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Surgical treatment of incisional hernia – own material

Postępowanie chirurgiczne w leczeniu przepuklin pooperacyjnych – materiał własny

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Keywords

incisional hernia, postoperative hernia, surgical treatment, classic surgical treatment, laparoscopy

Słowa kluczowe

przepuklina pooperacyjna, leczenie chirurgiczne, klasyczne leczenie chirurgiczne, laparoskopia

Summary

Introduction. Postoperative hernias are frequent long-term complication of surgical procedures carried out within the abdominal cavity. Hernia occurrence depends on patient general condition and surgical technique. The only one type of incisional hernia treatment is surgery.

Aim. The aim of the study was to present and analysis personal experiences in the treatment of postoperative hernias. Operations were carried out in I[st] Department of General and Endocrine Surgery, University Hospital in Bialystok and the Surgery Department at the Independent Public Health Care Center in Lapy.

Material and methods. 146 patients were included to the research, 61 women and 81 men. The mean age of examined patients was 61.5 years. Factors taken into consideration were: primary operation, the causes of the hernia, clinical symptoms, comorbidities and corrective operation.

Results. Cesarean section was the most common primary intervention in group of women, appendectomy was dominant in the group of men. The majority of patients as the main complaint gave the protruding hernia sac and the pain of the hernia area appearing during exercise. The most common comorbidities were respiratory and neoplastic diseases. Patients underwent remedial treatment both in the classic and laparoscopic way.

Conclusions. In the pathogenesis of postoperative complications, apart from surgical technique, patient general condition and coexisting diseases also play an important role. Minimally invasive procedures are an important and beneficial way of treating inguinal hernia. They provide lower incidence of local infections, better healing of post-operative wounds, faster return to daily and professional activity.

Streszczenie

Wstęp. Przepukliny pooperacyjne stanowią częste odległe powikłanie zabiegów przeprowadzanych w obrębie jamy brzusznej. Powstanie przepukliny zależy od czynników związanych ze stanem ogólnym pacjenta oraz techniką przeprowadzania zabiegu. Jedyną formą leczenia przepuklin pooperacyjnych jest zabieg naprawczy.

Cel pracy. Celem pracy było przedstawienie i analiza doświadczeń własnych w leczeniu przepuklin pooperacyjnych. Operacje przeprowadzono w I Klinice Chirurgii Ogólnej i Endokrynologicznej w Białymstoku oraz na Oddziale Chirurgii Ogólnej Samodzielnego Publicznego Zakładu Opieki Zdrowotnej w Łapach.

Materiał i metody. Do badania zakwalifikowano 146 chorych: 65 kobiet i 81 mężczyzn. Średnia wieku chorych wynosiła 61,5 roku. Warunkiem włączenia do badania była obecność przepukliny pooperacyjnej. Analizie poddano następujące czynniki: rodzaj pierwotnej operacji, przyczyny powstania przepukliny, objawy kliniczne, choroby towarzyszące oraz zastosowany zabieg naprawczy.

Wyniki. Wśród kobiet objętych badaniem najczęstszym pierwotnym zabiegiem było cięcie cesarskie, a wśród mężczyzn appendektomia. Większość pacjentów jako główną dolegliwość podawała wystający worek przepuklinowy oraz ból okolicy przepukliny pojawiający się podczas wysiłku. Do najczęstszych chorób współistniejących należały schorzenia układu oddechowego oraz choroby nowotworowe. Chorzy zostali poddani zabiegowi naprawczemu zarówno sposobem klasycznym, jak i laparoskopowym.

Conflict of interest
Konflikt interesów

None
Brak konfliktu interesów

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Wnioski. W patogenezie powikłań pooperacyjnych oprócz techniki chirurgicznej istotną rolę odgrywają stan kliniczny chorego oraz choroby współistniejące. Zabiegi małoinwazyjne stanowią ważny i korzystny dla chorego sposób leczenia przepuklin pachwinowych. Zapewniają mniejszą częstość infekcji miejscowych, lepsze gojenie ran pooperacyjnych oraz szybszy powrót do aktywności fizycznej oraz zawodowej.

INTRODUCTION

Incisional hernias are classified as long-term complications of abdominal surgeries. Their incidence ranges from 9 to 20% (1, 2). Incisional hernias are most often located in place of the scar after a median laparotomy. Main causes of this complication are improper postoperative wound healing and states associated with elevated intra-abdominal pressure. Ventral hernias are usually asymptomatic. Patients often complain about sac protrusion (which grows with increased intra-abdominal pressure), discomfort as well as esthetic problems (3). Clinical image change in the moment of complications appearance. Hernia incarceration is manifested by severe abdominal pain, followed by symptoms of gastrointestinal obstruction. Surgery is the only way to repair the defect. Conservative treatment is ineffective. In some cases, hernia complications can develop and they need urgent surgery (4).

AIM

The aim of the study was to present personal experiences in the treatment of postoperative hernia. Operations were carried out in Ist Department of General and Endocrine Surgery, University Hospital in Bialystok and the Surgery Department at the Independent Public Health Care Center in Lapy.

MATERIAL AND METHODS

Patient operated due to incisional hernias between 2012 and 2017 were included in the research. 85% of the patients underwent primary operation in the regional surgery departments of the Podlasie Province. Patient were operated because of emergency and elective reasons. The main condition of inclusion to the study were patients with incisional hernia. Endpoint of the research was hernioplasty.

Retrospective analysis of collected data has been conducted. Factors taken into consideration were: age, gender, clinical symptoms, the factor initiating the development of the disease, comorbidities, primary operation, type of the hernioplasty. Simple statistical methods have been used for analysis.

RESULTS

A total of 146 patients underwent incisional hernia repair. The study population consisted of 65 women and 81 men. The youngest patient was 45 years old, the oldest was 82 years old. The mean age of examined patients was 61.5 years, 63.5 for women and 59.5 for men.

The most common patient complaints, of both women and men were protruding hernia sac (women: n51, 78.5%; men: n64, 79%), and exertional pain (women: n39, 60%, men: n50, 61.7%) (fig. 1, 2). Patients were less likely to complain about gastrointestinal track incarceration symptoms (women: n9, 13.8%, men: n7, 8.6%). The remaining symptoms included: resting discomfort, exertional discomfort, resting pain, recurrent partial gastrointestinal tract obstruction (tab. 1).

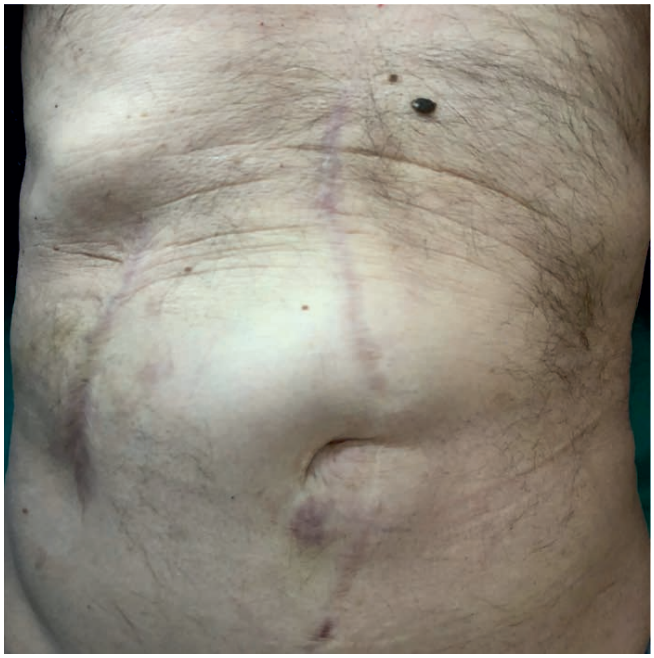

Fig. 1. Incisional hernia after right-sided hemicolectomy

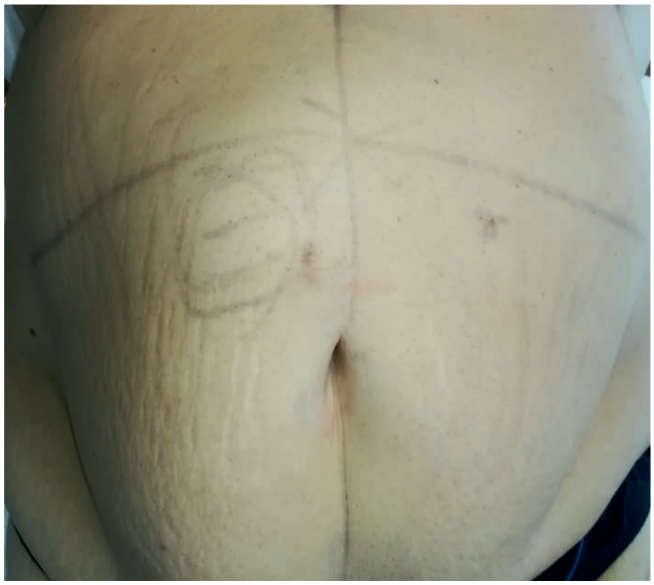

Fig. 2. Incisional hernia after sleeve gastrectomy

Another factor analyzed during the study was the type of work the patients performed (physical vs men-

Tab. 1. Incisional hernia – clinical characteristics

	Women (w) n = 65		Men (m) n = 81		General n = 146	
	n	%	n	%	n	%
Resting discomfort	21	32.3	30	37	51	35
Exertional discomfort	29	44.6	21	26	50	34.3
Resting pain	11	17	19	23.5	30	20.5
Exertional pain	39	60	50	61.7	89	61
Protruding hernia sac	51	78.5	64	79	115	78.8
Recurrent partial gastrointestinal tract obstruction	12	12.3	16	19.7	28	19
Gastrointestinal tract incarceration	9	13.8	7	8.6	16	11

tal work). Most of the women conducted every day physical work (n39, 60%). In the group of men 59.3% worked mentally. Only a small part of the study population was involved in the occurrence of rapid physical effort (women: n4, 6.15%, men: n11, 13.5%). About half of the patients had different comorbidities (tab. 2). Data on co-morbidities that cause the occurrence of a hernia are found in table 3. The most common were respiratory diseases, e.g. asthma, COPD (n31, 21.2%) and neoplastic diseases (n26, 17.8%). 11.6% of people with cancer have been given chemo- or radiotherapy.

Tab. 2. Type of work, hernia occurrence circumstance

	Physical work		Mental work		Rapid physical effort		Co-morbidities	
	n	%	n	%	n	%	n	%
Women n = 65	39	60	26	40	4	6.15	27	41.5
Men n = 81	33	40.7	48	59.3	11	13.5	38	47

Tab. 3. Co-morbidities – cause the occurrence of postoperative hernia

Types of co-morbidity	Women n (%) n = 65	Men n (%) n = 81	General n (%) n = 146
Respiratory disease	13 (20)	18 (22.2)	31 (21.2)
Neoplastic disease	10 (15.4)	16 (19.7)	26 (17.8)
Radiotherapy or chemiotherapy	8 (12.3)	9 (11)	17 (11.6)
Post-operative wound infection	7 (10.7)	6 (7.4)	13 (9)
Type 2 diabetes	9 (13.8)	11 (13.5	20 (13.7)

Patients underwent various types of primary surgical interventions. Cesarean section was the most common primary intervention in group of women (n24, 37%), appendectomy was dominant in the group of men (n22, 27%). The other primary surgical procedures included: classic and laparoscopic cholecystectomy, right-side and left-side hemicolectomy, gastrectomy, sleeve gastrectomy, splenectomy, laparotomy after abdominal injury, pancreatectomy, liver surgery, laparotomy after gastric and duodenal perforation. Table 4 presents primary operation quantity data.

Tab. 4. Type of primary operation

Primary surgery	Women n (%) n = 65	Men n (%) n = 81
Appendectomy	13 (20)	22 (27)
Cesarean section	24 (37)	–
Classic cholecystectomy	10 (15.5)	16 (20)
Laparoscopic cholecystectomy	5 (7.7)	4 (5)
Right-sided hemicolectomy	2 (3)	3 (3.5)
Left-sided hemicolectomy	4 (6.3)	5 (6)
Gastrectomy	2 (3)	4 (5)
Sleeve gastrectomy	1 (1.5)	–
Splenectomy	1 (1.5)	2 (2.5)
Laparotomy after abdominal injury	1 (1.5)	8 (10)
Pancreatectomy	2 (3)	6 (7.4)
Liver surgery	–	4 (5)
Laparotomy after gastric and duodenum perforation	–	7 (8.5)

Patients have been operated due to elective and emergency indications. Patients underwent the following types of treatments: classic hernioplasty, hernioplasty with mesh, laparoscopic hernioplasty, IPOM laparoscopic hernioplasty (tab. 5, fig. 3).

Tab. 5. Type of incisional hernia repair

Incisional hernia repair	Women n (%) n = 65	Men n (%) n = 81
Classic incisional hernia repair	29 (45)	31 (38)
Incisional hernia repair with mesh	21 (32.3)	36 (44.4)
Laparoscopic hernia repair	11 (17)	2 (2.5)
IPOM laparoscopic hernia repair	4 (6.3)	12 (14.8)

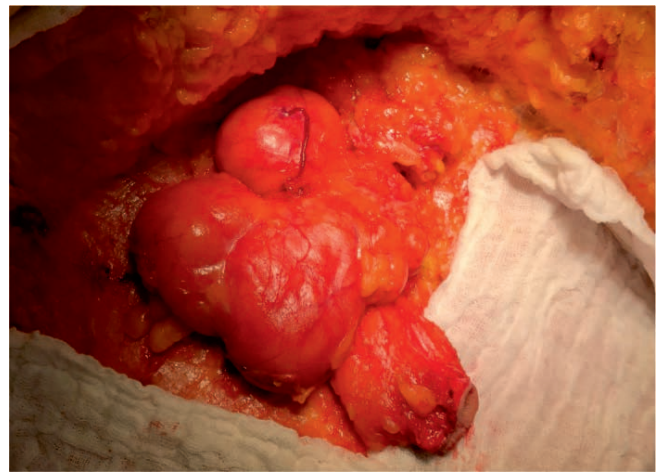

Fig. 3. Hernia sac

DISCUSSION

In literature we can find that the most common patient complaints, are hernia sac protrusion, abdominal

pain and discomfort. We should remember that a large proportion of patients are initially asymptomatic. The research does not suspend this information, because asymptomatic patients do not report to the doctor (3).

Incisional hernia occurrence are often connected with a coexisting clinical situation. Local complications of wound healing like: wound infection, hematomas and seroma may lead to occurrence of postoperative hernia (5). To prevent this complication, surgeon is obliged to observe aseptic and antiseptic rules and ensure accurate hemostasis. Co-morbidities like poor-controlled diabetes, obesity, neoplastic diseases may contribute to the occurrence of a hernia (6, 7). Neoplastic diseases may be a cause of hernia evolution in a few ways. They include malnutrition, cachexia, chemotherapy and radiotherapy. Conditions associated with elevated intra-abdominal pressure like: chronic cough (patient suffering from COPD, asthma, bronchiectasis, GERD), chronic constipation, vomiting (postoperative vomiting, chemotherapy side effect), ascites, obesity may lead to development of hernia. Other risk factors of hernia connected with patient general condition include: abnormalities in the structure of connective tissue, advanced age, drugs (for example glucocortycosteroids), stimulants (smoking) (1, 8, 9). In present study, it has been confirmed that patient general condition and co-morbidities are important risk factors of incisional hernia developing.

The risk factors of the development of postoperative hernia associated with the technique of surgery include incorrect supplying of the surgical wound, and type of surgical incision. Researchers prove that laparotomy performed by median incision gives the highest percentage of hernias among all surgical approaches within the cavity abdominal (2). The use of minimally invasive techniques greatly reduces the risk of postoperative hernia. Confirmation of this thesis is found in comparison with laparoscopic and classic cholecystectomy. In our study, the minimally invasive technique caused half of the hernia cases development in comparison to the classical technique.

Contemporary surgery allows application of classic and laparoscopic incisional hernia repair. However, most often surgeons choose the minimally invasive technique and IPOM. Laparoscopic technique is characterized by a lower frequency of local infection (10-12). Scientific research proves a smaller number of hernia recurrences when using a mesh- recurrence rate is 32% (in comparison simple suture repair 63% of recurrence) (13, 14). We used meshes in 35% hernioplasty. Other cases allowed for primary suturing and plastics without a mesh. In surgery, two general types of meshes – synthetic and biological. Synthetic meshes are made by polypropylene, polyester and polytetrafluoroethylene (PTFE – using in IPOM). We used only synthetic materials in hernioplasty with mesh (ePTFE for IPOM and polypropylene in other procedures). Biological meshes are made of cell-free collagen, they may be used in patient at high risk of surgical wound infection (15-17). During the study opportunity to use biological mesh has not occur.

CONCLUSIONS

Literature data and own experience prove that it is not the surgical technique itself that is important in the development of post-operative symptoms, but also the patient's general condition and coexisting symptoms. Currently, the repair of postoperative hernia is an important laparoscopic technique as well as IPOM. They provide better healing of postoperative wounds, lower incidence of postoperative wound infection.

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