Rectal prolapse belongs to the group of rare diseases of the rectum and anus. It is mostly observed in elderly multiparous women in the seventh and eighth decade. The precise cause of this pathology is not thoroughly understood that is why there are no optimal standards of treatment.

The aim of the study was to present pathophysiology, diagnostics and optimal surgical procedures employed in young patients with rectal prolapse.

Material and methods. Out of a 56-patient group treated in Department of General and Colorectal Surgery in the years 2006-2011 a smaller one consisting of 11 young women between the ages 20-40 was selected. According to the literature this is a very rare time of the mentioned pathology occurrence. In the studied females grade of rectal prolapse as well as faecal incontinence based on Jorge-Wexner’s (Cleveland) scale were assessed before and after the operative treatment. All of them underwent transabdominal Wells and Frikman-Goldberg prolapse procedures.

Results. Transabdominal approaches repair pathologies of the pelvic floor and have promising long-standing results improving quality of life. No rectal prolapse recurrences were observed. The mean score of the Wexner’s grading system was 7.81 diminishing to 1.9 points postoperatively.

Conclusions. Rectal prolapse if untreated, is a pathology that substantially changes patients’ quality of life for the worse. Individual, standardized surgical approach to each patient is necessary. Transabdominal methods carry a low risk of complications and improve quality of life of young patients enabling a relatively quick return to normal life.

Key words: rectal prolapse, transabdominal procedures, young women

The treatment of rectal prolapse (RP) is difficult, since its causes and patomechanisms have not been sufficiently understood, and there are no established optimal standards of surgical treatment. When counting transabdominal procedures and those performed through the perineal access, there are over 100 different methods of rectal prolapse surgical treatment (1, 2) (tab. 1). First descriptions of full-thickness rectal prolapse come from the times of ancient Egypt and Greece (3, 4). Historical mentions come from around 1500 BC and were included in the Ebers Papyrus (4, 5). In the modern era, in 1888, Jan Mikulicz-Radecki popularized the procedure of transperineal resection of the rectum (6), and subsequently, in 1910, Lockhart-Mummery (7) implemented this type of surgery in the treatment of rectal prolapse. In 1912, Moschcowitz (8) performed the first transabdominal procedure.

Rectal prolapse is defined as circular ever-sion of one or all layers of the colon outside of the anal canal and the anus. It often occurs concomitantly with sigmoid elongation, atonia of the muscles of the lesser pelvic and deepening of the pouch of Douglas.

We distinguish three types of rectal prolapse:
- rectal mucosa prolapse (qualified also as anal prolapse),
Rectal prolapse in young women

Rectal prolapse is a rare disease of the colon and anus, with an estimated incidence of 2.5 out of 100,000 persons in the population (10). It is believed that the exact number has not been established. The disease can occur at any age, but the median incidence significantly increases in the 5th to 7th decade of life. Rectal prolapse is six to ten times more common among women than men. In children, the peak incidence occurs in the first three years of life, with similar incidence in both sexes (4).

According to the available literature, the 2nd to 4th decade of life is an age in which this disease is rare. The causes of rectal prolapse have not been fully understood. There is, however, a number of key theories that can be divided into anatomical theories and functional theories, associated with pudendal nerve neuropathy (1, 4, 11) (tab. 2).

Both outer (complete) and inner rectal prolapse depend on pathological changes in the perianal space and the perineum as well as dysfunction of the pelvic floor muscles, which occur concomitantly with numerous functional disorders of defecation, mainly fecal incontinence and constipation (1, 12, 13). Complaints associated with fecal incontinence are reported by up to 70% patients (14), difficulties with evacuation of the rectum – by up to 50% (15) and constipation – by up to 28% (16).

Anatomical irregularities associated with rectal prolapse include spontaneous intussusception, poor fixation of the rectum to the sacral bone, deepened pouch of Douglas, elongation of the sigmoid and rectum, weakness of the muscles of the pelvic floor and anal sphincter as well as the presence of rectocele (11).

Shafik (17) argued that the cause of fecal incontinence in full-thickness rectal prolapse is chronic mechanical stretching of the pudendal nerve and its branches as well as pudendal nerve neuropathy, caused by pudendal nerve canal syndrome, which prolongs pudendal nerve terminal motor latency (PNTML).
Table 2. Causes of pelvic floor dysfunction

<table>
<thead>
<tr>
<th>Segmental motility disorders</th>
<th>Pelvic floor disorders</th>
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<tbody>
<tr>
<td>– mechanical: III° sigmoidocele</td>
<td>– morphological: pelvic floor prolapse</td>
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<tr>
<td></td>
<td>rectal intussusception</td>
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<td></td>
<td>rectocele</td>
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<td></td>
<td>rectal prolapse</td>
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<tr>
<td>Hirschsprung's disease</td>
<td>paradoxical puborectalis syndrome</td>
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<tr>
<td>Chagas disease</td>
<td>(anism)</td>
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<td>rectal inertia</td>
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Rectal prolapse as intussusception of the rectal wall was first described by Hunter (18), and later confirmed by Broden and Snellman (19).

Parks et al. support the theory that chronic stretching of the pelvic floor muscles may lead to pudendal nerve damage, which might be the cause of rectal prolapse (20). Relaxation of the lateral ligaments combined with atonia of the muscles of the pelvic floor and the anal canal also predisposes to rectal prolapse (19, 21).

Mobile mesorectum resulting in improper placement of the rectum might also be associated with rectal prolapse (19, 21). Irrespective of which theory is accepted, most of the proposed surgical treatment methods used in rectal prolapse attempt at correcting the aforementioned pathological changes of the pelvic floor.

The aim of the study was to access the treatment of young patients with rectal prolapse as well as to analyze psychological problems associated with this pathological condition.

MATERIAL AND METHODS

In the years 2006–2013 (March), in the Clinic of General and Colorectal Surgery, among 56 patients undergoing surgery for rectal prolapse there was a group of 11 young female patients, aged 20-40 years, which were qualified for the so-called group of young women (tab. 3).

None of the patients were burdened with chronic diseases (ASA 1); they had not previously borne children, reported no injuries of the perineal area or previous anal intercourse. Family history analysis failed to reveal the presence of the pathology in the patients’ families. Three of the eleven patients had suffered from chronic constipation and used laxa-
tives frequently. The average time between bowel movements was 5 days. During history taking, four patients reported they had previously suffered from anorexia and bulimia, and regularly, for 2 years, taken motility-stimulating agents and laxatives, as well as provoked vomiting on a regular basis.

Main complaints reported by the patients included difficulties with bowel movement, feelings of chronic pressure or incomplete defecation, periodic anal bleeding and staining, pain in the perineal area, difficulties with maintaining hygiene of the perineal area due to fecal incontinence. Two patients had one-time experience of urinary incontinence. All patients reported decreased everyday activity and disturbances of motivation. They complained about increased irritability, anxiety, fear, depressive states as well as sleeping disorders, decreased libido, sexual disturbances and appetite disturbances. Stress caused by those complaints, in the patients’ opinion, had significantly reduced their quality of life. Owing to increasingly severe complaints associated with rectal prolapse, more difficult control of personal hygiene and increasing stress, the patients presented to a doctor early, once first symptoms had appeared. The mean duration of the symptoms in the patients presenting to the Clinic ranged between twelve and eighteen months. Patients were referred to the Clinic of General and Colorectal Surgery by the Surgical Clinic and the Proctology Clinic, where preliminary diagnosis and qualification for surgery were performed.

All patients, after preliminary qualification performed in the Surgical Clinic or the Proctology Clinic underwent, in the Surgical Clinic, assessment of fecal incontinence (according to the Jorge-Wexner’s scale (Cleveland scale)) (22) (tab. 3) and physical examination (including per-rectum examination), anorectal manometry, transrectal ultrasound and, in case of suspected elongation of the sigmoid, infusion of a contrast agent into the colon. An important element was discussion between the patients and the doctor about their expectation regarding postoperative quality of life (fig. 1).

Patients complaining about anxiety-depression states were referred to a clinical psychologist, who performed repeated consultations (pre- and postoperatively) with the patients. In line with the psychiatrist’s recommendations, 5 patients were referred to the Psychiatric Clinic for further treatment.

Because of lack of burden (all patients ranked within ASA I scale) and the patients’ very young age, transabdominal procedures were used for surgical treatment. In preoperative preparation, intestine cleansing was performed using Fortrans and anal infusions. Zinacef and Metronidazol were used for antibiotic prevention.

In cases of rectal prolapse without sigmoid elongation, the surgical technique of Wells-style posterior rectopexy was chosen, with the use of polypropylene mesh instead of Ivalon sponge (vinyl alcohol), which this method originally utilized. The method has been first described in 1959 by Wells (23). The patient is placed on the operating table in the Lloyd-Davies position. After anesthesia and placement of a catheter in the urinary bladder, the abdominal cavity is opened along the midline. The surgery starts by mobilization of the posterior part of the rectum, performed downwards, between the rectal fascia and the presacral (Waldeyer’s) fascia towards the levator ani. Next, the anterior part of the rectum is mobilized between the rectal fascia and the Denonvilliers’ fascia, with preservation of the lateral ligaments of the anus. It is very important to prepare the rectum to a low level, practically down to the sphincter. Failure to do so will leave the mucosa still mobile in relation to the muscular layer, and still prone to prolapse and intussusception. Then, polypropylene mesh is sewn to the presacral fascia using non-absorbable sutures. Lateral edges of the mesh are wrapped around the mobilized rectum in 3/4 of the circumference, and sewn into the rectum. Around 1/4 of the circumference of the anterior

Fig. 1. Rectal prolapse – grade III
part of the rectum remains free (24). The whole thickness of the rectum can be prepared and lifted using the mesh. In case of rectal prolapse with sigmoid elongation, sigmoid resection with Frykman-Goldberg-style rectopexy (25) with anastomosis using a circular stapler was performed. The surgery comprised three basic steps: full mobilization of the rectum down to the sphincter with preservation of the later ligaments of the anus, fixation of the rectum to the presacral fascia and sigmoidectomy with anastomosis. Resection of a prolonged sigmoid (fig. 2), which is usually characterized by abnormal peristalsis, decreased the risk of post-operative constipation.

RESULTS

The mean time of post-operative hospital stay was 5-7 days. After discharge, patients were followed-up in the Proctology Clinic or admitted for follow-up visits in the Clinic of General and Colorectal Surgery. During the follow-up visits, patients were interviewed in order to assess subjective improvement in quality of life after the surgery. A clinical trial was performed, including per-rectal examination, and the fecal incontinence score was reassessed. Patients operated using the Frykman-Goldberg method were infused with a contrast agent in order to assess the anatomical relationships after sigmoid resection and rectopexy (fig. 3). It is extremely important to perform contrast infusion with imaging in the lateral plain (fig. 4), preferably in the squatting position. Only in this position intussusception of the upper portion of the rectum onto the distal portion can be ruled out or confirmed. At the moment, the whole group of patients is still under supervision of the Proctology Clinic. The duration of the patients’ follow-up period ranged from 6 months to 6 years, with an average of 3 years and 2 months.

The results obtained during follow-up examinations are very promising. It can be argued that this is also associated with the young...
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age of the patients as well as with lack of burden with chronic diseases. Up to date, no recurrences of rectal prolapse were observed.

The only reported complication were transient colon motility disorders seen in 5 patients, leading to irregular bowel movements, as well as flatulence and transient abdominal pains. In such cases, outpatient pharmacological treatment was started (metoclopramid, boldaloiune). The complaints subsided after an average of 5 months after the surgery. Complaints associated with the underlying disease lessened to a significant degree or subsided altogether. In patients with constipation, the time between bowel movements decreased during one year after the surgery, on average, from 5 to 1.5 days. The mean score in the Wexner’s scale of 7.81 pts. decreased in postoperative follow-up by 1.9 pts. (tab. 3). All patients reported increased postoperative quality of life after a mean of 6 months after the surgery.

DISCUSSION

Despite more than 120 years of experience in surgery of rectal prolapse and over 100 documented surgical methods, the ideal treatment option has not been yet found. Transabdominal methods are more radical; they are better at restoring normal anatomical relationships and offer better distant outcomes. Unfortunately, they are greater burden for the patient’s organism, and therefore only appropriate for persons not burdened with concomitant diseases. Methods using the perineal access are less invasive, and their radicality and distant outcomes are still not satisfying for many surgeons and patients. They are most frequently performed as procedures improving the quality of life of patients over 70 years of age.

According to the literature of numerous trials, in young patients transabdominal surgeries should be performed. Transabdominal surgical methods are associated with a lower risk of recurrence and better functional effects compared with surgeries using the perineal approach, and therefore they are methods of choice for young patients not burdened with concomitant diseases (1, 11, 26, 27).

Among the transabdominal methods, posterior rectopexy seems an optimal choice. The advantage of posterior rectopexy over anterior rectopexy is a smaller number of rectal stenoses and subsequent events of constipation, which lower the patients’ quality of life postoperatively, and of fistulae caused by excessive pressure of the mesh on the rectum (28, 29). Kuijpers (21), in postoperative follow-up after anterior rectopexy, observed 7% cases of stenosis. As regards sigmoid resection with Frykman-Goldberg-style rectopexy (25), the outcomes, according to the literature, are very good – the incidence of recurrences is in the range of 0-3%.

It seems that such methods radically eliminate the pathological changes of the pelvic floor, causing a significant increase in the level of quality of life. One needs to remember, however, that in the group of young patients even a scar in the abdominal midline can be difficult to accept. Anxiety associated with the surgical procedure, lack of good cosmetic effect of the scar, postoperative rehabilitation period and interruption of professional and social activity are sources of significant fear in patients.

Based on analysis of surgical treatment outcomes reported by different authors (28, 29), one needs to note high efficacy of the treatment in the presented group. The only significant complications were, usually transient, functional disorders; no need for reoperation or surgical complications, such as fistulae or stenoses, were noted. This may result from generally good overall health of the patients, lack of other types of burden and their young age, which might have had a beneficial impact on the postoperative period itself, as well as – owing to higher physical activity in this age group – on the later postoperative course.

In the era of the Internet, numerous forums and social networking sites provide often incorrect and contradictory information about the course of the disease and treatment methods, which deepens the patients’ frustration and anxiety.

Thus, it seems that a significant role is played by the surgeon who takes history and qualifies patients for the surgical procedure. An honest and professional conversation, including detailed description of the course of treatment, broadens the patients’ knowledge of the disease and of the benefits of radical treatment, which often makes it possible to debunk myths and decrease anxiety associated with the surgery. The role of the doctor is to preliminarily assess psychological distur-
bances associated with the disease, and to decide whether a clinical psychologist should join the team.

Symptoms of rectal prolapse deeply disrupt the patients’ intimate sphere. This is confirmed by the literature as well as conversations with patients treated in the Clinic of General and Colorectal Surgery. Before the symptoms of RP appeared, all patients, as young, ambitious women of high self-esteem, had actively pursued their professional aims and dynamically participated in the social life. Highly embarrassing complaints associated with rectal prolapse significantly limited their activity in both the social and professional sphere. Some patients complained about serious problems present during sexual contacts with their partners. Lack of acceptance of the disease, embarrassment, difficulties with maintaining an acceptable level of intimate hygiene contributed to decreased satisfaction derived from sexual activity, or even its complete discontinuation. The aforementioned problems led to lack of self-acceptance, disturbances in the feeling of one’s social and professional position and radical decline in self-esteem.

It is highly interesting that in our material problems of anorexia and bulimia are a very often occurrence among the young patients. After detailed and patient history taking, it turned out that virtually all the women, at the age of 16–18 years, had limited their food intake, used various laxatives and provoked vomiting. The use of laxatives was associated with long periods of time spent on the toilet, in a squatting position, and constantly provoked pushing. This pushing was unsuccessful, and often resulted in evacuation of nothing but mucus, or mucus with blood.

Control over one’s bodily functions is one of important factors that give a person the feeling of safety and confidence. It enables undertaking and pursuing of aims, performing social functions (family-related, professional and non-professional), personal development, fulfillment and creativity. Loss of control causes disintegration at the emotional level, accompanied by feelings of fear and anxiety.

An important aspect, also after a radical procedure, is prompt return of a young person to professional and social activity, as well as lack of anxiety associated with a high risk or recurrence. Lack of expected outcomes of surgical treatment as well as rectal prolapse recurrences may lead to frustration and loss of faith in further treatment attempts and to the feeling of hopelessness resulting in broadly understood depressive states.

It seems that an important factor in preventing progressive decrease in the patients’ quality of life is early and detailed diagnosis of rectal prolapse, followed by treatment in a reference surgical center which has sufficient experience in the treatment of this disease.

However, because of psychological and social factors associated with rectal prolapse, it certainly seems justified to perform radical treatment of this disease using transabdominal methods, which minimize the risk of recurrences compared with methods using the perineal access.

**CONCLUSIONS**

Rectal prolapse is a disorder, which, if untreated, significantly changes the patients’ quality of life. In most cases it is not life-threatening, but seriously decreases the quality of life, leading to physical incapacity, psychological disorders and social disadaptation. Because of numerous surgical procedures used in the treatment of rectal prolapse, there are no established optimal standards of surgical treatment.

It seems that a very important aspect is close cooperation between a proctology clinic, surgical department and psychologist/psychiatrist. Only formation of a therapeutic team comprising a surgeon and a psychologist allows for radical treatment of rectal prolapse.

Comprehensive and correct diagnosis performed by a doctor and quick qualification for surgery certainly decrease the risk of worsening of psychological disturbances in young patients. The chosen transabdominal methods offer relatively quick full recovery and are associated with a low risk of complications.

The ideal surgical technique should be based not only on simplicity and low incidence of recurrences and complication, but should also take into account the treatment or at least alleviation of functional disorders so frequently associated with rectal prolapse.

Unfortunately, the outcomes of surgical treatment are often considered satisfactory, when anatomical relationships have been restored with no real benefit from the functional
point of view. The choice of surgical technique must take into consideration the patient’s age, general health, concomitant diseases, social factors and mental state associated with the course of constipation and degree of fecal incontinence (1).

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