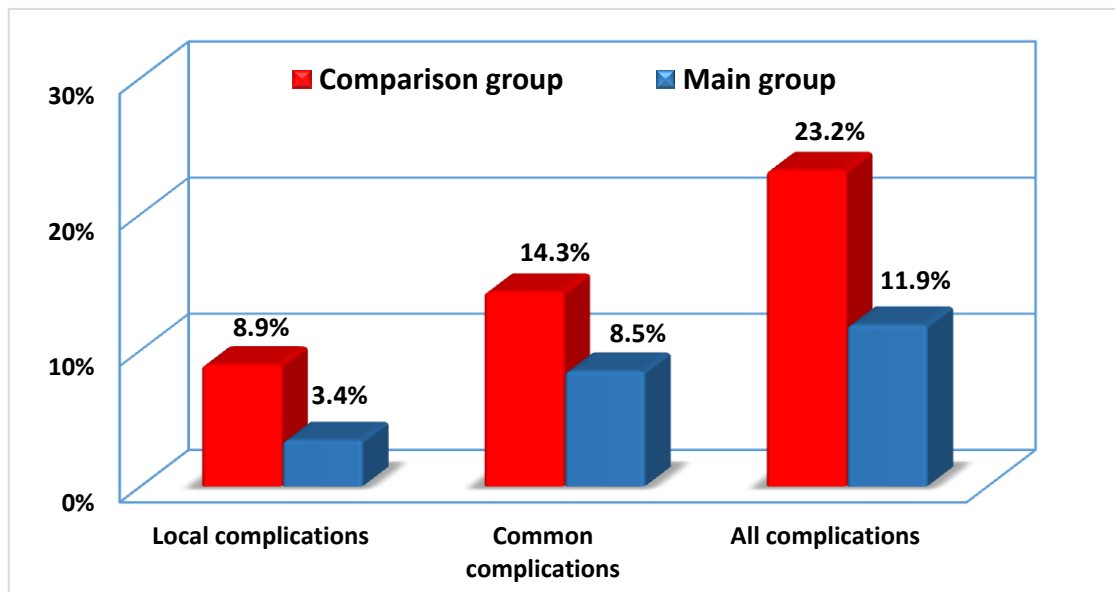


Figure 5. Mortality rate depending on the nature of postoperative complications

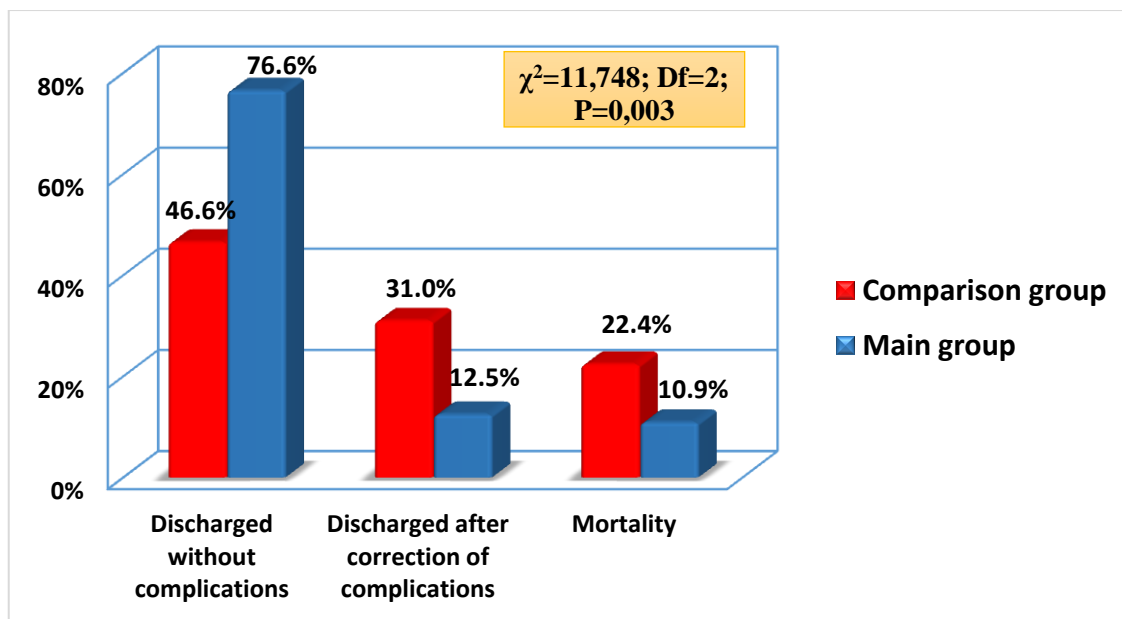


Figure 6. Consolidated immediate results of conservative and surgical treatment of sigmoid volvulus in the elderly

4. Discussion

The summary immediate results of the selected treatment tactics in the compared groups are presented in the diagram Figure 6. So, the total number of patients discharged without complication was 27 (46.6%) from the comparison group and 49 (76.6%) from the main group. Discharged after correction of complications: 18 (31.0%) from the comparison group and 8 (12.5%) from the main group.

Thus, the proposed algorithm for choosing the method of surgical treatment of elderly patients with SV allowed to reduce the incidence of specific complications from 35.7% (in 20 of 56 operated patients in the comparison group) to 15.3% (in 9 of 59 operated patients in the main group), general complications from 19.6% (11) to 10.2% (6) and mortality from 22.4% (13) to 10.9% (7).

5. Conclusions

The studies conducted allowed us to draw the following conclusions: Improving the tactical aspects of choosing the optimal type of treatment for SV in the elderly made it possible to reduce the risk of ineffective conservative therapy, reduce the share of reassessment of indications for resection interventions, and reduce the frequency of palliative interventions when radical surgery is possible (resection of the sigmoid colon), which generally led to an increase in the rate of the right tactic.

The developed algorithm for choosing the optimal tactics for the management of elderly patients with SV, as well as improving the technical aspects of performing resection interventions, reduced the frequency of complications in the coming period from 53.4% (in 31 of 58 patients in the comparison group) to 23.4% (in 15 of 64 patients in the main group) ($\chi^2 = 11.667$; Df = 1; P < 0.001).

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