

PRACA POGLĄDOWA
REVIEW ARTICLE

EXPERIENCE IN TREATMENT OF PATIENTS WITH ESOPHAGEAL ACHALASIA

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ABSTRACT

Introduction: Esophageal achalasia is a neuromuscular disease, which is characterized by persistent impaired reflex opening of esophageal sphincter. Disease incidence is 0.6-2.0 per 100 000 population with no tendency to decrease.

The aim of the study was to improve the results of treatment in patients with achalasia of cardia by differentiated approach in the choice of therapy method.

Materials and methods: 148 patients with esophageal achalasia aged 18 - 67 were studied between 2003 and 2018. The following degrees of the disease were determined (by Petrovskiy's classification): first - in 8, second - in 59, third - in 70, fourth - in 11 patients. Drug therapy was administered in achalasia of first degree, and cardiodilatation courses - in second and third degree of the disease. Indications for surgical treatment were: impossibility to perform cardiodilatation, S-shaped esophageal deformation (stage IV), complications associated with cardiodilatation, achalasia combined with other surgical pathology, recurrence of disease.

Review: Cardiodilatation therapy resulted in sustained clinical effect in stages I and II of the disease. In case of unsatisfactory results of cardiodilatation patients underwent elective operations. 18 patients underwent Heller-Dor plastic surgery, 4 - Heller-Petrovskiy operation, 1 - Besley plastic repair, 2 - Nissen fundoplication. In early postoperative period no failure or perforation of the esophagus occurred. The following complications developed: seroma - in 3 patients, postoperative wound infection - in 1 case. In one patient (4%) the recurrence of disease was due to scar deformation of esophagogastric junction after Heller-Petrovskiy operation on the cardia.

Conclusions: Cardiodilatation is an effective method of conservative therapy in stages I and II of the disease, while in stages III and IV it is warranted as preoperative preparation measure. We think Heller-Dor operation to be the best method of plastic repair in esophageal achalasia.

KEY WORDS: esophageal achalasia, cardiodilatation, surgical treatment

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INTRODUCTION

Esophageal achalasia, a neuromuscular disease, is characterized by persistent impaired reflex opening of esophageal sphincter in approaching food, as well as lost peristalsis of esophageal muscles, leading to impaired esophageal patency. Disease incidence is 0.6-2.0 per 100 000 population with no tendency to decrease. In early stages of esophageal achalasia (I, II), various cardiodilatation types are preferred methods of treatment [1]. Drug therapy implies administration of different groups of pharmaceutical agents: cholinolytics, alfa- and beta- adrenergic blocking agents, beta-adrenoceptor agonists, nitrates (nitroglycerine, nitrosorbide), calcium channel blockers, spasmolytics, insulin. When conservative methods of treatment prove to be ineffective, as well as in stages III and IV of the disease, esophagocardiomyotomy (Heller operation) is performed. Over 60 operative methods have been proposed for esophageal achalasia, but neither of them ensures the avoidance of recurrence of dysphagia, thus indicating unsolved problem in achalasia treatment. Nowadays modified Gottstein-Heller operation on anterior esophagus wall has gained wide popularity. Besides, in order to prevent reflux esophagitis, esophagofundoraphy by Lort-Jacob, Dor fundoplication, Toupet fundoplication are used [2, 3, 4]. There are minimally invasive therapy methods as well - laparoscopic esophagocardiomyotomy with subtotal fundoplication is

among them. The latter method is rather promising due to the benefits of laparoscopic surgery [5, 6, 7, 8].

Some researchers state that laparoscopic cardiomyotomy can be performed without previous cardiodilatation in patients with achalasia of stages II-IV. Others believe that dilatation therapy should be performed in all stages of the disease, surgery is indicated to those with failure of endoscopy, and dilation therapy in such cases is administered as preoperative preparation procedure. Commonly patients with esophageal achalasia are hospitalized to the surgical in-patient department with stages II-IV of the disease after being treated by therapists and general practitioners, which poses certain problems in performing minimally invasive procedures.

THE AIM

The aim of the study was to improve the results of esophageal achalasia treatment by differentiated approach in the choice of therapy method.

MATERIALS AND METHODS

Biomedical Ethics Commission of Vinnytsya National Pirogov Memorial Medical University on observance of moral and legal rules in conducting medical research has established that

clinical research were carried out in compliance with the main provisions of GCP (1996), Council of Europe Convention for Human Rights and Biomedicine (1997), World Medical Association Declaration of Helsinki on ethical principles for medical research involving human subjects (1964-2000) and Order of Ministry of Health of Ukraine № 281 of November 1, 2000.

148 in-patients with esophageal achalasia treated at Thoracic Surgery Department of Vinnytsia Regional Pirogov Memorial Clinical Hospital were studied between 2003 and 2018. The age of patients was between 18 and 67. There were 52 males and 96 females. The majority of patients had achalasia of stage II and III. The following degrees of the disease were determined: first – in 8 patients, second – in 59, third – in 70, fourth – in 11 patients.

All patients underwent comprehensive clinical and laboratory investigation including ultrasound examination of the cardia, fibroesophagogastroscope, and barium sulfate radiographic contrast study.

The earlier patient with achalasia applies for specialized medical care, the easier it responds to treatment.

Treatment of stage I achalasia included administration of cholinolytics, sedatives and nitrates. In this stage of disease, as well as in all other stages the patients were administered cardiodilatation therapy.

Cardiodilatation was performed using Starck's dilatator and balloon pneumatic dilators. Pneumatic balloons with the diameter of 3-4 cm, as well as Wilson-Cook balloons with the diameter of 1.5-2 cm were used. Pneumatic dilatation under endoscopy supervision was performed to 20 patients with esophageal achalasia in endoscopy rooms. The procedure was performed under the patient's sedation and local anesthesia. 50 patients underwent dilatation with Starck apparatus under combined anesthesia with mechanical lung ventilation in X-ray operation room. During the operation, cardiodilatator's position, procedure stages, degree of jaw expansion were under X-ray control; cardiodilatator's position was changed according to the axis of esophagus deviation by original method. After the operation all patients were administered bed regimen, hunger and proper medication with subsequent radiological control. No complications after cardiodilatation were observed.

Indications for surgical treatment were: impossibility to perform cardiodilatation, S-shaped esophageal deformation (stage IV), complications of cardiodilatation (lacerations, esophageal perforation, bleedings unresponsive to conservative therapy), achalasia combined with other surgical pathology, recurrence of disease because of the failure of conservative therapy and dilatation techniques.

Because of severe general state, debilitation and cachexia in patients with achalasia, particularly in stages III and IV, they underwent intensive preoperative preparation, consisting of metabolism correction, hypoproteinemia in particular, and water and electrolyte imbalance.

REVIEW AND DISCUSSION

Cardiodilatation therapy resulted in sustained clinical effect in stages I and II of the disease. Long-term results of cardiodilata-

tion therapy were studied in 59 patients. In stage II, treatment of achalasia using cardiodilatation technique led to direct positive satisfactory results in $94.29 \pm 3.92\%$ of cases, and long-term positive results – in $80.2 \pm 5.2\%$. In stage II of the disease, direct positive results were received in $65.71 \pm 8.02\%$ of cases, and long-term positive results – in $54.17 \pm 10.17\%$. The data obtained demonstrated cardiodilatation to be the most effective method of treatment in patients with achalasia of stage I and II. Patients with satisfactory results and periodical symptomatic dysphagia were recommended repeated courses of cardiodilatation or surgery. Elective surgery was indicated to those with unsatisfactory results of cardiodilatation. In patients with stage IV achalasia, cardiodilatation technique was used to relieve the symptoms of dysphagia and as preoperative preparation procedure.

25 patients underwent the following operations: Heller-Dor plastic surgery - 18, Heller-Petrovskyi operation - 4, Besley plastic repair - 1, Nissen fundoplication – 2 patients.

In clinical settings esophageal cardiomyotomy with Heller-Dor cardioplasty is preferred. This method of operative treatment consists of several stages. Upper midline laparotomy is done and left lobe of the liver is mobilized. Nasogastral tube is inserted. The esophagus is carefully separated, and a lengthwise cut is made in the muscular layer of the lower esophagus, leaving the inner lining intact, thus conducting esophageal cardiomyotomy 8-10 cm in length (5-6 cm over and 3-4 cm under the esophagogastric junction). After that plastic repair is performed: anterior part of the stomach is sewed with the muscular layer to the left of myotomy site. Esophageal mucosa is covered by gastric fundus using interrupted stitches. In case of intraoperative damage of the mucous "defect", sealing with atraumatic sutures (4/0 or 5/0) is performed [9, 10, 11, 12, 13].

In postoperative period nasogastric enteral nutrition of highly caloric enteral feeds was provided, and infusion, antibacterial and anti-inflammatory therapy was continued. On the 7th day water soluble contrast X-ray examination was done.

In early postoperative period no failure or perforation of the esophagus occurred. The following wound complications developed: seroma – in 3 patients, postoperative wound infection – in 1 case. In one patient (4%) there was the recurrence of disease in late postoperative period because of scar deformation of esophagogastric junction after Heller-Petrovskyi plastics of the cardia. That complication was eliminated with the course of cardiodilatation therapy. No lethal cases occurred postoperatively.

CONCLUSIONS

1. Thus, esophageal achalasia remains one of uncommon esophageal diseases of neuromuscular origin, leading to its obstruction and requiring careful approach to its treatment. Long-lasting remission and positive results of treatment are due to early diagnosis and early start of therapy.
2. Cardiodilatation is an effective method of conservative therapy in stages I and II of the disease, while it is warranted as preoperative preparation procedure in stages III and IV.

3. We think the best method of plastic repair in esophageal achalasia is Heller-Dor operation.

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According to the order of the Authorship.

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The Authors declare no conflict of interest.

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