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Research Article

CLINICAL CHARACTERISTICS OF PATIENTS DURING STENTING WITH DIFFERENT TYPES OF STENTS WITH BENIGN DYSPHAGIA

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ABSTRACT

Dysphagia is a common condition that can seriously affect a patient's quality of life. It is a common symptom in the general population, with a prevalence of up to 20% and affecting up to 50% of people over 60 years of age. From an anatomical point of view, it can be due to oropharyngeal or esophageal etiology, while from a pathophysiological point of view, dysphagia can be caused by organic (benign or malignant) and functional diseases, causing mainly motor disorders.

KEYWORDS

Anatomical point of view, etiology, functional diseases, causing mainly motor disorders.

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INTRODUCTION

Purpose of the study: to determine the features of the clinic of patients with stenting by various types of stent with benign dysphagia

MATERIALS AND METHODS

in order to achieve the goals set by the task of studying the features of benign dysphagia, we studied 60 patients with dysphagia syndrome caused by various benign pathologies of the esophagus. All patients were hospitalized at the Department of Surgery of the Esophagus and Stomach of the State Institution "Republican Specialized Center for Surgery named after N.N. acad. V. Vakhidov" for the period from 2000 to 2021

The distribution of patients by sex and age is presented in Table 1, from the data of which it follows that there were 42 (70%) men and 18 (30%) women,

Table 1.

Distribution of patients by sex and age

Floor	19-44 years old	45-59 years old	60-75 years old	75 and over	Total
Men	4	5	20	13	42 (70%)
Women	-	2	9	7	18 (30%)
Total	4 (6.67%)	7 (11.7%)	29 (48.3%)	20 (33.3%)	60 (100%)

The age of patients ranged from 19 to 78 years, the majority were patients aged 60 to 75 years - 29 (48.3%),

The results of treatment of patients with dysphagia syndrome, who underwent stenting of the esophagus, were analyzed. In this regard, only those cases were used when it was not possible to perform radical surgical interventions due to the inoperability or unrespectability of the process, severe alimentary insufficiency, as well as patients who underwent stenting of the esophagus as a preparation for surgery. The nature of the pathologies of the esophagus, for which stenting was performed, are presented in Table 2.

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Table 2.

Distribution of patients according to the nature of the pathology of the esophagus

Groups	Benign narrowing of the esophagus	
	Post-burn scar strictures	Stenosing reflux esophagitis
Main (n=27)	15 (25%)	12 (20%)
Control (n=33)	25 (41.7%)	8 (13.3%)

When analyzing the nature of the pathology of the esophagus, he showed that benign diseases of the esophagus are most commonpost-burn cicatricial strictures in 40 patients (66.7%) of the total number of patients (n=60),with a prevalence in the control group (in 25 patients, which is 41.7%). Stenosing reflux esophagitis prevailed in the main group, 20% versus 13.3%.

It should also be noted that due to the improvement of instrumental methods for the treatment of benign narrowing of the esophagus, post-burn cicatricial strictures requiring long-term intubation of the upper gastrointestinal tract, the number of patients has noticeably decreased.

The clinical material was divided into 2 groups, which were representative by gender, age, concomitant diseases, as well as by the nature of the primary pathology of the esophagus (p>0.05),

The first (control) group consisted of 33 patients who underwent stenting of the esophagus and CEP with silicone stents of our own design in the period from 2000 to 2017.

The second (main) group consisted of 27 patients who were operated on in the period from 2018 to 2021. In this group, a new method of stenting with metal self-expanding stents was used, as well as an improved complex for the prevention of postoperative complications (Fig. 1)

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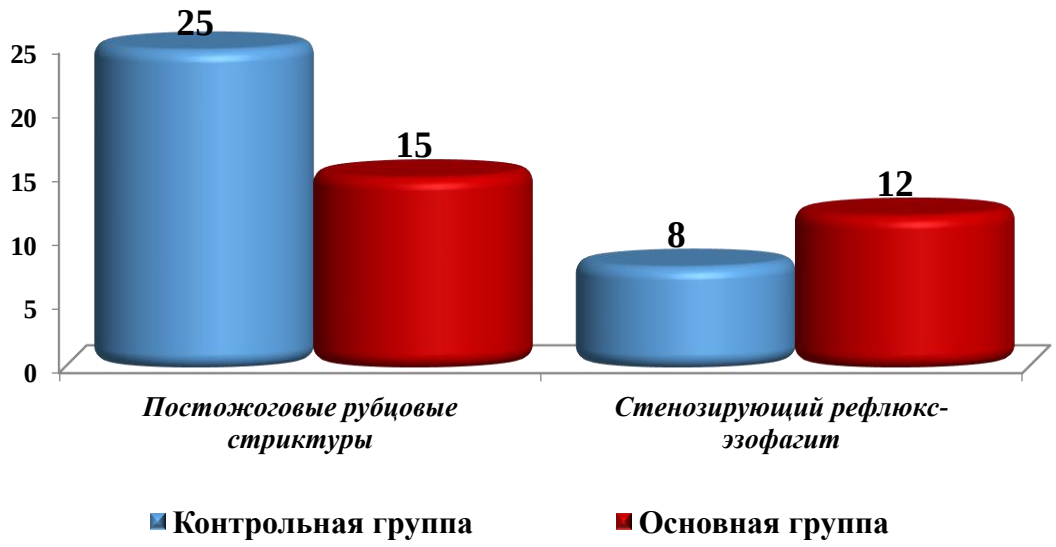
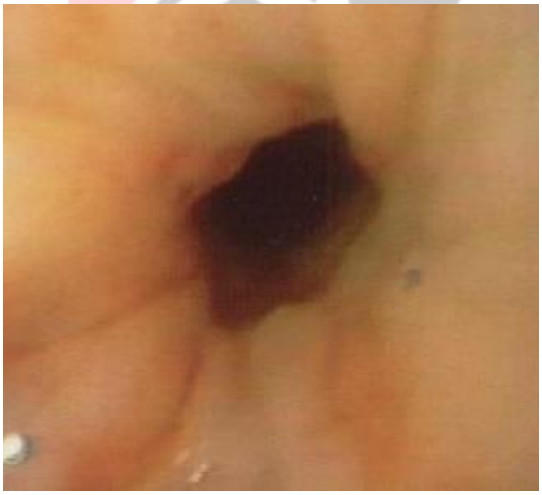
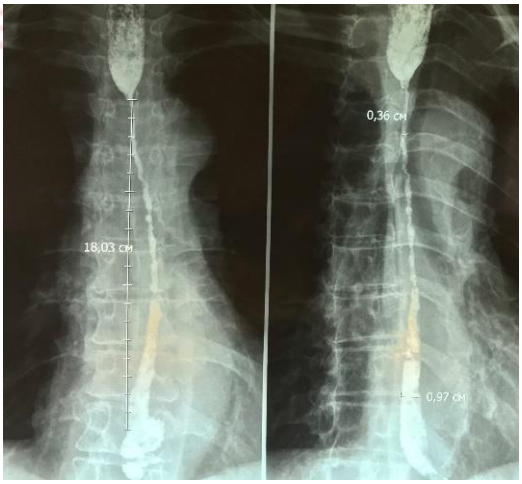


Fig 1. Distribution of patients by pathology of the esophagus and groups

Special research methods were used: endoscopy, X-ray contrast study of the esophagus and stomach, ultrasound, TBFS. Endoscopic examination is the leading method in the differential diagnosis between various diseases of the esophagus, since in most cases, they are manifested by dysphagia (Fig. 2, 3),



Rice. 2 Endoscopic picture of cicatricial stenosis



Rice. 3. X-ray picturecicatricial stricture of the esophagus

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RESULTS AND DISCUSSIONS

among the stenosing diseases of benign origin, characterized by the formation of cicatricial stricture, are post-burn cicatricial strictures of the esophagus and stenosing reflux esophagitis. In both cases, the formation of cicatricial stricture is due to the influence of a chemical reagent on the mucous membrane of the esophagus. However, if in the case of SRE, the stricture is formed only in the lower third of the esophagus, then in PRSP it can form in any anatomical segment of the esophagus. Stenting for benign stenoses is used when other minimally invasive interventions, such as bougienage and hydroballoon dilatation, are not effective, i.e. give a short-term effect.

As with a malignant lesion, the stricture prevents adequate passage of food through the esophagus and causes a key symptom, dysphagia. In our study, all 60 patients underwent stenting with PRSP and SRE. Of these, the control group consisted of 33 patients, which accounted for 55% and 27 (45%) patients of the main group.

The distribution of patients according to the duration of the disease was as follows: 4-6 months in 12 (20%) patients, 6-12 months in 1 (1.7%) patient, over 1 year in 47 (78.3%) patients (Table 3 .),

Table 3

Distribution of patients according to the duration of the disease

Groups	Disease duration			
	4-6 months	from 6 months to 1 year	over 1 year	Total
Main	5	-	22	27 (45%)
Control	7	1	25	33 (55%)
Total	12 (20%)	1 (1.7%)	47 (78.3%)	60 (100%)

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The distribution of patients according to the degree of dysphagia in the comparison groups was as follows: I degree of dysphagia was observed in 4 (6.7%) patients, II degree in 23 (38.3%) patients, III degree in 27 (45%) patients and IV degree in 6 (10%) patients.

The distribution of patients depending on the degree of dysphagia is presented in Table 4.

Table 4

Distribution of patients according to the degree of dysphagia

Groups	Degree of dysphagia				
	I	II	III	IV	Total
Main	2	eleven	12	2	27 (45%)
Control	2	12	15	4	33 (55%)
Total	4 (6.7%)	23 (38.3%)	27 (45%)	6 (10%)	60 (100%)

As follows from the table, I degree of dysphagia, both in the CG and in the MG, was observed in 2 patients. II degree, in the CG was observed in 11 patients, and in the OG in 12 patients. III degree of dysphagia, in the CG was noted in 12 patients and in 15 patients in the MG. IV degree of dysphagia, in the CG was observed in 2 patients and in 4 patients in the MG.

The distribution of patients according to the location of cicatricial strictures is presented in Table 5.

Table 5

Localization of cicatricial strictures

Groups	Localization				Total
	c/3	s and n/3	n/3	n/3 and CEP	

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Main	3	3	9	12	27 (45%)
Control	4	6	15	8	33 (55%)
Total	7 (11.7%)	9 (15%)	24 (40%)	20 (33.3%)	60 (100%)

It follows from the table data that strictures were localized in the middle third of the thoracic esophagus in 7 (11.7%) patients, in the middle and lower third of the thoracic esophagus - 9 (15%), in the lower third of the thoracic esophagus - 24 (40%) and localization tumors in zone n/3 and cardioesophageal junction in 20 patients, which was 33.3%.

Also, as in the case of tumor stenoses, the determination of the length of the cicatricial stricture was important, since the choice of the stent length depended on it. During the examination, we established the following length: from 4 to 6 cm, from 7 to 9 cm, and the longest from 10 to 12 cm. The distribution of patients according to the length of the stricture is presented in Table 6.

Table 6

Distribution of patients according to the length of cicatricial strictures

Groups	**length of cicatricial strictures**			**Total**
	4-6 cm	**7-9 cm**	**10-12 cm**	
Main	17	5	5	27 (45%)
Control	17	8	8	33 (55%)
Total	34 (56.7%)	13 (26.6%)	13 (26.6%)	60 (100%)

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As follows from the table, the length from 4 to 6 cm prevailed in 34 (56.7%) patients. And in the rest of the patients, the length of cicatricial strictures was almost the same: from 7 to 9 cm in 13 (26.6%) patients and in 13 (26.6%) patients, the length was from 10 to 12 cm.

Stenting of benign strictures with silicone stents: In the department of surgery of the esophagus and stomach, together with the department of endoscopy of the State Institution "RSCS named after academician V. Vakhidov", in 2002, an own method of endoscopic stenting (ES) of the esophagus in patients with PRSP was developed and put into practice.

An improved prosthesis model was used for endoscopic stenting. The length and diameter of the stent were selected strictly individually in accordance with the length and diameter of the narrowing of the esophagus.

In the control group, stenting of the esophagus with silicone rigid endoprostheses of our own design, in case of benign stenosis, has a number of limitations. The limited use of ES is due to the fact that careful selection of patients is necessary to obtain optimal results. This technique is possible under certain conditions that allow the use of ES.

For our studies, we considered contraindications to endoscopic stenting:

1. Ulcerative necrotic esophagitis in the early post-burn period. As is known, in the first 3 months, the stricture of the esophagus only begins to form, while in most cases the phenomena of ulcerative necrotic esophagitis persist. The use of stenting in this situation can lead to pressure ulcers of the wall and bleeding. In this regard, in the first 3 months, it is necessary to conduct complex local therapy, which will contribute to adequate healing of the esophageal wall.

2. Absence of suprastenotic expansion of the esophagus over the narrowing. Compared to standard mesh implants that grow through connective tissue and remain permanently in the lumen of the esophagus, our stent models are made of silicone that can migrate distally under gravity. Therefore, for adequate fixation of the prosthesis, it is necessary to have a suprastenotic expansion above the stricture, where an anti-migration funnel can be fixed.

3. Cicatricial narrowing of the esophagus with the capture of the pharynx or mouth of the esophagus. This contraindication is due to the need to fix the endoprosthesis, which cannot be provided in the oral cavity or in the pharynx.

4. Total post-burn cicatricial narrowing of the esophagus. In most cases, with total strictures, it is impossible to perform stenting, because. before installing the prosthesis, it is necessary to adequately expand the stricture by bougienage. In exceptional

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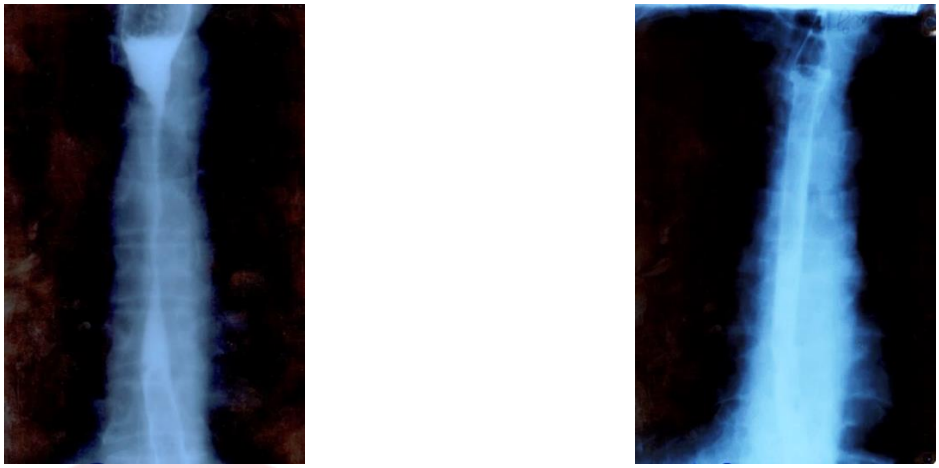
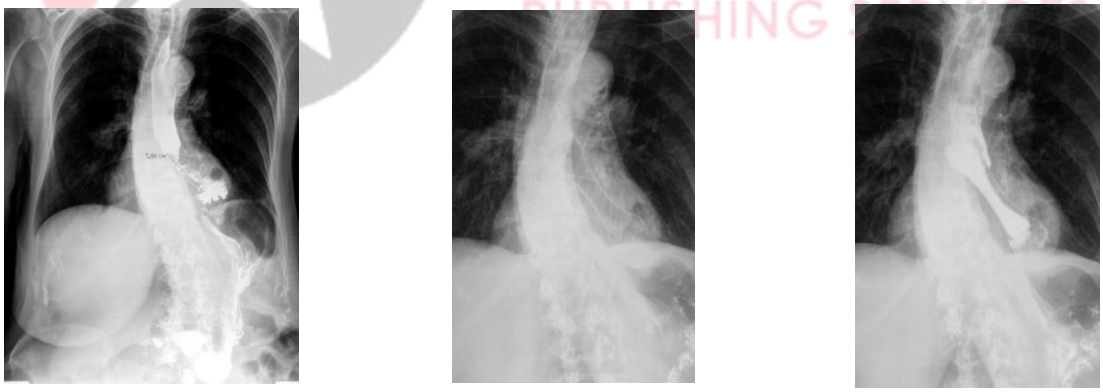
cases, stenting can be performed in these patients for preoperative preparation.



Rice. 4. X-ray picture before and after endoscopic stenting

The installation of a stent of our own design requires a phased expansion of the esophagus by bougienage along the string, EB replaceable olives and HD. At the same time, for the adequacy and safety of further ES, it is necessary to expand the stricture to 1.2-1.4 cm, which corresponds to bougie No. 38-40 (Figure 4.5.).



A) Stenosing reflux esophagitis *B) After stenting (no contrast)* *B) After stenting (with contrast)*

Rice. 5. X-ray picture before and after endoscopic stenting

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After restoring the patency of the esophageal stricture, control endoscopy is performed, during which the length of the future stent is accurately determined, as well as the distance of the stricture from the mouth of the esophagus (Fig. 4.5.).

The stenting technique in the control group was carried out according to the described methods: on a bougie and on an endoscope device and was performed in 33 (55%) patients. As in case of tumor stenoses, after stenting, the stent localization was monitored (Figure 4.5.).

Results of stenting for benign strictures. Stenting of benign strictures with metal stents: In the main group, stenting was also performed according to the method described above. However, it should be noted that stenting with self-expanding stents often did not require preliminary bougienage, since the introducer itself acted as a bougie. In the main group, stenting for benign strictures was performed in 27 patients, which accounted for 45%. After stenting, as well as in the control group, a mandatory control of the localization of the installed stent was carried out (Fig. 5.)

When evaluating the results of stenting of 60 patients with PRSP and ESR, we, as in the case of a tumor lesion, evaluated both immediate and long-term results. When evaluating the immediate results (Table 7.), it was found that, in the control group, out of 33 patients who used stents of their own design, all 100% had various complications. In the main group, out of 27 patients who used self-expanding nitinol stents, complications were not observed in 17 patients, which amounted to 63%.

Table 7

Immediate results of stenting

The nature of the complications	Silicone stents n=33	Metal nitinol stents n=27
Bleeding	4 (12%)	1 (3.7%)
Damage to the wall of the esophagus without perforation	5 (15.2%)	1 (3.7%)

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Intractable pain syndrome	11 (33.3%)	2 (7.4%)
Reflux esophagitis	13 (39.4%)	3 (11.1%)
Total:	33 (100%)	7 (26%)

As follows from the table, in the control group, the number of complications exceeds the number of stents performed. This is due to the fact that one patient had one or more complications. In the main group, complications developed in 7 patients, which amounted to 26%.

In the structural analysis of the complications that have arisen, we found that non-penetrating damage to the esophageal wall in the control group was noted in 4 (12.1%) patients, while in the main group, this type of complication was observed in 1 patient, which amounted to 3.7 %. Intractable pain syndrome caused by the pressure of the stent on the cicatricial stricture was observed in 11 patients in the control group, which amounted to 33.3%, and in the main group in 2 patients and amounted to 7.4%. Bleeding in the control group was observed in 4 (12.1%) patients, in the main group in 1 (3.7%) patients. Reflux esophagitis, in the CG was observed in 14 (42.4%) patients, and in the main group, a decrease in this indicator was noted in 3 patients, which amounted to 11.1%.

Long-term results were evaluated at 1 month, 6 months and 1 year. Complications in the control group, in the long-term period were observed in 20 (60.6%) patients, in the main group this figure decreased and amounted to 18.5% (Table 8.)

Table 8

Distribution of patients by late complications

Late Complications	**Silicone stents (n=33)**	**Metal nitinol stents (n=27)**
Reflux esophagitis	6 (18.2%)	1 (3.7%)

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Food obturation of the stent	5 (15.1%)	3 (11.1%)
Obturation of the proximal stent by cicatricial (granulation) process	3 (9.09%)	1 (3.7%)
Migration of the stent into the stomach and small intestine	6 (18.2%)	-
Total:	20 (60.6%)	5 (18.5%)

Among the late complications, as follows from the table, reflux esophagitis was the most common. The latter was diagnosed in 6 (18.2%) patients in the control group; in the main group, due to the antireflux mechanism, this indicator decreased and was observed in 1 (3.7%) patients. Obturation of the proximal stent funnel with food in the control group was observed in 5 (15.2%) patients, and in the main group in 3 (11.1%) patients. Obturation of the proximal stent by the granulation process in the control group was noted in 3 (9.1%) patients, and in the main group this indicator decreased and was observed in 1 (3.7%) patient. Stent migration into the stomach or small intestines of the control group was observed in 6 (18.2%) patients, while in the main group this type of complications was not noted.

Thus, Based on our research, we can conclude that among benign diseases of the esophagus, the most commonpost-burn cicatricial strictures (n=40) in 66.7% of the total number of patients (n=60),It should also be noted that due to the improvement of instrumental methods for the treatment of benign narrowing of the esophagus, post-burn cicatricial strictures, the number of patients requiring long-term intubation of the upper gastrointestinal tract has noticeably decreased.

When evaluating the results of stenting of 60 patients with PRSP and ESR, we, as in the case of a tumor lesion, evaluated both immediate and long-term results.

When evaluating the immediate results, it was found that, in the control group, out of 33 patients who used stents of their own design, all 100% had various complications. In the main group, out of 27 patients who used self-expanding nitinol stents, complications were not observed in 17 patients, which amounted to 63%.

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