DOI: 10.25121/PNM.2018.31.5.269 Post N Med 2018; XXXI(5): 269-273

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Management of patients with hiatal hernia in own material

Postępowanie z pacjentami z przepukliną przeponową w materiale własnym

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Keywords

hiatal hernia, fundoplication, gastro-esophageal reflux

Słowa kluczowe

przepukliny rozworu przełykowego, fundoplikacja, refluks żołądkowo-przełykowy

Conflict of interest
Konflikt interesów

None
Brak konfliktu interesów

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S u m m a r y

Introduction. Hiatal hernia is a common pathology, especially in older people. The most frequently observed types are sliding hiatal hernia and paraesophageal hernia. The majority of cases are asymptomatic or give nonspecific symptoms. Diaphragmatic hernias are often associated with gastroesophageal reflux (GERD).

Aim. The aim of the study was to analyze reported ailments, diagnostics, type of diaphragmatic hernia, coexistence of GERD and the type of surgery performed due to hiatal hernia.

Material and methods. Retrospective analysis included 89 patients (average age – 59.5, 52 women, 37 men) after the surgery of hiatal hernia in I[st] Department of General and Endocrinological Surgery, University Hospital in Bialystok and the Department of Surgery in Lapy in the years 2012-2017.

Results. 53 cases (59%) of hiatal hernias have been observed in examined material, 29 cases (33%) of mixed hernias and paraoesophageal hernias in 7 patients (8%).

Conclusions. Laparoscopic repair of hiatal hernia with simultaneous fundoplication is an effective and safe therapeutic option for the treatment of hiatal hernia, prevention of remissions and alleviation of GERD symptoms. The results are permanent and the complication rate is very low.

S t r e s z c z e n i e

Wstęp. Przepukliny rozworu przełykowego są częstą patologią, w szczególności u osób w starszym wieku. Najczęściej mamy do czynienia z przepukliną wślizgową oraz okołoprzełykową. W większości przypadków są bezobjawowe lub dają niespecyficzne dolegliwości. Przepukliny przeponowe często wiążą się z refluksem żołądkowo-przełykowym (GERD).

Cel pracy. Celem pracy było przeanalizowanie zgłaszanych dolegliwości, diagnostyki, rodzaju przepuklin przeponowych, współwystępowania GERD oraz rodzaju przeprowadzonej operacji plastyki przepukliny rozworu przełykowego.

Materiał i metody. Ocenie retrospektywnej zostało poddanych 89 chorych (średnia wieku 59,5 roku; 52 kobiety, 37 mężczyzn) operowanych z powodu przepuklin rozworu przełykowego w I Klinice Chirurgii Ogólnej i Endokrynologicznej USK w Białymstoku oraz na Oddziale Chirurgii w Łapach w latach 2012-2017.

Wyniki. W badanym materiale stwierdzono 53 przypadki (59%) przepuklin wślizgowych, 29 przypadków (33%) przepuklin mieszanych oraz okołoprzełykowe u 7 chorych (8%).

Wnioski. Laparoskopowa naprawa przepukliny rozworu przełykowego z jednoczasową fundoplikacją jest skuteczną i bezpieczną opcją terapeutyczną do leczenia przepukliny rozworu przełykowego, zapobiegania nawrotom i łagodzenia objawów GERD. Wyniki są trwałe, a odsetek powikłań jest bardzo niski.

INTRODUCTION

The frequency of hiatal hernia occurrence increases along with age. Clinical observations indicate that approximately 50-60% of people over 50 years old have an esophageal hernia (1-4). The majority patients report no symptoms, which is why they are often unrecognized. Four types of hiatal hernia are distinguished: sliding hernia and the paraoesophageal hernia, mixed

hernia and diaphragmatic hernia with congenital short esophagus. Sliding hernia is definitely the most common and is very often associated with gastroesophageal reflux disease, it occurs when the cardia is relocated to the thorax with part of the stomach (5). The mechanism of paraoesophageal hernia creation includes relocation of the fundus through the defect in the diaphragm to the thorax, and the cardia remains unchanged in the abdominal cavity.

Patients with diaphragmatic hernia, usually asymptomatic, may report a variety of symptoms, such as chest pain, shortness of breath, reflexes, heartburn, recurrent pneumonia, hoarseness, chronic cough, iron deficiency anemia. None of the symptoms is pathognomic for hiatal hernia, so patients go a long way before the correct diagnosis and proper treatment is implemented (6). Among the risk factors that increase the frequency of diaphragmatic hernias include: male gender, obesity and increasing age as well as increased secretion of hydrochloric acid in the stomach (4).

The surgery is necessary for a hiatal hernia with GERD and a paraoesophageal hernia due to the high risk of complications. However, the perioperative risk of elderly patients and multiple co-morbidities should be considered in cases where treatment with proton pump inhibitors brings relief (7). Repair surgery of hiatal hernia includes relocating the contents of the hernia back to the abdominal cavity, dissecting the hernia sac and removing it. The next stage of the surgery is supplying diaphragm defect with surrounding tissues or synthetic meshes. What is more, a fundoplication around the abdominal part of the esophagus is performed by applying 2-3 seams to open the antireflux barrier and keep the stomach below the diaphragm (8).

AIM

The aim of the study was to analyze the reported complaints, diagnostics, type of diaphragmatic hernias, coexistence of GERD and the type of hiatal hernia surgery performed.

MATERIAL AND METHODS

Eighty nine patients have been examined operated due to hiatal hernia by one team of surgeons in the Ist Department of General and Endocrinological Surgery, University Hospital in Bialystok and the Department of Surgery in Lapy between 2012 and 2017. The group of respondents included 37 men (41.5%) and 52 women (58.5%) with an average age of 59.5 (tab. 1, fig. 1).

Tab. 1. The number of patients after the surgery due to hiatal hernia

	Number	%	Average age
Women	52	58.4	61.5
Men	37	41.6	56.9
Total	89		59.5

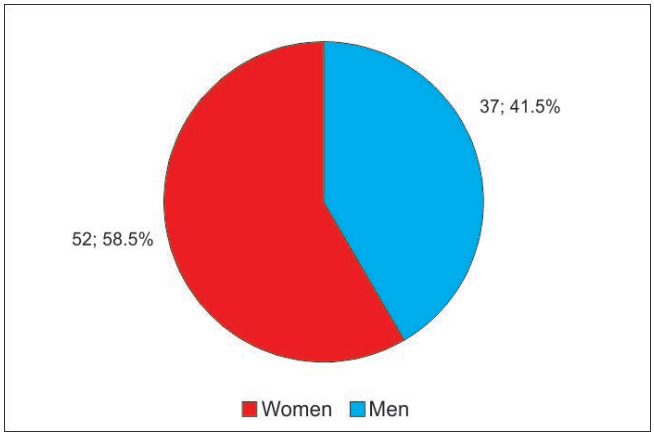

Fig. 1. The gender of patients

RESULTS

Patients operated due to hiatal hernia were between 26 and 81 years old. The average age among men was 56.9, and among women 61.5. Most often, women aged 61-80 were operated and men 51-70 years old (tab. 2, fig. 2).

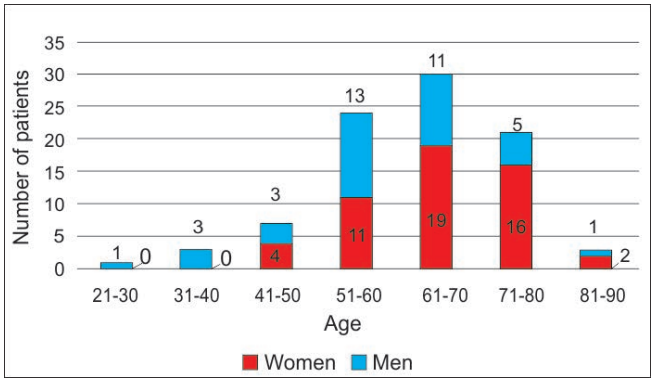

Fig. 2. Distribution of patients due to age

Patients reporting many symptoms, most often suffered from retrosternal pains, heartburn, nausea, vomiting, flatulence and cough (tab. 3, fig. 3).

A patient with diaphragmatic hernia often registered with additional examinations already performed, sometimes repeatedly. The following tests are used for diag-

Tab. 2. Distribution of patients due to age

	21-30		31-40		41-50		51-60		61-70		71-80		81-90	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
F (52)	–	–	–	–	4	7.7	11	21.2	19	36.5	16	30.8	2	3.8
M (37)	1	2.7	3	8.1	3	8.1	13	35.2	11	29.7	5	13.5	1	2.7
Total	1	1.1	3	3.4	7	7.9	24	26.9	30	33.7	21	23.6	3	3.4

Tab. 3. Reported symptoms

	Women		Men		Total	
	n	%	n	%	n	%
Retrosternal pain	43	82.7	31	83.8	74	83.1
Heartburn	48	92.3	35	94.6	83	93.3
Nausea and emesis	21	40.4	11	29.7	32	36.0
Tympanites	24	46.2	20	54.1	44	49.4
Cough	19	36.5	13	35.1	32	36.0

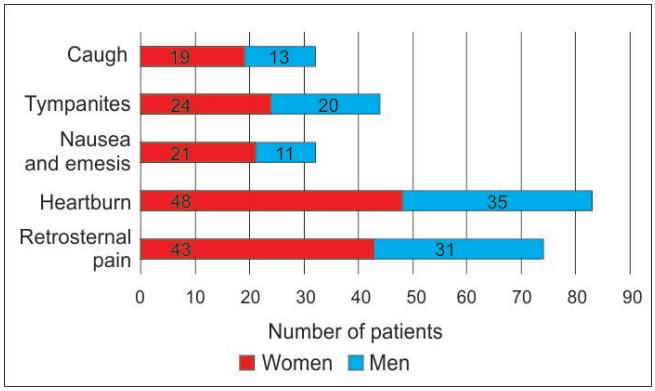

Fig. 3. Reported symptoms

nosis and appropriate qualification for surgery: imaging diagnostics (upper gastrointestinal fluoroscopy, computer tomography), endoscopy often with a pH-metric to confirm the coexistence of esophageal hernia with gastro-esophageal reflux (GERD) (tab. 4, fig. 4).

Tab. 4. Diagnostics of hiatal hernia

Examination		Women		Men		Total	
		n	%	n	%	n	%
Gastroscopy	1	52	100	37	100	89	100
	2	48	92.3	37	100	85	95.5
	more	31	59.6	22	59.5	53	59.6
Fluoroscopy	1	52	100	37	100	89	100
	2	18	34.6	11	29.7	29	32.6
	more	2	3.8	–	–	2	2.2
Abdominal CT	1	41	78.8	32	86.5	73	82
	2	8	15.4	9	24.3	17	19.1
	more	–	–	1	2.7	1	1.1
pH-metry	1	34	65.4	22	59.5	56	62.9
	2	2	3.8	–	–	2	2.2
	more	–	–	–	–	–	–

There are 4 types of diaphragmatic hernias. Type I – sliding hernia, where the stomach along with the cardia was relocated to the thorax, occurred in 53 operated patients, and the type II, where the lower esophageal sphincter remains below the diaphragm, and the stomach is relocated to the thorax was diagnosed in 7 patients. Mixed hernia (type III) occurred in 29 patients. Many patients suffer from a disruption of the antireflux barrier elements and suffer from diaphragmatic hernia with coexisting GERD (tab. 5, fig. 5).

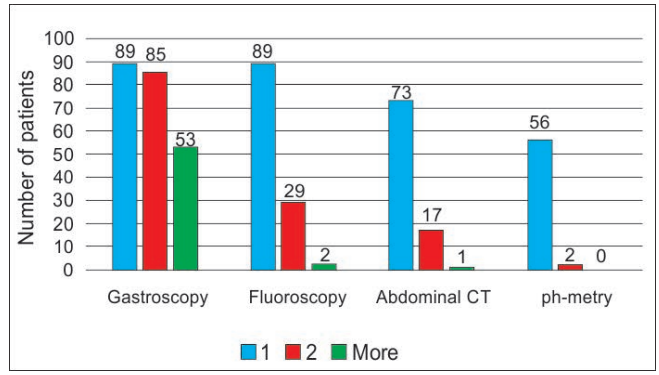

Fig. 4. Diagnostics of hiatal hernia

Tab. 5. Types of diaphragmatic hernias and co-existance of GERD

	Women				Men			
	Total		Co-exi-sting with GERD		Total		Co-exi-sting with GERD	
	n	%	n	%	n	%	n	%
Type I – sliding	31	59.6	19	61.3	22	59.5	11	50.0
Type II – paraoeso-phageal	4	7.7	2	50.0	3	8.1	0	0
Type III – mixed	17	32.7	9	52.9	12	32.4	8	66.7

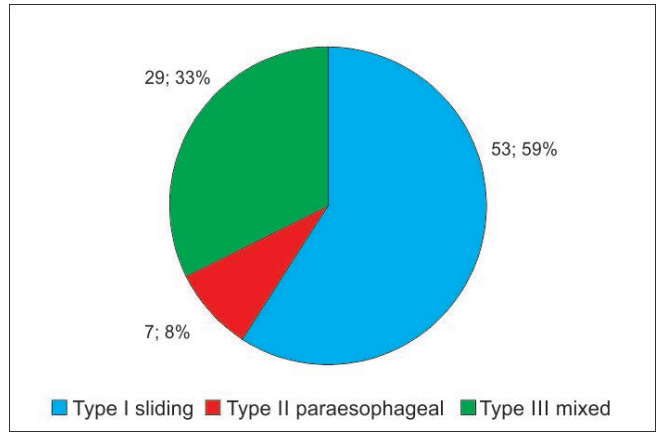

Fig. 5. Types of diaphragmatic hernias

Patients have been subjected to one of three methods of diaphragmatic hernia repair: Nissen fundoplication, Nissen-Rossetti fundoplication or Toupet fundoplication (tab. 6, fig. 6 and 7) 7 patients (7.8%), 5 women and 2 men have been operated as an emergency. The indication for urgent surgery was high obstruction of the gastrointestinal tract, or intensified dysphagia.

In the study material, 4 cases (4.5%) of hiatal hernia recurrence have been observed, all in women. Revision operations have been conducted, intraoperatively it has been observed that the cuff relocated to the thorax, has been twisted around the esophagus, and in several cases postoperative dysphagia occurred.

Tab. 6. Type of fundoplication

Type of fundoplication	Women		Men			
	n	%	n	%	n	%
Nissen	28	53.9	13	35.1	41	46.1
Nissen-Rossetti	23	44.2	22	59.5	45	50.5
Toupet	1	1.9	2	5.4	3	3.4

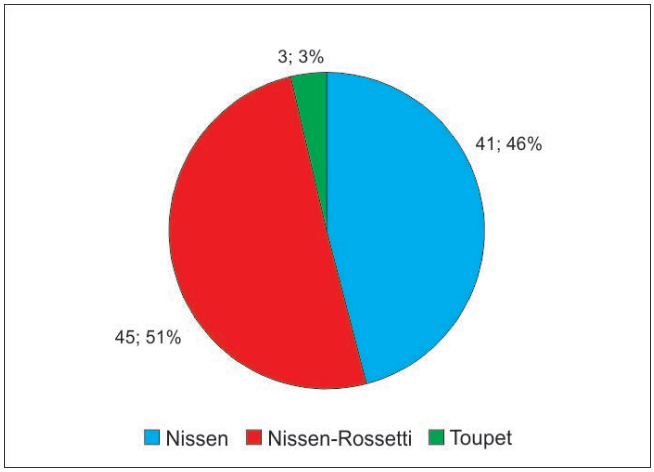

Fig. 6. Type of fundoplication

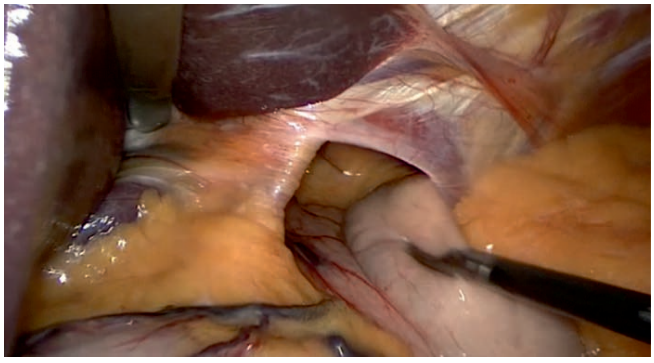

Fig. 7. Laparoscopy. Hiatal hernia

DISCUSSION

The aim of laparoscopic hiatal hernia surgery is to close the hernia defect and prevent recurrence. The expected result is alleviation or prevention of reflux symptoms and its complications such as peptic ulcers, Baretta's esophagus, pancreatic esophagus strictures, esophageal and gastric bleeding, Mallory-Weiss syndrome (9). What is more, it is expected to prevent complications associated with hiatal hernia, such as stomach twist and incarceration, high gastrointestinal obstruction, perforation, which bring a serious threat to the life and health of the patient (10, 11).

Epidemiological data indicate that the incidence of hiatal hernia increases along with age and is more common in the female population. Among the examined patients, those over 50 years old the most frequently were subject to the surgery, and women accounted for 58.5% (2-4).

Patients with hiatal hernia usually report no symptoms. They report to the physician when disturbing symptoms of gastroesophageal reflux appear and are often treated for a long time with GERD proton pump inhibitors (5). Ineffective pharmacological therapy is an indication to extend the diagnosis, which in many cases reveal hiatal hernia. Patients reporting to the general physician often suffer from other symptoms such as retrosternal pains, nausea, vomiting, bloating, recurrent respiratory infections. For this reason, they undergo cardiac and pulmonary therapy, which delays the diagnosis and treatment of the underlying disease – hiatal hernia (6).

Before qualification for surgery, the patient has to undergo a thorough diagnosis, which includes fluoroscopy with oral barium solution, gastroscopy often with pH-metry, which shows gastroesophageal reflux. Another examination which may be performed in patients with diaphragmatic hernia is CT of abdominal cavity and thorax, which allows to assess the content of the hernia sac (12-14). Patients often have already been repeatedly examined due to enlarging hernia before they decide to undergo surgery. Imaging examinations most often confirm the presence of hernia. Epidemiological data suggests that it accounts for about 95% of all diaphragmatic hernias. Approximately 5% are the paraoesophageal hernias. Among the studied population, 60% were type I hernia, 33% were mixed and about 8% were paraoesophageal hernias.

The indications for the repair of a hiatal hernia have changed, and now it is recommended to treat symptomatic diaphragmatic hernias with or without complications or which do not respond to pharmacological treatment (15). In recent decades, laparoscopic diaphragmatic hernia repair has become the surgery of choice in contrary to open repair, due to lower incidence rates and shorter hospitalizations. There are several controversies in the treatment of diaphragmatic hernia. Currently, laparoscopic surgery is recommended with a complete excision of the hernia sac, primary repair of diaphragm defect with or without a mesh and routine fundoplication (16). Research does not show clear superiority of one of the methods of fundoplication over others (17-19). Laparoscopic surgery is a safe surgical method characterized by low risk of mortality, perioperative complications and low rates of recurrences. Murano et al. describes Nissen's fundoplication as an effective and safe method of treatment of hiatal hernia and gastro-esophageal reflux (18). However, the operational risk should be assessed especially in elderly patients with numerous comorbidities (20, 21).

CONCLUSIONS

Hiatal hernia often occurs without or with few, and usually is diagnosed in elder patients. The main examination for the diagnosis of diaphragmatic hernia is fluoroscopy and gastroscopy, optionally supplemented with computer tomography. Laparoscopic repair of hiatal hernia with simultaneous fundoplication is an effective and safe therapeutic option, preventing recurrence and relieving GERD symptoms. Postoperative results are persistent and the complication rate is very low.

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received/otrzymano: 06.09.2018
accepted/zaakceptowano: 27.09.2018