A STUDY AND ANALYSIS OF MINIMALLY INVASIVE SURGERY AND THE ROLE OF ANESTHESIA IN ITS SUCCESS

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ABSTRACT:

Mini sling application is a new minimally invasive sling operation that is performed with a single incision, can be applied under local anesthesia, and takes a short time. With this method, it is aimed to avoid major complications that may occur in sling operations and to shorten the operation time. In this study, the effect of mini sling technique on perioperative complications, complaints and operation time was investigated.

The major surgeries that are performed on the patient always have a risk of death if there is no knowledge of the science of anesthesia.

It is the ability to make physiological changes which would reduce mortality in patients. In addition, many studies have shown that there is a serious tendency to find solutions for a decrease in the death rates associated with anesthesia, that one of the types of anesthesia is Neuro-anaesthesia (NA), which leads to the use of local and anesthesia as well as anesthesia in the vicinity of the spinal cord in order to end the stage of pain that the patient is going through.

In general, there is also anesthesia (GA) which leads to the use of drugs that lead to loss of consciousness of the patient, and thus loss of de-perception of painful stimulation techniques have not undergone the emergence of a new generation in recent decades, except for the emergence of a new generation of drugs as well as the use of new treatment protocols for pain and control of postoperative loss of consciousness and vomiting.

Modern papers are trying to collect both predefined inclusion criteria and processing the reason for the lack of materials that prove the effectiveness and the safety of neuroanaesthesia in general in gynecological surgeries, these papers randomized clinical trials cases are treated in order to determine the efficacy and safety of NA compared to GA for women's surgeries and assisting anesthesiologists in it, as well as choosing the latest technologies in this field.

Keywords: gynecology, mini sling, surgeries.

Materials-Methods:

Mini sling procedure was performed in 25 patients who applied with the complaint of urinary incontinence with stress. Patients were evaluated in terms of intraoperative and early postoperative bleeding, pain, quality of life, and urinary retention. Demographic features, gynecological examination findings, stress trial, Q-tip trial, pad trial, operations time and complication were recorded.

Results:

The operation time 14.20±5.53 minutes - is. Analgesic requirement in the first 24 hours is 32%. Afterwards, there is no need for analgesics unless additional operations such as anterior are performed. Patient satisfaction was 96%.

Conclusion:

The mini-sling technique can be performed with a single incision and local anesthesia, the absence of perioperative complications, the need for analgesics and the low operation time make this surgical procedure attractive.
I. INTRODUCTION:
World Health Organization defines urinary incontinence as involuntary urinary incontinence that causes social or hygienic problems and can be objectively demonstrated[1,2]. According to a report by the National Institute of Health, women in American society Urinary incontinence is present in 15-30%3. In the prevalence studies on the subject in our country, the rate of incontinence was 40% in all age groups; it was found to be 56.7% in postmenopausal women[4,5]. It has been observed that the prevalence varies with age, parity, race, menopause, smoking, constipation [6]. Since incontinence is a psychological problem that limits one's social life and at the same time, the type of incontinence should be determined by revealing the underlying pathophysiology with necessary urogynecological evaluation methods and treated with appropriate and effective methods[7,8]. In the treatment of urinary incontinence, in addition to conservative methods such as drug treatments, pelvic-periurethral muscle physiotherapy, mechanical devices, and behavioral treatments, surgical methods are also used, especially in patients with urethral sphincteric insufficiency[9,10]. There is not yet a standard consensus on what type of treatment method will be used in which patient and which treatment method will be given priority[11,12]. Complications were tried to be reduced while trying to achieve the same efficiency by developing techniques. For this purpose, the Mini sling application was reported for the first time in 2016 in the USA. The mini sling application is a minimally invasive, new sling operation that can be performed under local anesthesia with a short operation time of 5-10 minutes with a single incision. With this method, it is aimed to avoid major complications that may occur in sling operations, to shorten the operation, and to reduce patient complaints such as post-operative pain, urinary retention, and urinary tract infection.

In this study, we evaluated the success of the Mini sling technique in the treatment of MOH, in the light of the literature; we aimed to reveal its short-term complications and its effect on the patient's quality of life.[13]

II. MATERIALS AND METHODS:
Among the patients who applied to the Medical City in Baghdad, Gynecology and Obstetrics Clinic with the complaint of urinary incontinence between November 2019 and January 2020, those who underwent “minisling operation” were analyzed retrospectively. Those with a Q type test of 30 degrees and above should also cough.

Table:1 Comparison of preoperative and postoperative findings

<table>
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<tr>
<th>evaluation</th>
<th>preoperative</th>
<th>postoperative</th>
<th>value</th>
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<tbody>
<tr>
<td>stress trial</td>
<td>48.3</td>
<td>47.9</td>
<td>1.397</td>
</tr>
<tr>
<td>pad trial</td>
<td>30.2</td>
<td>2.9</td>
<td>1.112</td>
</tr>
<tr>
<td>Q-tip trial</td>
<td>74.9</td>
<td>26.3</td>
<td>1.112</td>
</tr>
<tr>
<td>residual urine volume</td>
<td>41.3</td>
<td>9.3</td>
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Patients with urinary incontinence at the wedding (stress incontinence (SUI)) were deemed suitable for the operation. Among those diagnosed with MUI (mixed urinary incontinence), patients with predominantly urge incontinence, patients who had a previous urogynecological operation, and those with infection as a result of TIT or IC, no surgical procedure was performed.[14]

Preoperative evaluation: The patient's anamnesis, examination, urogynecological evaluation and surgical technique (Mini Sling) were performed by the same surgical team.[15].

1. Anamnesis and examination: In anamnesis, age, number of births, menopausal status, drugs used continuously, systemic diseases (Diabetes Mellitus, neurological diseases, chronic obstructive pulmonary disease), duration of incontinence, number of day and night urination, and previous gynecological operations performed were questioned. Body mass index (BMI=kg/m2) was calculated by measuring the height and weight of each patient. In the gynecological examination of the patients, the presence of cystocele and additional gynecopathology were investigated.

2. Stress test: It was performed while the patient's bladder was full, in the lithotomy position and standing up. Urine leakage during coughing and straining was investigated.

3. Q-tip test: when there is 200 ml of urine in the bladder, insert the tip into the internal urethral meatus. The amount of change between the straining and resting angles of the cotton swab was recorded. In cases where this angle was above 35°, it was accepted that the anatomical support of the bladder neck decreased and its mobility increased.

4. One-hour pad test: The patients were asked to use a predetermined weight pad during the one-hour test following 500 cc oral fluid intake. Assuming that the weight difference measured on the pad shows the amount of urine that has escaped, this amount is normal if it is less than 2 g, light if it is 2-10 g, moderate if it is 10-50 g, and more than 50 g. If it was more, it was considered as severe urinary incontinence.

5. Residual urine volume: With Logic 200 pro series GE ultrasonography, the ultrasonographic volume was evaluated by taking 3 separate planes from the bladder wall in the transverse section of the bladder with the abdominal probe in the vertical position. Residual urine volume was measured within 10 minutes after micturition and below 50 ml was considered normal.

6. Laboratory Examinations: All patients underwent complete urinalysis and urine culture, and patients with infection were re-evaluated after treatment.

7. Quality of Life Questionnaire: Quality of life and severity of symptoms in the preoperative and postoperative Urinary sensitization inclusions.

<table>
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<th>Table 2: Evaluations of Preop and Postop UDI Measurements</th>
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<td>Preoperative</td>
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<td>UDI six all result</td>
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<td>UDI lone-two</td>
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<td>UDI three-four</td>
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UDI-6 (UDI-6) was evaluated using the questionnaire. In addition, satisfaction with the results of the operation was evaluated using the triple Likert test.

II. Surgery and Postoperative Evaluation: Surgery was performed under spinal anesthesia in 21 patients, general anesthesia in 2 patients, and local anesthesia in 2 patients. Mini Sling surgery was performed with the Mini Sling System (Promedon) instrument, which includes type 1 100% polypropylene mesh, multiple attachment points that allow the mesh to be highly implanted in the internal obturator muscle, and an application guide. Mini Sling and additional operation times, if any, and complications during and after the operation were recorded. Routine cystoscopy was not performed for any of the operated patients to control the bladder and urethra during and after the procedure.[16] All patients were discharged on the 1st postoperative day. Propiverine Hydrochloride was started in patients with a diagnosis of MUI who had persistent complaints of postoperative urge incontinence. Patients with a residual urine volume of less than 100 ml by ultrasound were discharged. Postoperative patients were followed up for 1 month. At the end of the 1st month, the UDI-6 questionnaire [17], Q-type test and 1-hour pad test were performed again. Postvoid residual urine volumes were measured by pelvic USG. Obtained values were compared with preoperative values.[18]

Statistical Analysis: NCSS (Number Cruncher Statistical System) 2007&PASS (Power Analysis and Sample Size) 2008 Statistical Software (Utah, USA) program was used for statistical analysis. While evaluating the study data, Paired Sample t test and Wilcoxon sign test, It was used to compare the following:

- Data amount
- Statistical theories (SMA, Standards deviation, Middle, Frequencies, Percentage).

Significance was evaluated at p<0.05 and p<0.01 levels. Analyzes were evaluated in both directions and with a 95% confidence interval.[19]

III. RESULTS:
A total of 25 patients aged between 39 and 68 years and a SMA age of 48.34±6. Average parity of patients’ were 4±1.52. The mean body mass index was 31.82±3.69. The characteristic features of the patients participating in the study are given in Table 1. 24 (96%) patients delivered vaginally, and 1 (4%) patient delivered abdominally. While 9 (36%) patients were in menopause, 16 (64%) patients were not. 8.2 with 1° cysto-10 patients with flood and 3 patients with 3° cystocele; A total of 21 (84%) patients had cystocele. HT, DM, etc. in 10 patients. He had a history of systemic disease. As a result of the evaluation, 9 (36%) patients were diagnosed with SUI and 16 (64%) patients with MUI. No additional intervention was required in 7 (28%) patients other than the mini sling. CA in 1 (4%) patient (Colporaphy anterior), 10 (40%) patients or (colporafii posterior) CP, 5 (20%) patients
underwent CA + CP. Operation Duration and Perioperative Complication: The operation duration of the cases was between 10 and 20.

Operation Results: Table 1 includes the comparison of preoperative and postoperative findings. Accordingly, the change in postoperative hematocrit measurements compared to preoperative, we did not find anything similar to the existing statistical facts. (p>0.05). The number of long gases used during the operation varies between 0.3 and 3, with an average of 1.07±0.76. The decrease of 48.60±13.88 units in postoperative Q type test results and 27.30±15.71 units in Ped test results compared to preoperative were found to be highly significant (p<0.01). A decrease of 22.00±22.07 units in residual urine measurements was found to be statistically highly significant (p<0.01). The patients were also followed up in terms of postoperative pain, and the need for postoperative analgesics was 32% for the first 24 hours; after 24 hours it was found to be 8%.

To evaluate the change between preoperative and postoperative quality of life; All patients underwent pre/postoperative UDI-6 questionnaires. The results are given in Table 2. In both tests, statistically significant improvement was found in postoperative data compared to preoperative data. These results showed a good change in the patients' quality of life. There is a statistical recognized difference amidst preoperative and postoperative total UDI 6 measurements (p<0.01). Preoperative total UDI 6 measurement is significantly higher than postoperative measurement. Preoperative post UDI one and two. Questions and UDI three and four. There was a statistically significant difference between the measurements of the questions (p<0.01). Preoperative and postop UDI 5-6. no statistically significant difference was found between the measurements of the questions (p>0.05). The reason for this; While the patients were evaluated preoperatively, those who had difficulty in emptying the bladder corresponding to the 5th question of the UDI-6 questionnaire were not included in the operation and that the sensation of pain in the genital region corresponding to the 6th question of the UDI-6 questionnaire was evident in the patients who underwent colporrhaphy posterior in addition to the mini-sling operation. Therefore, it was thought that the pain was related to the additional operation.

Patient Satisfaction: Patients were asked how they were compared to the past, and the answers were very good, better, or the same. 22 patients (88%) rated themselves as “very good” and their urinary incontinence had completely regressed compared to the preoperative period. Only 1 patient evaluated his condition as worse when compared to the preoperative period in the subjective evaluation.

IV. DISCUSSION AND CONCLUSION:

Surgical methods used in the treatment of SUI work mainly on the principle of elevating and supporting the urethro-vesical junction. These methods are; colposuspension, colporrhaphy anterior, needle suspensions and sling procedures are grouped into 4 main groups. Sling operations were first developed by Goebell14. It is the oldest method used in incontinence and has been successfully applied until today. Petros and Ulmsten, suggest that the most important component for continence is the pubourethral ligaments (PUL) and replace loose PUL. showed that continence was achieved when a sling was placed to pass. A sling extending from the middle of the urethra to the pubis is passed under the urethra, instead of the urethral ligaments, which will keep the midurethra in place in the stress position.

Considering the complications that may occur during the placement of MOH, which are among the minimally invasive procedures, a new method has been proposed to reduce these complications. With this method, it is aimed to avoid major complications that may occur in sling operations and to reduce patient complaints such as post-operative pain, urinary retention, and urinary tract infection. Another purpose; to make incontinence surgery easier and more practical, and also to shorten the operation time.

Mini Sling operation is a practical, minimally invasive new midurethral sling method in which a single incision is made without using any needle or guide, even local anesthesia is sufficient, and the patient can be discharged on the same day after the operation. mini sling; since it is a sling application that crosses the urethra horizontally; urethra curvature and therefore urethral obstruction is less likely. In order for the urethra to bend dynamically during stress, urethral mobility must continue after sling operations. The absence of any of our patients who developed urinary retention was also compatible with these results.

In the postoperative subjective evaluation; in the first month after the operation; Significant improvement was achieved in 96% of our patients (although there was complete recovery in 88%), while no improvement was achieved in 4%. As an objective indicator of the postoperative efficacy of the mini sling, Q type levels, coughing
stress test, pad test, and UDI-6 questionnaire significantly decreased compared to preop values. These results were found to be compatible with the limited literature13-15. Palma13, in his multicenter study, as a result of the 12-month follow-up of the Mini Sling operation performed on 109 patients with SUI; obtained similar subjective ratios; sick- In total, 93% of patients benefited from the operation.

Urinary retention, which is encountered in other sling methods and prolongs the postoperative hospital stay, thus reducing patient satisfaction18-20; was not observed in any of the patients. In the publications related to the Mini Sling, it was reported that acute urinary retention developed in 4 out of 149 patients, and the retention resolved spontaneously in 2, loosened by pulling the mesh forward in one, and corrected urinary retention by removing the mesh completely in the other14. Although there is no need for us to use it; removal of prolene sutures attached to the mesh fixation points through the incision; If it is understood that urinary retention develops in the postoperative 1st day follow-up, it seems to be an advantage for the mini sling that it provides loosening of the mesh.

Bladder perforation, bleeding, and related hematoma have been reported as complications in other sling methods(125-131). In contrast, urethra or bladder injury reported with a mini-sling is not yet available in the literature15. Bladder or urethra perforation was not observed during the mini-sling, which we also applied, and we did not have any patient who developed bleeding or hematoma. This explains the fact that the postoperative hematocrit did not change significantly compared to the preoperative value. Long gas use was found to be an average of 1 gas per operation. The fact that the Mini Sling can be applied through a small incision of 1-2 cm and that No deep space was inserted explaining the low bleeding. This also reduces the incidence of infection.

One of the most important advantages of the mini sling seems to be the shortened operation time14, 16. Average operation time; It was found to be 14.2 minutes. This reduced the need for anesthesia, made the mini-sling a locally applicable procedure, and thus, those with systemic disease could be operated more safely. It also shortened the hospital stay. Patients were able to return to their daily activities in a very short time postoperatively, even in the first hours. Short operation time and small the fact that it can be applied with a single incision has also reduced the need for postoperative pain relief in patients operated with a mini sling. At the end of the first month, it was observed that the analgesic requirement was 8% and the pain in which the CP operation was applied in addition to the mini-sling for those who needed analgesia was localized in the CP line, and the need for analgesic was attributed to this additional operation.

In conclusion, the Mini-sling procedure is a very practical operation technique that can be performed even under local anesthesia, has low operation time, low complication and morbidity rates, and high patient satisfaction. However, long-term studies are needed in terms of the anatomical and functional results of this minimally invasive surgery.

REFERENCES:

