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Anatomical and Functional Results of Surgical Treatment Of Complex Rectal And Uterine Prolapse.

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ABSTRACT

The work outlines an original method of surgical treatment of complex rectal and uterine prolapse by laparotomic access with use of prolene mesh fixed to the sacrum. The offered method is specific due to fixation of the whole rectal circumference. At time of sacrocolpopexy the mesh is used for strengthening the large area of the front and back vagina walls which facilitates a single-step rectocele correction. The method allowed achieving satisfactory anatomical and functional results.

Keywords: rectal prolapse, uterine prolapse, sacral fixation of the rectum, sacrocolpopexy, prolene mesh

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INTRODUCTION

Pelvic floor and pelvic organs descent syndrome was first described by Parks in 1966 [1]. According to literature sources 50-60% of women of perimenopausal age suffer from various pelvic prolapse manifestations [2]. The complex prolapse has to be eliminated in one stage but there are a number of surgical treatment methods [3]. Recurrences are reported in 8 – 45% of cases [4]. This method combines the advantages of dorsal rectopexy according to Wells having low rate of recurrences (0-12%) [5] and leaving the lateral ligaments intact allows reducing constipation [6]. The investigations involving defecography show that rectocele of the III stage is detected almost in half of the women with complete rectal prolapse [7], their dorsal Douglas pouch is deeper then in the patients from the reference panel, they often experience rectal mucosal prolapse along the anterior semi-circumference [8]. Fixation of the rectal anterior semi-circumference and the dorsal uterine wall with mesh gives an opportunity to correct these disorders [9]. The majority of authors give preference to the approach of using hysterectomy in case of prolapse in the elderly women [10]. In the elderly patients fragility of the pelvic floor connective-tissue and muscular structures results in gradual descent of the pelvic floor anterior segment and thus requiring its single-step correction [11]. Large number of complications occuring in case of the uterus fixation by mesh with use of perineal section gives rise to increasing popularity of intraperitoneal sacrocolpopexy [12]. For prevention of stress urinary incontinence development or for correction of the same it is recommended in addition to perform Burch colposuspension [13] or sling procedures through an additional perineal section [14].

METHODOLOGY

For the last 10 years 17 women with complete rectal prolapse combined with uterine prolapse and rectocele (IV stage according to POP-Q) were under medical supervision. Average age of these patients made 68.9±6.7 years. All of the patients in this panel experienced perineum descent and anal sphincter deficiency. 8 patients reported stress urinary incontinence, the rest 9 patients suffered from stanguria due to tortuous urinary bladder neck and proximal urethra, 4 of them experienced latent incontinence. The operation was performed with use of laparotomy access. The pelvic organs were fixed to the sacrum by means of prolene mesh. The modification had the advantages of posterior-loop rectopexy with use of Wells technique, sacrocolpopexy with strengthening of the front and back vagina walls across a large area almost up to the perineum with simultaneous strengthening of the front rectal wall by means of the same mesh strip. All of the patients were subjected to hysterectomy during the first stage of operation. The uterine walls were mobilized up to the perineum and the back rectal wall up to the tailbone apex while the lateral ligaments were kept intact. Two separate strips of mesh with the width of 2 cm were fixed to the sacrum immediately under the sacropromontary by interrupted sutures. The distal mesh end (for fixation of the rectum) was positioned horizontally; the proximal one (for fixation of the vagina) was located at an angle of 90º, i.e. vertically. The rectum was drawn up to the maximum toward the proximal direction and after pulling the left mesh sleeve beneath the rectum the lateral semi-circumferences were fixed by tension-free serous sutures from the both sides leaving the front third of the circumference free to prevent constriction. After that the front and back vaginal walls and the front rectal wall were fixed by means of a proximally positioned graft. The pelvic peritoneum over the mesh was closed in order to prevent peritoneal commissures development. During the postoperative period Burch colposuspension was carried out for stress urinary incontinence correction and prevention. The treatment results were evaluated according to the following criteria: incidence of inflammatory complications, erosions, granulomas, mash corrugation, dyspareunia onset, anatomic correction of rectocele, normalization of evacuation function, urine continence function recovery, incidence of recurrences according to the results of defecography and functional studies with use of Poligraf ID device.

MAIN BODY

No significant intraoperational complications were reported for any of the patients. Average blood loss made 268.7±21.3 ml. Length of operation constituted 112.6±5.8 min. Pyoinflammatory complications were reported in 3 patients. Defecography 12-16 months after operation showed rectocele correction in 15 patients and normalization of the perineum position in all of the patients, anorectal edge raised towards pubococcygeal line by 1.7±0.6 cm. Obstructed defecation was eliminated in 14 patients. Normalization of the rectum configuration was observed: anorectal angle decreased by 6.2±1.3º at rest and by 18.1±3.9º at straining efforts. All of the patients demonstrated reduction of the straining effort time as well as of the percent of the remaining contrast after barium removal from the rectum (from 22.2±1.6% before operation to

15.3±0.9% after operation) and increase of its evacuation speed (from 17.6±1.3 g/sec before operation to 7.8±0.8 g/sec after operation). 13 from 17 patients managed to push out a balloon with the volume of 150 ml without overstressing. The results of anorectal functional test showed partial normalization of the residual intraluminal pressure, of the amplitude and duration of the rectoanal inhibitory reflex: its amplitude made 27.7±2.3 mmHg and 23.4±3.2 mmHg (P<0.05) before and after operation correspondingly, the rectoanal inhibitory reflex duration made 17.2±3.1 sec before operation and 6.7±1.7 sec after operation (P<0.001). A gradual improvement of urine continence function was registered which is evidenced by pressure increase at time of anorectal manometry in the area of external sphincter from 27.7±3.2 mmHg before operation to 34.3±2.4 mmHg after operation (P<0.05) and in the area of internal sphincter from 42.2±6.0 mmHg before operation to 48.6±2.9 mm Hg after operation (P<0.05). Reduction of latent time of the pudental nerve from 3.2±04 msec to 2.6±0.3 msec (P>0.05) was reported, which is connected with discontinuation of its hyperextension (Table 1).

The remote results were controlled after one year and after 5 years. Not a single patient reported on absolute recurrence. 2 patients continued to suffer from genital prolapse of the II stage according to POP-Q and one patient from rectal mucosal prolapse. Erosion of the back vaginal wall with the diameter of 1 cm was detected in one patient but it didn't make her feel uncomfortable and there was no need to remove the mesh. 6 sexually active women did not report on dyspareunia. Stress urinary incontinence of the I stage remained in 2 from 8 patients who had the III stage of the mentioned disorder before operation. Urinary incontinence of the I-II stage de novo was reported in 3 patients.

Table 1: Objective data of the anatomical functional results of surgical treatment of complex rectal and uterine prolapse.

Accessed indicators	Before operation	After operation	Statistical significance
Defecography data:			
Level of perineum alignment against pubococcygeal line (cm):			
- at rest	- 3.9±0.4	- 2.6±0.3	P<0.01
- at straining efforts	- 7.9±0.6	- 5.7±0.5	P<0.001
Posterior anorectal angle (degrees)			
- at rest	136.7±5.4	115.5±6.5	P<0.001
- at straining efforts	171.1±5.3	152.7±4.8	P<0.001
Evacuation speed (g/sec)	17.6±1.3	7.8±0.8	P<0.001
Residual barium content (%)	22.2±1.6	15.3±0.9	P<0.01
Receptive function: first sensation evoking defecation impulse (ml)	32.9±1.7	26.2±1.3	P<0.01
Volume evoking defecation impulse (ml)	85.3±2.2	76.2±1.9	P<0.05
Anorectal manometry:			
At the external sphincter level (mmHg)	27.7±3.2	34.3±2.4	P<0.05
At the internal sphincter level (mmHg)	32.2±6.0	48.6±2.9	P<0.01
Pudental nerve latent time (msec)	3.1±0.4	2.6±0.3	P>0.05
Anorectal functional test:			
Residual intraluminal pressure (mmHg)	13.1±2.5	17.4±3.1	P<0.05
Rectoanal inhibitory reflex amplitude (mmHg)	27.7±2.3	23.4±3.2	P<0.05
Rectoanal inhibitory reflex duration (sec)	17.2±3.1	6.7±1.7	P<0.001

Later 2 of the patients were subjected to strengthening of the medium third of uretra by sling procedure with use of TVT-O method which gave positive results. All of the patients were satisfied with the results of operation and reported on significant improvement of quality of life.

CONCLUSION

The remote results were controlled after one year and after 5 years. Not a single patient reported on absolute recurrence. 2 patients continued to suffer from genital prolapse of the II stage according to POP-Q and one patient from rectal mucosal prolapse. Erosion of the back vaginal wall with the diameter of 1 cm was detected in one patient but it didn't make her feel uncomfortable and there was no need to remove the mesh. 6 sexually active women did not report on dyspareunia. Stress urinary incontinence of the I stage remained in 2 from 8 patients who had the III stage of the mentioned disorder before operation. Urinary incontinence of

the I-II stage de novo was reported in 3 patients. Later 2 of the patients were subjected to strengthening of the medium third of uretra by sling procedure with use of TVT-O method which gave positive results. All of the patients were satisfied with the results of operation and reported on significant improvement of quality of life.

FINDINGS

Until now, despite of the large number of works devoted to rectal and uterine prolapse a lot of problems remain unsolved and above all the problem of choosing the method of surgical treatment. Pelvic floor defects may be found in its anterior, medium and posterior segments or may be combined. It is obvious that significant descent of its posterior segment will destabilize the medium segment and vise versa. At the present time the majority of surgeons come to the conclusion that combined prolapse should be removed in one step. Optimization of the methods of synthetic materials use for rectum and vagina fixation in case of their combined prolapse allowed maximum elimination of all of the existing anatomical defects, enhancement of functional results of the treatment of this category of patients and reduction of recurrence incidence.

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