TRANSVERSE (TRAM) RECTUS ABDOMINIS MYOCUTANEOUS FLAPS FOR RECTOVAGINAL AND RECTOVESICAL FISTULAS TREATMENT AFTER LOW ANTERIOR RECTAL RESECTION DUE TO ADENOCARCINOMA

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The rectovaginal or rectovesical fistula is a rare complication after low anterior resection for rectal cancer. Treatment is difficult and the result is often unsatisfactory.

**The aim of this paper** was to present results of treatment with transverse rectus abdominis myocutaneous flaps of rectovaginal and rectovesical fistulas as complication of low anterior rectal resection due to adenocarcinoma.

**Material and methods.** We report six patients with rectovaginal or rectovesical fistulas as a postoperative complication after low anterior resection of rectal cancer in Department of Oncological and Reconstructive Surgery in 2006-2008. Transverse rectus abdominis myocutaneous flaps are used for rectovaginal and rectovesical fistulas treatment.

**Results.** In the follow-up period from 4 to 30 months no rectovaginal or rectovesical fistula recurrences and any postoperative complications were noted in all cases.

**Conclusions.** Transverse (TRAM) rectus abdominis myocutaneous flaps are an effective, surgical method for rectovaginal or rectovesical fistulas treatment, especially in patients who received pre or postoperative radiotherapy.

**Key words:** rectal cancer, fistula, pedicle flap

The colorectal cancer is the most common gastrointestinal malignancy. In Poland, annual incidence of colorectal cancer is approximately 11,000 cases and annual number of deaths is approximately 8000. This malignancy is the second malignancy with respect to incidence and number of deaths in both genders. The rectum is the most common location for colorectal cancer. Unfortunately, in Poland approximately 60-70% patients are diagnosed and treated for colorectal cancer in stage III and IV therefore 5-year survival rate for colon cancer is 30-32% (depending on gender) while for rectal cancer is 24-33% (while these rates reach 50% in countries of Western Europe) and are among the lowest in Europe (1, 2). Surgical treatment is the treatment of choice of rectal cancer in combination with preoperative or postoperative radiotherapy or radiochemotherapy, depending on its stage (3). Rectovaginal and rectovesical fistulas are rare complications of low anterior rectal resection (approximately 3% in our own material).

Rectovaginal and rectovesical fistulas account for less than 5% of all fistulas in the rectal region. These are pathological communications between intestinal lumen and vagina or urinary bladder. Crohn’s disease and appendicitis are their most common causes in patients aging from 20 to 40 years, while diverticulitis and rectal cancer are dominant causes in older patients. They significantly
worsen quality of social, sexual and emotional life of affected patients. Major complaints reported by women include passage of stool and gases through vagina. Particularly burdensome vaginitis and cystitis develop as a result of infections by intestinal flora. Clinical manifestations of rectovesical fistulas are usually nonspecific, in particular at early stages of their development. Most common symptoms include pain in the low abdominal region, symptoms of cystitis, urine clouding, excretion of gas bubbles and stool with urine, hematuria and functional intestinal abnormalities manifesting as constipation, bloating and diarrhea. These complaints are usually of chronic or recurrent nature. Surgical treatment is the principle therapy for rectovaginal and rectovesical fistulas. Simple fistulotomy can be used in the treatment of small fistulas: local mucosal flaps, layered suture with or without sphincteroplasty or local tissue transposition according to Martius method (5). Correction of larger fistulas requires excision of the fistula canal, dissection of tissue structures that form the fistula and transposition of well perfused tissue to reconstruct tissues forming the pathological communication (6). An attempt of medical treatment may be undertaken only when a fistula has small diameter, no more than 5 mm. To facilitate healing, any foreign body should be removed from the fistula region and soft stools should be ensured plus colostomy for fecal diversion should be performed.

The aim of this paper was to present results of treatment with transverse rectus abdominis myocutaneous flaps of rectovaginal and rectovesical fistulas as complication of low anterior rectal resection due to adenocarcinoma.

MATERIAL AND METHODS

The analysis included six consecutive patients, treated at Department of Oncological and Reconstructive Surgery in 2006-2008, for rectal adenocarcinoma in whom a rectovaginal or rectovesical fistula was detected as a postoperative complication. The study population included 4 men and 2 women, at an average age of 57 years. All patients underwent primary radical surgical treatment: low anterior rectal resection with total mesorectal excision (TME). Depending on distal tumor border and anatomical conditions, continuity of gastrointestinal tract was restored manually in 3 cases while in the other 3 patients mechanical suture was used. Three patients underwent preoperative radiotherapy with a total dose of 25 Gy while 2 patients underwent postoperative radiotherapy (50.4 Gy). One patient did not undergo any adjunctive therapy. Symptomatic fistula was detected 5 to 11 months after completion of oncological treatment. Each time its location and size was assessed using endoscopic examinations and X-ray contrast examination. Since it was impossible from the technical point of view to correct fistulas locally in all patients, transverse rectus abdominis myocutaneous flaps of 27 to 38 mm in length (fig. 1A) was tunneled through the pelvis minor (fig. 1B) into the space created between dissection of reconstructed rectum and vagina or urinary bladder. When the fistula was visualized, distal end of the muscle was sutured into the floor of the tunnel and its distal sides were superficially connected to distal sides of the rectum and to lateral circumference of the vagina or urinary bladder. Therefore the fistula region was filled and complete stabilization of wide muscular band was achieved (fig. 1C and D). No protective fistula was formed.

RESULTS

No recurrence of fistula or any complications after the above mentioned surgical procedure was observed during the follow up of 4 to 30 months duration. Imaging studies, X-ray contrast examination of the gastrointestinal tract and endoscopy of the lower gastrointestinal tract (6 months after the reconstruction) did not demonstrate any fistula. Furthermore, these examinations did not demonstrate any stricture in the low rectum.

DISCUSSION

A rectovaginal and rectovesical fistula is a rare complication of low anterior rectal resection due to the rectal cancer. Their occurrence in the postoperative period significantly worsens the quality of social, sexual and emotional life of affected patients. The principal method of treatment of rectovaginal and rectovesical fistulas is surgical treatment that is often unsuccessful and requires several reoperations. An attempt of medical treatment may be undertaken only when a fistula has small
diameter, up to 5 mm. Among multiple reported methods of reconstructive surgery used to correct fistulas, the following merit special attention: TRAM – transposition of rectus abdominis muscle, GM – gracilis muscle, GTF – gluteal thigh flap and OP – omentoplasty.

This study reports a method of treatment using transposition of rectus abdominis muscle (TRAM). Depending on the extent of fistulas, Oomen et al. (6), basing on their own experience, recommend using more than 10 cm TRAM or OP in extensive fistulas; when fistulas have dimensions from 8 to 10 cm, they recommend TRAM or GM, while for fistulas up to 8 cm – GM or GTF. Size of the fistula and inflammation at the operative area were found to affect success of the procedure. None of the operated patients analyzed in this study developed inflammation within the operated tissues due to pre- and postoperative intensive antibiotic therapy. Wexner et al. presented results of correction of rectovaginal and rectovesical fistulas using gracilis muscle in 53 consecutive patients (17 women and 36 men). Eight patients developed postoperative complications: another fistula at the site of the operation that required repeated surgical intervention. Effectiveness of this method was 78% for primary treatment and 97% for reoperation. Another method of fistula correction was reported by Fernandez et al. and involved preparation and dissection rectal structures and vagina or urinary bladder and then repair of the fistula with a silicone prosthesis adequately selected for the fistula extensiveness (8).

Despite multitude of methods reported in the literature, transverse (TRAM) rectus abdominis myocutaneous flaps for rectovaginal...
and rectovesical fistulas treatment after low anterior rectal resection due to adenocarcinoma seems to be the first choice treatment. Relatively simple surgical technique, constant anatomy of inferior epigastric blood vessels dominating source of blood supply to the rectus abdominis muscle as well as possibility to create a cutaneous island to correct possible skin defects in the perineal area, offer excellent opportunity to use this method in the treatment of fistulas. Lack of recurrences or postoperative complications associated with transverse rectus abdominis myocutaneous flaps for rectovaginal and rectovesical fistulas treatment make this strategy an option worth consideration in patients with this complication, in particular when preoperative or postoperative radiotherapy was used.

REFERENCES


Received: 9.02.2010 r.
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