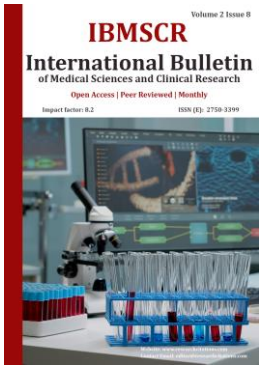

FEATURES OF STENTING IN PATIENTS WITH MALIGNANT STENOSIS

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Relevance: Dysphagia is a common problem. One in 17 people will develop some form of dysphagia during their lifetime. A 2011 UK study shows a prevalence of dysphagia of 11% in the general population [9]. The condition develops in 40–70% of patients with stroke, 60–80% of patients with neurodegenerative diseases, nearly 13% of adults aged 65 and older, and >51% of elderly patients in nursing homes [10,11]. It also affects 60–75% of patients receiving radiotherapy for head and neck cancer.

Epidemiological data on a global scale is difficult to generalize, as the frequency of most diseases that cause dysphagia tends to differ between regions and continents. Therefore, at the global level, it is only possible to speak of approximate data. Frequency levels also vary with patient age, and it must be remembered that the range of disorders associated with childhood dysphagia differs from that in older age groups. In younger patients, dysphagia is often seen with head and neck injuries, as well as with cancer of the neck and mouth. Dysphagia generally occurs in all age groups, but its frequency increases with age.

The frequency of tumors varies in different countries. In the US and Europe, for example, adenocarcinoma is the most common type of esophageal cancer, while in India and China it is squamous cell carcinoma. Similarly, corrosive strictures of the esophagus (after ingestion of corrosive substances with suicidal intent) and tuberculosis may be important issues in non-Western countries.

Purpose of the study:to study the features of stenting of patients with malignant stenosis.

Materials and methods of research: The basis for this scientific study was the experience of treating 390 patients with dysphagia syndrome caused by various malignant diseases 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 274 (70.2%) men and 116 (29.8%) women. ($\chi 2=0.02348$, df=4, p=0.88).

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	23	33	129	89	274 (70.2%)
Women	-	14	62	40	116 (29.8%)
Total	23 (6%)	47 (12%)	191 (48.9%)	129 (33.1%)	390 (100%)

The age of the patients ranged from 19 to 78 years, the majority were patients aged 60 to 75 years - 191 (48.9%), which emphasizes the high social significance of the problem under study.

The nature of the pathologies of the esophagus, for which stenting was performed, are presented in Table 2.

Table 2.
Distribution of patients according to the nature of the pathology of the esophagus

	The nature of the pathology of the esophagus	Fundamentals. gr	Counter. gr	Abs.	%
Tumor of the esophagus and CEP		149 (100%)	241 (100%)	390	100%
1	Tumors of the esophagus	93 (62.4%)	157 (65.1%)	250	64.1%
2	Tumor CEP	56 (37.6)	84 (34.9%)	140	35.9%

Analysis of the nature of the pathology of the esophagus showed that the majority of patients had tumors of the esophagus 64.1% (n=250) of 390 patients. There were 35.9% (n=140) with CEP tumors,this is due to the greater prevalence of malignant lesions of the esophagus as a result of the influence of a large number of etiological factors.

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)(Fig. 1).

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

The first (control) group consisted of 241 patients who underwent esophageal stenting and CEP with self-developed silicone stents in the period from 2000 to 2017.

The second (main) group consisted of 149 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.

Results and discussions: The vast majority of patients presented clinical material (n=390) were with tumors of the esophagus - 250 patients, which amounted to 64.1%. At the same time, there were 140 patients with tumors of the cardioesophageal junction, which accounted for 35.9%.

The distribution of patients according to the duration of the disease was as follows: up to 3 months in 121 (31%) patients, 4-6 months in 121 (31%) patients, 6-12 months in 110 (28.2%) patients, over 1 year in 38 (9.8%) of patients (Table 3),

Table 3

Distribution of patients according to the duration of the disease in the comparison groups

Groups	Disease duration				
	up to 3 months	4-6 months	from 6 months up to 1 year	over 1 year	Total
Main	47	47	41	14	149 (38.2%)
Control	74	74	69	24	241 (61.8%)
Total	121 (31%)	121 (31%)	110 (28.2%)	38 (9.8%)	390

Dysphagia is the main symptom that prompts the patient to seek medical help for both malignant and benign stenoses. In this regard, we conducted an analysis of the degree of dysphagia in patients with malignant stenosis, presented in Table 3.4.

Table 3.4.

Distribution of patients according to the degree of dysphagia in the comparison groups

Groups	Degree of dysphagia				
	I degree	II degree	III degree	IV degree	Total
Main	2 (1.34%)	66 (44.3%)	76 (51%)	5 (3.36%)	149 (38.2%)
Control	6 (2.49%)	102 (42.3%)	125 (51.9%)	8 (3.32%)	241 (61.8%)

Total	8 (2%)	168 (41.1%)	201 (51.6%)	13 (3.3%)	390 (100%)

As follows from the table, I degree of dysphagia in the control group was observed 1.85 times more than in the main group 26 (2.49%) and (1.34%), respectively. The remaining degrees of dysphagia (II, III, IV) occurred with almost the same frequency in all the studied groups.

When conducting a comprehensive examination, the localization of the process and its length were determined. The localization of tumors of the esophagus was as follows: upper and middle third of the esophagus, middle third of the esophagus, middle and lower third of the esophagus, lower third and cardioesophageal transition. The distribution of patients according to the localization of the pathological process is presented in Table 5.

Table 5

Localization of the tumor process in the studied groups

Groups	**localization**					
	T and b/3	**b/3**	**B and l/3**	**l/3**	**CEP**	**Total**
Main	6	31	37	19	56	149 (38.2%)
Control	11	62	60	24	84	241 (61.8%)
Total	17 (4.4%)	93 (23.8%)	97 (24.9%)	43 (11%)	140 (35.9%)	390

From the data of the table it follows that in the upper and middle third of the esophagus the tumor was localized in 17 patients, which amounted to 4.4%, the majority were patients with lesions of the middle and lower third of the thoracic esophagus - 97 (24.9%), the middle third of the thoracic esophagus the esophagus - 93 (23.8%), the lower third of the thoracic esophagus - 43 (11%) and the localization of the tumor in the area of the cardioesophageal junction in 140 patients, which was 35.9%.

Determining the extent of the tumor process was important, since the selection of the stent length depended on this indicator. To determine the extent, the most informative research method is the X-ray contrast method, since with severe stenosis it is not always possible to carry out an endoscope device and measure the extent of the process. During the examination, we established the following extent of the tumor process: up to 3 cm, 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 extent of the tumor process is presented in Table 6.

Table 6

Distribution of patients according to the extent of the tumor

Groups	Tumor's length				
	up to 3 cm	4-6 cm	7-9 cm	10-12 cm	Total
Main	18	53	63	15	149 (38.2%)
Control	23	86	104	28	241 (61.8%)
Total	41 (10.6%)	139 (35.6%)	167 (42.8%)	43 (11%)	390

As follows from the table, a length of up to 3 cm was diagnosed in 41 (10.6%) patients, from 4 to 6 cm in 139 (35.6%) patients, from 7 to 9 cm in 167 (42.8%) patients and in 43 (11%) of patients, the length was from 10 to 12 cm.

All patients before the start of treatment showed weight loss, which directly depends on the duration of dysphagia (table 7), weight loss up to 5 kg. in 58 (14.9%) patients, up to 10 kg. was present in 181 (46.4%) patients, up to 15 kg. in 60 (15.4%), up to 20 kg. in 53 (13.6%) patients, over 20 kg. in 33 (8.5%) patients.

Table 7

Distribution of patients by weight loss

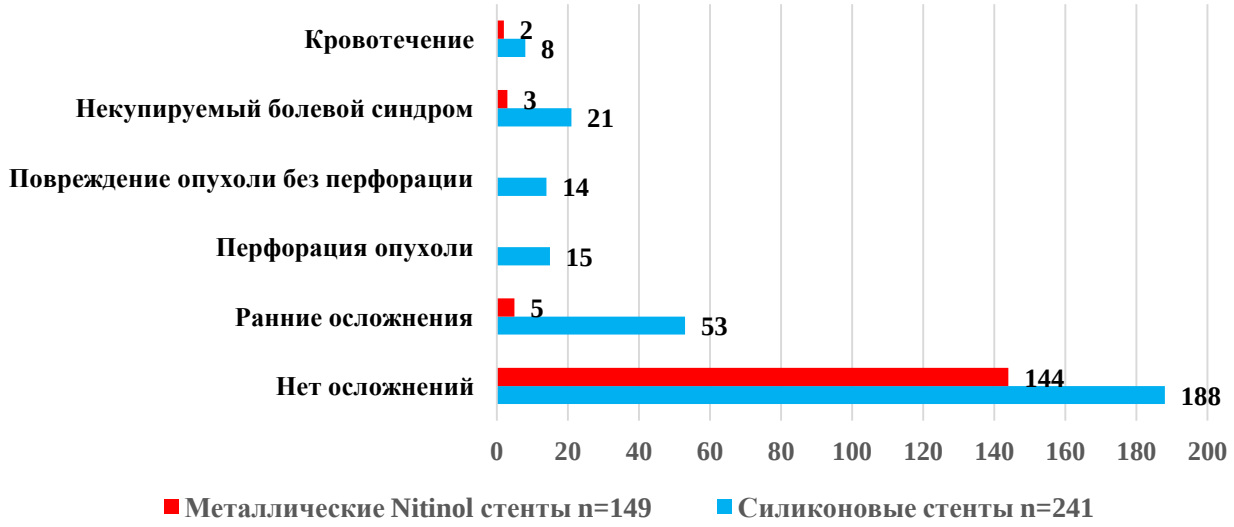
Groups	Mass loss						
	up to 5 kg	up to 10 kg	up to 15 kg	up to 20 kg	over 20 kg	gained 10 kg	Total
Main	21	71	21	19	14	3	149 (38.2%)
Control	37	110	39	34	19	2	241 (61.8%)
Total	58 (14.9%)	181 (46.4%)	60 (15.4%)	53 (13.6%)	33 (8.5%)	5 (1.3%)	390

Patients with inoperable stages of cancer of the esophagus and stomach should strive to restore enteral nutrition to improve the quality of the rest of their lives. Previously, gastrostomy was preferred, but at present, modern minimally invasive endoscopic interventions have made it possible to significantly limit the indications for gastrostomy, which is difficult psychologically tolerated by patients and has its own surgical complications.

The main reason for using stenting (prolonged esophageal intubation) is the possibility of oral nutrition, because. tunnelization and bougienage cannot provide long-term restoration of esophageal patency due to the constant growth of the tumor, again obturating the lumen.

Thus, the stent limits the stenosis of the tumor lumen, acting as a scaffold. However, stenting cannot be used in all patients, because two conditions are necessary: the presence of suprastenotic expansion and a circular lesion in order to prevent stent migration.

When evaluating the results of stenting 390 patients with tumors of the esophagus and proximal stomach, we evaluated both immediate and long-term results. When evaluating the immediate results (Fig. 2), it was found that, in the control group, out of 241 patients who used stents of their own design, no complications were noted in 188 patients, which amounted to 78%. In the main group, out of 149 patients who used self-expanding nitinol stents, no complications were observed in 144 patients, which amounted to 96.6%.



Rice. 2. Immediate results of stenting

Early complications in the control group were observed in 53 (22%) patients, while in the main group their number decreased to 5 patients and amounted to 3.35%.

The most formidable complication during stenting is perforation of the tumor with a stent, which was observed in 15 (6.2%) patients in the control group. In the main group, due to the peculiarities of stenting and the mechanism of stent deployment, this type of complications was not observed. Tumor damage without perforation in the control group was noted in 14 (5.8%) patients, while in the main group, this type of complications was also not observed. Intractable pain syndrome caused by the pressure of the stent on the tumor in the control group was observed in 21 patients, which amounted to 8.7%, and in the main group in 5 patients and amounted to 3.3%. Bleeding in the control group was observed in 8 (3.3%) patients, in the main group in 2 (1.3%) patients.

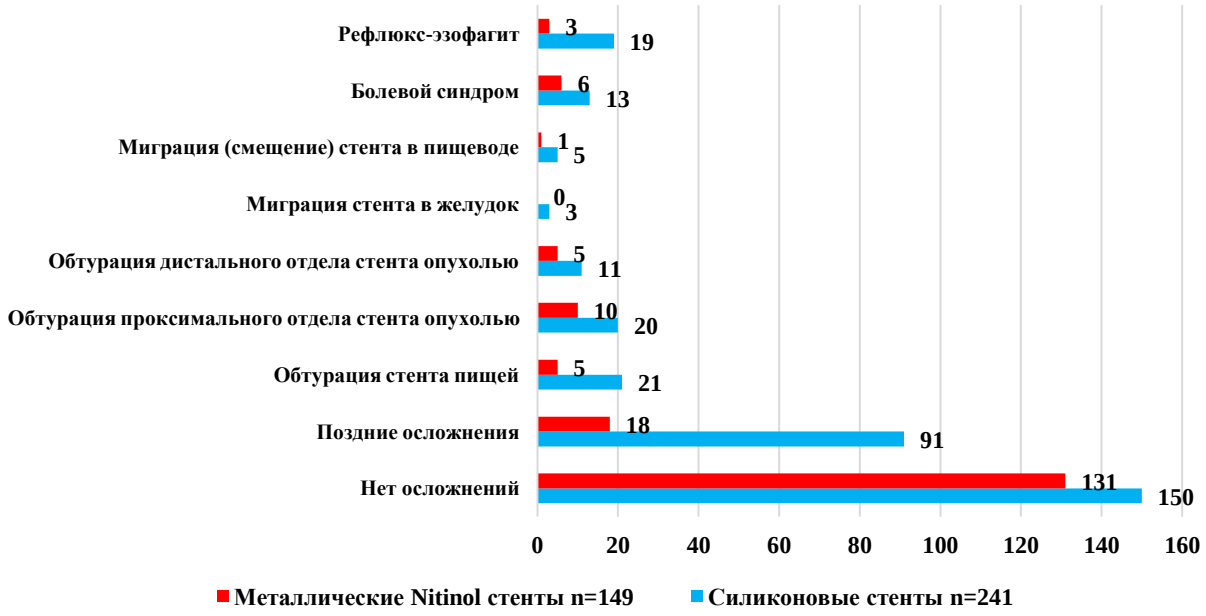
Long-term results, given that stenting was performed in advanced cases, were estimated by us at 1 month, 6 months and 1 year. At the same time, in the control group, in the long-term period, complications were not observed in 150 patients, which amounted to 62.2% (Fig. 3.).

In the main group, a similar indicator increased, i.e. complications were not observed in 131 patients and amounted to 87.9%. Complications in the control group were observed in 59 (37.8%) patients, in the main group this figure decreased by more than 2 times and amounted to 12.8%.

Among the late complications, the most common was obturation of the proximal stent infundibulum with food. In the control group, this type of complications was observed in 21 (8.7%) patients, and in the main group in 5 (3.35%) patients.

The second most common was obstruction of the proximal stent by a growing tumor. In the control group, obstruction of the proximal stent by a tumor was observed in 20 (8.3%) patients, and in the main group this indicator decreased and was observed in 10 (6.71%) patients. Obturation of the distal stent by a tumor was observed in the control group in 11 (4.6%) patients, in the main group in 5 (3.35%) patients. Stent migration into the stomach in the control group was observed in 3 (1.24%) patients, while in the main group this type of complications was not observed.

Stent migration into the esophagus was diagnosed in 5 (2.07%) patients in the control group, and only in 1 (0.67%) patient in the main group. Pain syndrome persisted in the control group in 13 (5.4%) patients, while in the main group this indicator decreased by half and was observed in 6 (4%) patients. Reflux esophagitis was diagnosed in 19 (7.9%) patients in the control group; in the main group, due to the antireflux mechanism, this indicator decreased by 4 times and was observed in 3 (2.01%) patients.



Rice. 3. Distribution of patients by late complications in the comparison groups

Thus, based on the data, it can be concluded that the main symptom that prompts the patient to seek medical help for both malignant and benign stenoses is dysphagia. In the upper and middle third of the esophagus, the tumor was localized in 17 patients, which accounted for 4.4%, the majority were patients with lesions of the middle and lower third of the thoracic esophagus - 97 (24.9%), the middle third of the thoracic esophagus - 93 (23, 8%), the lower third of the thoracic esophagus - 43 (11%) and localization of the tumor in the area of the cardioesophageal junction in 140 patients, which amounted to 35.9%.

Conclusions:

1. thus, the main point of using stenting is the possibility of oral nutrition, because. Tunnelization and bougienage cannot provide long-term restoration of esophageal patency due to the constant growth of the tumor, again obturating the lumen.

2. The stent limits the stenosis of the tumor lumen, acting as a scaffold. However, stenting cannot be used in all patients, because two conditions are necessary: the presence of suprastenotic expansion and a circular lesion in order to prevent stent migration.

When evaluating the immediate results of stenting, it was found that, in the control group, out of 241 patients who used stents of their own design, no complications were noted in 188 patients, which amounted to 78%. In the main group, out of 149 patients who used self-expanding nitinol stents, no complications were observed in 144 patients, which amounted to 96.6%.

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