

# Role and place of the endoscopic therapy in advanced stages of cardioesophageal cancer

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## ABSTRACT

**Aim.** The aim of study was to investigate efficacy of palliative treatment of proximal gastric tumors. **Methods.** The article describes experience of treating 232 patients with unresectable cardioesophageal cancer (UCC). Of these, minimally invasive endoscopic procedures: endoscopic diathermotunnelization (ED), endoscopic bougienage (EB) and endoscopic stenting (ES) was performed in 101 patients. Currently, the method of endoscopic stenting is preferred, which was performed in 84 patients, and own-developed model of a silicone tube stent was used in all patients. Main early and late complications of using this method were described. **Results.** Minimally invasive techniques described, the absence of a cosmetic defect, there is no need of specific care set endoprosthesis and relatively easily tolerated by patients of the technique endoprosthesis installation suggest a viable alternative to the imposition of gastrostomy and jejunostomy.

## Original Article

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## Keywords

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Diathermotunnelization,  
Endoscopic bougienage,  
Endoscopic stenting.

## INTRODUCTION

In spite of the steady decline in the incidence and mortality of gastric cancer remains extremely relevant problem [1-4]. For a long time this terrible disease was the leading cause of death from cancer pathology worldwide. Over the past 20 years, against a background of reducing the overall incidence of cancer of the stomach, marked by a sharp increase in the incidence of cancer cardio-esophageal region [4-8].

Among all sites of tumor lesions of the stomach cardioesophageal zones occupy from 10 to 37% [9, 10]. The main reason for the treatment of patients for medical treatment when cancer is cardioesophageal dysphagia, which progression occurs much faster than in benign narrowing [11-14]. Carried out before: gastrostomias & Yeyunostomia and ensure minimal invasiveness and adequacy of enteral nutrition.

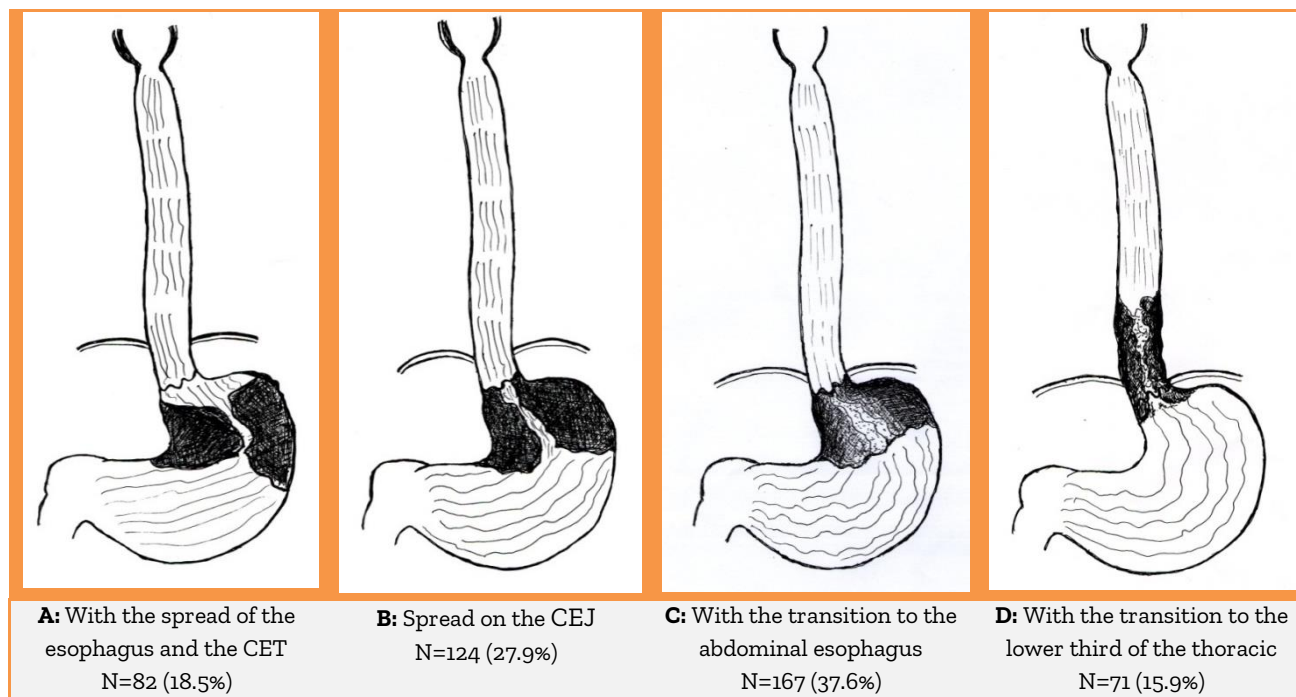
The introduction into clinical practice of minimally invasive technologies have greatly reconsider the tactics of treatment of patients with unresectable stage cardioesophageal tumors, which are aimed at improving the quality of the remaining life of patients and meet two basic requirements: minimum trauma and preserving the natural oral feeding. Objective of study was to examine the results of minimally invasive endoscopic treatment of patients with inoperable and unresectable stage cardioesophageal tumors.

## MATERIAL AND METHODS

In the period from 2001 to 2014, in the department of surgery of the esophagus and the stomach of "RSCS them. Acad. V.Vahidova" were hospitalized 444 patients with tumors of the proximal stomach. Men was 333 (75%), women - 111 (25%). Patients underwent a comprehensive study, which included endoscopy, radiopaque polypositional study of the esophagus and stomach, ultrasound of the abdomen, Multi-slice computed tomography (MSCT) and morphological study of biopsy specimens and macropreparations. In accordance with the classification of tumors cardioesophageal patients were distributed as follows:

**Type I** - adenocarcinoma of the distal esophagus with the ability to spread in the direction of the stomach - 115 (25.9%) patients; **Type II** - a true adenocarcinoma of the gastroesophageal transition zone (true cancer of the cardia) - 75 (16.9%) patients; **Type III** - a cancer of the localization of the main array subcardial tumors of the stomach and the possible involvement of the distal esophagus - 254 (57.2%) patients. Distribution of patients according to the extent of the cardioesophageal junction (CEJ) and the distal esophagus is presented in [figure 1](#).

One of the first reasons for the treatment of patients with dysphagia was, in connection with which it analyzed the degree of tumor spread to the esophagus and the cortical evoked responses (CEP), which is presented in [table 1](#). Only 93 (20.9%), dysphagia clinic was not, and in the majority of cases - 351 (79.1%) had dysphagia varying degrees of severity.



**Figure 1.** Distribution of patients according to the extent of the cortical evoked responses (CEP) and the distal esophagus. CEJ=cardioesophageal junction, CET= complete esophageal transit

**Table 1.** Degree of tumor spread

The degree of dysphagia	Prevalence in the CET and the esophagus				Total
	CET	abdominal esophagus	1/3 thoracic esophagus	Absolute	
No dysphagia	11(8.9%)	18(10.8%)	2(2.8%)	62(75.6%)	93(20.9%)
I degree	42(33.9%)	46(27.5%)	17(23.9%)	11(13.7%)	116(26.1%)
II degree	64(51.6%)	89(53.3%)	33(46.5%)	9(10.9%)	195(43.9%)
III degree	6(4.8%)	12(7.2%)	13(18.3%)	-	31(6.9%)
IV degree	1(0.8%)	2(1.2%)	6(8.5)	-	9(2%)
Total	124	167	71	82	444(100%)

CET= complete esophageal transit

### Ethical approval

The review board and ethics committee of RSCS named after acad. V.Vakhidov approved the study protocol and informed consents were taken from all the participants.

## RESULTS AND DISCUSSION

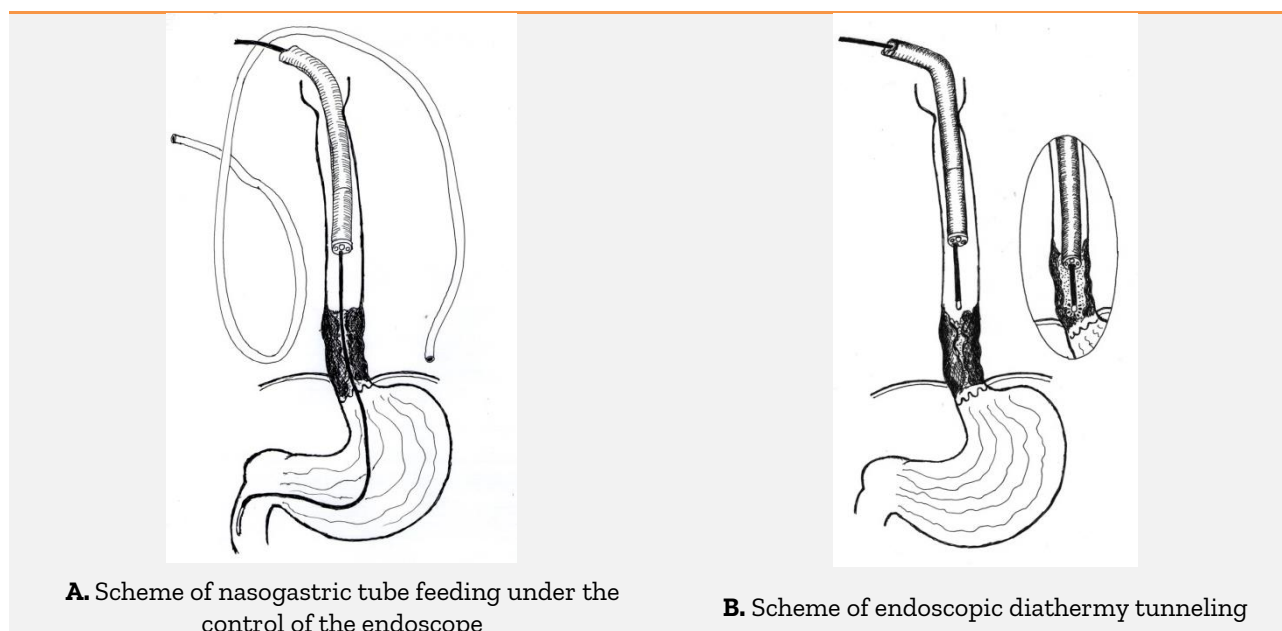
Of 444 patients, resection procedures were performed in 212 (47.7%) patients. The remaining 232 (52.3%) due to various reasons the process is recognized as inoperable or unresectable. This category of patients is devoted to the study. In 122 of 232 patients, which accounted for 52.6% of inoperable established on the basis of a comprehensive survey, while 110 (47.4%) only after laparotomy or laparoscopy. Summary of therapeutic measures is shown in [table 2](#).

Symptomatic treatment was performed in 128 patients, which accounted for 55.2%. All patients were discharged to conduct a specific treatment in oncological institutions. Gastrostomy used only in 3 (1.3%) cases. Minimally invasive procedures were performed in 101 (43.5%) patients. Patients with dysphagia 3-4 degree and pronounced alimentary cachexia, as a preliminary preparation for the restriction zone was conducted nasogastric feeding controlled by endoscopy.

Scheme of the probe is shown in [figure 2 A](#). Summary of minimally invasive interventions was as follows: Endoscopic diathermy tunneling (EDT) tumors in 17 (16.8%) and endoscopic stenting (ES) in 84 (83.2%). Endoscopic diatermotunelisation tumor performed in 17 (16.8%). Scheme of endoscopic diatermotunelisation is shown in [figure 2 B](#). The reasons for rejection of stent placement was: in 14 cases, the absence of a circular growth suprastenotic expansion of the lumen of the distal esophagus, which can lead to migration of the implant, and in 3 patients, which was planned stenting, in step diatermotunelisation stepped perforation of the tumor, therefore the 2 patients operated on an emergency basis, and 1 patient was successfully conducted conservative treatment.

**Table 2. Summary of therapeutic measures**

Items	After exploratory surgery	Not operated patients	Total
Gastrostomy	3	-	3 (1.3%)
Symptomatic treatment	86	42	128 (55.2%)
Minimally invasive methods	21	80	101 (43.5%)
Total	110 (47.4%)	122 (52.6%)	232



**Figure 2.** Scheme of the probe

### Endoscopic stenting

The basic meaning of the use of stenting (prolonged esophageal intubation) is the possibility of oral nutrition because tunneling and probing can not provide a long-term restoration of patency of the esophagus due to the constant growth of the tumor, occlusive lumen again. Thus, stent stenosis restricts tumor clearance, acting as a skeleton. However, stenting can not be used in all patients, as requires two conditions: the presence suprastenotic expansion and circular lesion to prevent stent migration. We used a stent made of silicone tube of his own design, developed in the endoscopy department of JSC "RSCS named after Acad. V.Vahidova". The stent is made individually from the silicone tube with a funnel-shaped initial part for preventing its migration. The required length and diameter were determined on the basis of endoscopic and radiologic data. Silicone stents: a straight and S-shaped, are presented in [picture 1](#). We used 4 methods of endoscopic stenting:

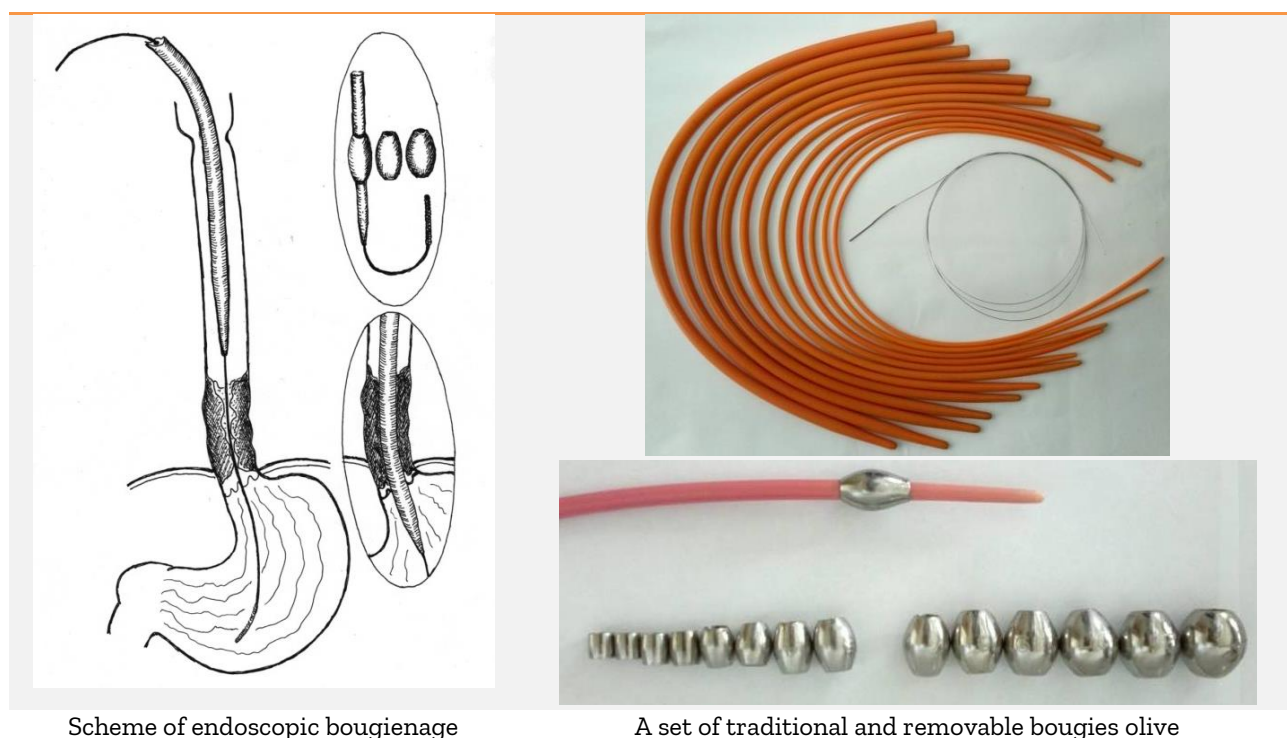
1. "Direct" when there is no need for pre-extension-rhenium luminal tumors performed in 11 (13.1%) cases;
2. Pre endoscopic diathermic tunalization tumor, described above, formed in 31 (36.9%) patients;
3. preliminary dilatation was performed in 15 (17.8%) patients;
4. preliminary endoscopic boujing (EB) performed in 27 (32.1%) patients.

It should be noted that the choice of method is individually endoscopic stenting and depends on the severity of the patient's condition, the nature of the tumor growth and the extent of its spread to the esophagus and stomach. If there is evidence to pre-expand the lumen of the tumor is currently prefer the combination of EDB and EB, which allow the most optimized and safely perform this manipulation. For the EB used a set of standard and interchangeable olive-proprietary. Scheme of endoscopic bougienage bougies and sets are shown in [picture 2](#). Endoscopic stenting carried out under the supervision of endoscopy according to its own developed methods: the instrument on the endoscope and Bouje with the pusher tube. Scheme of endoscopic stenting is shown in [figure 3](#).

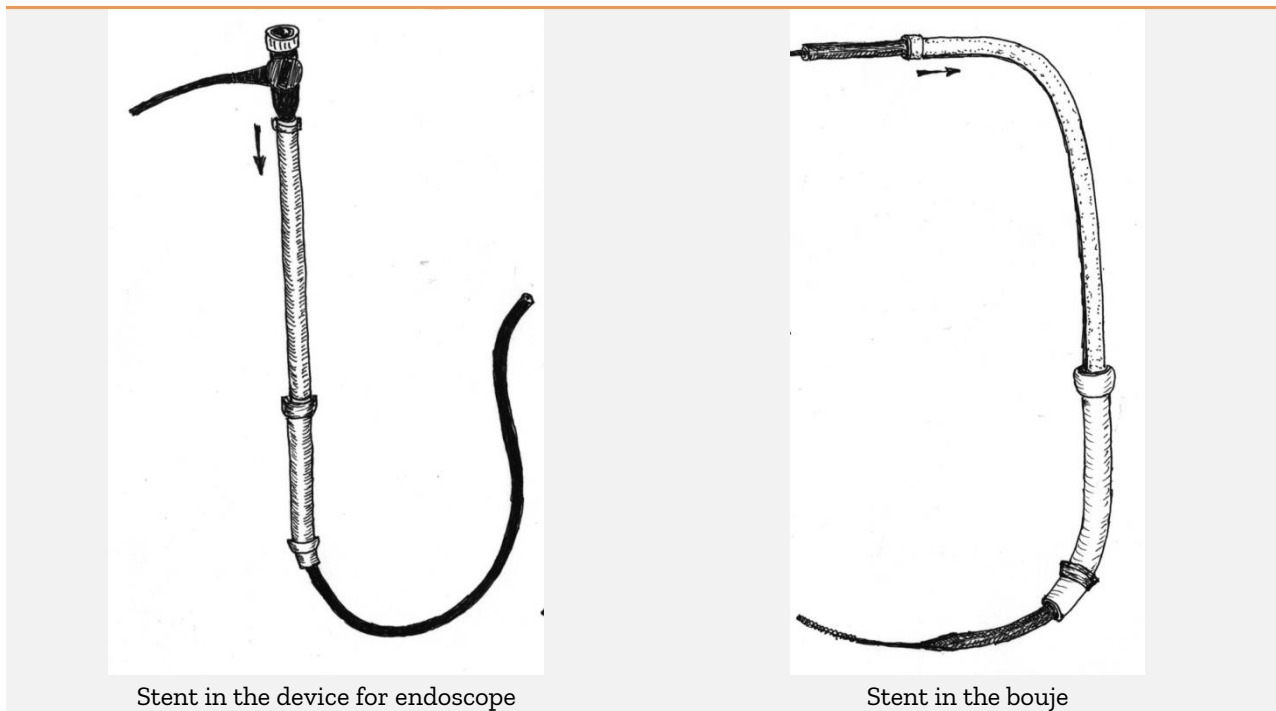
All patients fulfilled the radiological control of the correct establishment of the endoprosthesis, which was carried out the next day after stenting. Of the 84 patients, 4 cases, which was 4.7%, the offset is set down endoprosthesis, whereby the distal end of the prosthesis rested against the stomach wall. In this connection, the removal of the stent was performed followed by restenting. X-ray picture and scheme productions silicone stent is shown in [picture 3](#).



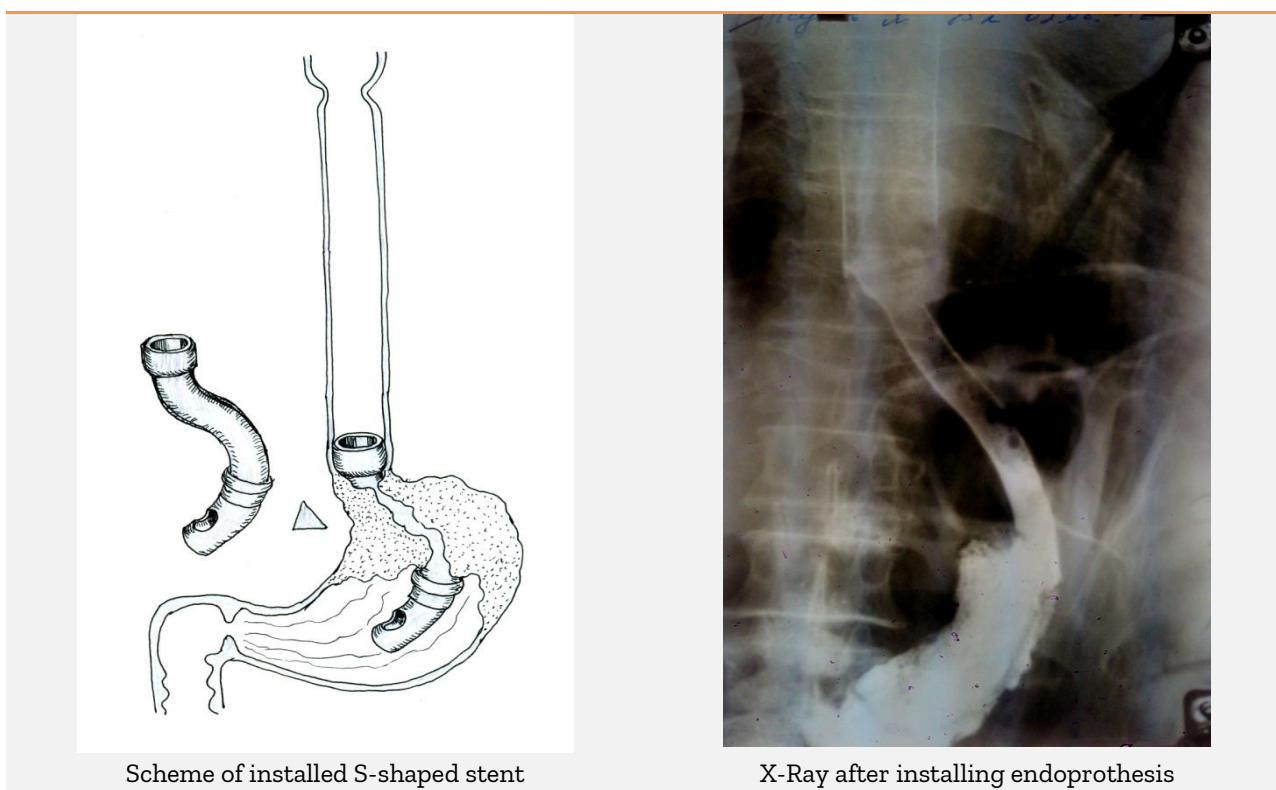
**Picture 1.** Type of stents



**Picture 2.** Scheme of endoscopic bougienage



**Figure 3.** Installation of stent and bouje



**Picture 3.** S-shaped stent

Despite its minimally invasive ES possible development of specific complications, which are divided into early and late complications:

**A) Early complications.** During the ES, observed track-guides complications: bleeding from the tumor area - 12 (11.8%); Function of the cardia of the stomach - 1 (0.99%); perforation of the abdominal department pi schevoda - 1 (0.99%); perforation of the lower third of the thoracic esophagus - 1 (0.99%). tumor perforation diagnosis was based on clinical data of objective examination and X-ray studies with water-soluble contrast. In this case, 1 case of laparotomy performed, suturing tumor defect, sanitation, drenaging and plugging with a satisfactory result. The remaining patients were discharged in a serious condition due to the ongoing

peritonitis and mediastinitis due to the categorical rejection of the proposed emergency operations. Bleeding in the form of vomiting fresh blood in all cases stopped by conservative measures.

**B) Late complications.** Among the specific complications inherent ES technique, the following were observed late complications: occlusion of the stent food - 18 (21.4%); obstruction of proximal part of the stent tumor - 9 (10.7%), occlusion of the distal stent tumor - 6 (7.1%); migration of the stent into the stomach - 3 (3.6%); migration of the stent in the esophagus - 1 (1.2%); pain, analgesics are not docked - 6 (7.1%). In cases of stent obstruction was conducted fragmentation food bolus under control endoscopy and push food at the distal end of the stent. When tumor obstruction of the proximal end of the stent held EDT followed by further restentirovaniem. In cases the tumor obstruction of the distal end of the stent was performed by only EDT. In cases of stent migration into the stomach was carried out under the supervision of the extraction of the stent endoscopy followed restenting. When the left-Bo syndrome, not cropped analgesics stent removed.

## CONCLUSION

The introduction of endoscopic techniques has solved the most important issue - the elimination of dysphagia, which in these patients leads to nutritional depletion of non-resectable patients. Minimally invasive techniques described, the absence of a cosmetic defect, there is no need of specific care set endoprosthesis and relatively easily tolerated by patients of the technique endoprosthesis stent installation suggest a viable alternative to the imposition of gastrostomy and jejunostomy.

## DECLARATIONS

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### Authors' Contributions

All authors contributed equally to this work.

### Competing interests

The authors declare that they have no competing interests.

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