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RECURRENT STRESS URINARY INCONTINENCE IN WOMEN: RESULTS OF SURGICAL REINTERVENTIONS

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Background. The efficiency of surgical treatment of stress urinary incontinence (SUI) in women is 77-85%, and in nearly 15% of cases repeated procedures are required.
Aim. To present the experience of our center in the treatment of recurrent SUI in women and to evaluate the efficiency of repeated interventions.
Materials and methods. The retrospective study included women with recurrent SUI. They underwent to mid-urethral sling procedure or Burch colposuspension. The preoperative data, objective assessment of urinary incontinence and previous interventions were analyzed. Postoperatively, the presence of SUI, the degree of urinary incontinence and the quality of life were assessed. Data on additional surgical procedures was collected at a follow-up visit.
Results. A total of 179 patients underwent correction of SUI. Data on 10 patients with recurrent SUI were included. The age of the women was from 32 to 74 years (median 65 years, IQR 28), and one of them had a hysterectomy. Before our interventions, 9 patients underwent a single surgical procedure for SUI and one had previously had three interventions in other clinics. In general, there were 12 previous operations, including urethropexy with tension-free vaginal tape-obturator (TVT-O) (7/12), urethropexy with tension-free vaginal tape (TVT) (1/12), laparoscopic Burch colposuspension (1/12) and urethropexy with a synthetic loop with unspecified approach (3/12). At the time of the first examination, the women used 2-6 pads per day. The following types of treatment were performed in our center: 5 patients underwent retropubic urethropexy with tension-free vaginal tape (TVT) and 4 patients had laparoscopic Burch colposuspension. In addition, 2 simultaneous laparoscopic revision of the Retzius space and TVT under laparoscopic guidance were performed as well as one simultaneous open Burch colposuspension and TVT.
The median follow-up after surgery was 6 months. In two out of 10 patients (after primary TVT and TVT-O), laparoscopic Burch colposuspension was not effective. A recurrence of SUI was detected in the postoperative period. Then, the patients underwent revision of the Retzius space and TVT under laparoscopic guidance and open Burch colposuspension and TVT, respectively. Postoperatively, urinary continence was restored. Complete urinary continence (0 pads per day) was achieved in 50% of cases (6 out of 12 procedures). In three women (25%) mild SUI remained (2-4 points on the ICIQ-SF, 1 safety pad per day); at the same time, they noted a significant improvement in their quality of life. Thus, repeated interventions were effective in 75% of cases (9 out of 12). According to the evaluation of urination disorders (UDI-6), five patients had minor symptoms (1-3 points). Most of them ccomplained of frequent urination that did not affect the quality of life.
Conclusions. The efficiency of surgical treatment of recurrent SUI was 75%. The most often subsequent procedures were TVT and Burch colposuspension, as well as their combinations.

K e y w o r d s: *recurrent stress urinary incontinence, recurrent SUI, midurethral sling, Burch colposuspension*

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Introduction. Stress urinary incontinence (SUI) in women is a common condition that can lead to psychoemotional disorders and maladaptation, reducing quality of life. Unfortunately, the prevalence of SUI in Russia is difficult to assess, as symptoms are often not reported to physicians. It is estimated that 45% of women in the postmenopausal period in Russia suffer from urinary incontinence. However, only 1.5% of them seek medical help, which is significantly lower than in European countries, where the prevalence of women seeking help for these issues reaches 30–40% [1]. In the United States, SUI affects 4-35% of women, often occurring in women after pregnancy and childbirth (16-35%) [2]. The prevalence of urinary incontinence was 35% among surveyed women in Europe (mean age of 46.3 years), with SUI accounting for about half of the cases [3]. The efficiency of conservative treatment methods for SUI is limited. In most cases, SUI requires surgical correction, primarily through the placement of a mid-urethral sling via the transobturator or retropubic approach. The efficiency of the primary procedure is comparable between these methods and ranges from 77%

to 85% [4,5]. Thus, up to 15% of women will experience recurrent SUI, necessitating a repeat intervention.

Aim. To present our experience in treating recurrent SUI in women and to evaluate the efficiency of repeat intervention.

Materials and methods. A retrospective single-center study was carried out, including women with recurrent SUI. The exclusion criterion was age under 18 years. Patients underwent surgical correction of SUI using a tension-free synthetic mesh via the retropubic approach (TVT, tension-free vaginal tape) or Burch colposuspension between 2021 and 2024. Patients provided written informed consent to participate in the study. The preoperative period included a standard questionnaire and physical examination, resulting in the collection and processing of data: complaints, life history, disease history, demographic characteristics, objective assessment of urinary incontinence (number of pads used), gynecological history, use of hormonal medications, and the nature of previous interventions. The diagnosis of recurrent SUI was established based on questionnaire data, physical examination, and cough test. During the postoperative examination (at least one month after the procedure), the efficiency of the intervention was evaluated considering the following data: presence and degree of urinary incontinence, and quality of urination using questionnaires (Urogenital Distress Inventory-6 [UDI-6] and International Consultation Incontinence Questionnaire Short-Form [ICIQ-SF]), quality of life (using direct questions such as "Do you feel improvement in your condition after the surgery?"). SPSS v.23.0 (IBM Corp., Armonk, NY, USA) was used for statistical analysis. Descriptive statistics included median and interquartile range (IQR).

Results. A total of 179 patients underwent surgical correction of SUI; data from 10 of them with recurrent SUI were included in the study. The age of women ranged from 32 to 74 years (median: 65 years; IQR: 28). One of them previously had a hysterectomy. The median body mass index (BMI) was 26.2 (IQR – 20). Before re-intervention, nine patients had undergone a single surgical procedure for urinary incontinence at other facilities, and one had undergone three interventions; a total of 12 previous surgeries. The majority underwent synthetic mid-urethral sling procedures via the transobturator approach (TVT-O, Tension-free vaginal tape obturator) (7/12), laparoscopic Burch colposuspension (1/12), as well as TVT (1/12) and sling urethropexy through an unspecified approach (3/12). The time from the initial to the repeat proceudre for recurrent stress urinary incontinence varied significantly: from 17 years to six months. At the time of the first examination, women used two to six pads per day. At the Institute of Urology and Human Reproductive Health of Sechenov University, the following types of treatments were performed: five patients underwent TVT; four laparoscopic Burch colposuspensions were performed; two underwent simultaneous extraperitoneal revision of the Retzius space and TVT; and one underwent simultaneous open Burch colposuspension and TVT. The median duration of procedure was 1.5 hours (IQR = 1.335). One patient experienced acute urinary retention on the 4th day after TVT, and repositioning of the mid-urethral sling was performed by pulling the sling. On the 5th day, the urethral catheter was removed, and urination was restored. An ultrasound examination revealed no residual urine. The median length of hospital stay was 8.5 days (IQR: 3.5). The median follow-up period after surgery was six months (IQR: 3.5).

In two of the 10 patients, the first re-intervention (after primary TVT and TVT-O), laparoscopic Burch colposuspension, was ineffective: recurrent SUI was identified in the postoperative period. These patients underwent a second re-intervention. One patient (after TVT and laparoscopic Burch colposuspension) underwent extraperitoneal revision of the Retzius space and TVT. Urinary continence was fully preserved following the surgery. The second patient (after TVT and laparoscopic Burch colposuspension) underwent open Burch colposuspension and TVT, and in the postoperative period, she continued to need one safety pad per day. Thus, complete urinary retention (0 pads per day) after surgery was achieved in 50% of cases (six out of 12 procedures). Three women (25%) retained a mild degree of SUI (2–4 points on ICIQ-SF, one safety pad per day); they reported significant improvements in quality of life compared to the preoperative period and no impact of mild incontinence on daily activities. The re-intervention was effective in 75% of cases (nine out of 12). According to the UDI-6, five patients showed minor disturbances after the procedure.

In two patients, a score of 1 was recorded (increased urinary frequency); in another two patients, a score of 2 was noted (due to increased frequency and slight leakage during physical activity, and to occasional urge-related incontinence combined with rare difficulty urinating). One patient had a score of 3, presenting with increased frequency, occasional leakage during physical activity, and lower abdominal discomfort. All of them noted that the presence of increased urinary frequency after the surgery did not affect their quality of life.

Discussion. Currently, there is still a debate about how to treat patients with recurrent SUI, as there is no consensus among physicians. Tincello et al. carried out a survey among surgeons treating recurrent SUI and patients facing this problem [6]. It turned out that surgeons base their choice of re-intervention on several factors: types of previous procedure, severity of incontinence, and their own experience; they most often offer patients the mid-urethral sling via the retropubic approach as a repeat procedure. Interestingly, patients often have their own opinions about which repeat surgery they would like to have. Their choice is usually based on excluding the previously performed primary intervention. Considering that most women currently receive a mid-urethral sling as their primary intervention, this contradicts the views of most surgeons, who preferred to repeat the sling procedure over other options.

According to national clinical guidelines, the retropubic approach is preferred for repeat surgery in recurrent SUI [7]. This recommendation has a strength of a recommendation C and a level of evidence 4 and refers to a retrospective study from 2007. In this study, Lee et al. demonstrated the efficiency of TVT and TVT-O in recurrent SUI (92.3% [12 out of 13 patients] and 62.5% [10 out of 16], respectively), but no significant differences between the procedures were found (p=0.089) [8].

The European guidelines also indicate that according to some studies, TVT is the preferred surgery for recurrent SUI in women with the highest efficiency, while its short-term results are comparable to Burch colposuspension [9].

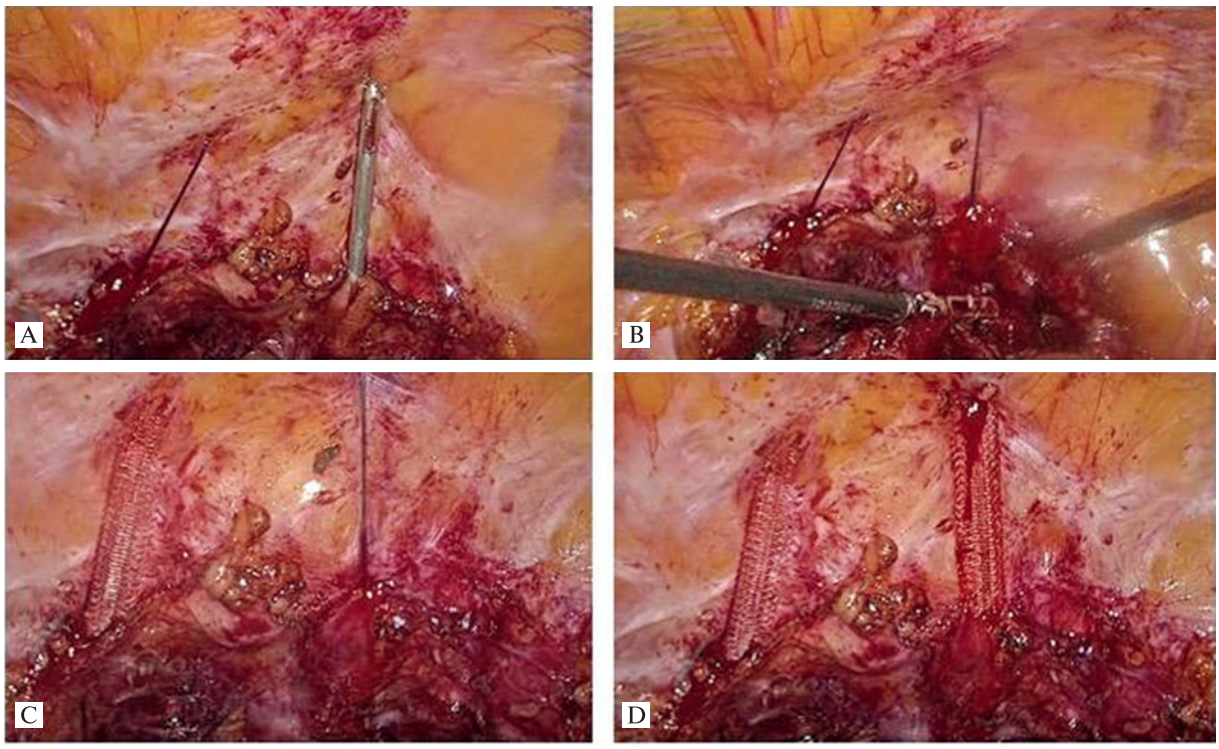


Figure. TVT under endoscopic control
A, right trocar brought out through the incision, view of the right suture loop. Left trocar being inserted. B, left trocar brought out through the incision. View of the suture loops. C, endoscopic control of the placement of the right side of the sling. D, final endoscopic view of the retropubic space.

In our center, two patients who previously underwent Burch colposuspension underwent laparoscopic revision of the Retzius space during trocar placement during TVT (figure). In our opinion, this modified approach helped avoid bladder perforation and other complications during the re-intervention. The data obtained by us regarding the 75% efficiency of the repeat procedure correspond to global averages. In the article by Lo et al., the results of TVT in 41 patients with recurrent urinary incontinence were analyzed. The efficiency of the intervention was 82.9% [10]. The study by Stav et al. included 77 cases of mid-urethral sling implantation in recurrent SUI. The efficiency of intervention in redo cases was 62% [11].

Rardin et al. presented the results of TVT in 245 patients, 87 of whom had previous procedures for SUI. The success rates of the primary and repeat interventions were comparable: 87% and 85%, respectively [12]. In the article by Ala-Nissila et al., describing 60 cases of sling implantation via the retropubic approach for recurrent SUI, the efficiency was 85% [13]. Liapis et al. presented a study on TVT in women with recurrent urinary incontinence after sling procedure. The authors noted the efficiency of the repeat intervention in 74% of cases [14].

A systematic review by Pradhan et al. dedicated to studying the efficiency of mid-urethral sling in recurrent urinary incontinence included 12 prospective studies. The efficiency of the primary intervention was 78.5%, and that of the repeat procedure was 73.3%. In this case, TVT was more effective in the case of recurrent SUI compared to TOT: 79.8% and 54%, respectively [15].

In our study, we used questionnaires and validated international surveys that patients filled out themselves to assess the efficiency of the re-intervention, minimizing potential physician bias.

One limitation of the study is the limited number of patients, which hinders a robust comparison of the primary approaches to incontinence treatment. There is a need for further studies, including randomized controlled trials, to objectively assess the results of surgical interventions. Bakali et al. in 2019 attempted to summarize the results of surgical treatment for recurrent SUI. Only one study on the efficiency of TOT was included in the final Cochrane systematic review; therefore, no consensus on the treatment of this patient group could be reached. No studies were included in the meta-analysis [16, 17]. However, carrying out randomized studies is complicated by patients' reluctance to receive "random" treatment after they have already undergone unsuccessful interventions [6].

Conclusion. The efficiency of surgical treatment for recurrent SUI was 75%. When treating women with recurrent SUI, it is important to consider the previous interventions. The most common repeat procedures are the placement of a mid-urethral sling via the retropubic approach and Burch colposuspension, as well as their combination.

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