Case Report

TETHERED VAGINA SYNDROME AFTER ANTERIOR COLPORAPHY TREATED BY URETHROLYSIS AND MARTIUS SKIN GRAFT

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Abstract

The tethered vagina syndrome is an iatrogenic condition, a possible complication of surgery at the level of the anterior vaginal wall. The aim of the treatment is restoration of elasticity in the bladder neck area of the vagina. We present the case of a 65 year old woman who previously underwent surgery for cystocele and developed tethered vagina syndrome 1 month after the procedure. The treatment plan consisted in urethrolisys and coverage of the defect using the labium majus Martius skin graft with vascular fat pedicle.

Rezumat: Sindrom de "tethered vagina" după colporafie anterioară tratat prin uretroliză şi grefă Martius

Sindromul de "tethered vagina" este o afec'iune iatrogenă, o complicaţie posibilă a chirugiei de la nivelul peretelui vaginal anterior. Scopul tratamentului constă în restaurarea elasticităţii vaginale de la nivelul colului vezicii urinare. Obiectivul acestui articol este de a prezenta cazul unei paciente de 65 ani care la o lună după o intervenţie chirurgicală pentru tratamentul cistocelului a dezvoltat o simptomatologie specifică sindromului de "tethered vagina". Planul terapeutic a constat in uretroliză şi acoperirea defectului vaginal cu o grefă Martius de la nivelul labiei mari.

Cuvinte cheie: sindrom "tethered vagina", grefă Martius, incontinenă urinară, uretroliză

Introduction

The tethered vagina syndrome, described for the first time by Petros and Ulmsten in 1990, is an iatrogenic condition, a possible complication of surgery at the level of the anterior vaginal wall [1]. Extensive dissection of the bladder neck area of the vagina or excessive removal of vaginal tissue during cystocele repair may lead to scar induced tightness in the above mentioned area [2]. The cardinal symptom is urine leakage that occurs when the patient changes position from supine to orthostatism. Typically, urine loss occurs when the patient is gets out of bed or stands up from a chair. The mechanism of leakage is explained by the loss of vaginal elasticity in the bladder neck area [3]. This means that the bladder neck will be forced to follow the movement of the vaginal wall. When the patient gets out of bed or stands up, the pelvic floor muscles contract in order to support the intra-abdominal pressure. This way the vagina is

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stretched posteriorly and downwards by the pelvic floor muscles, the bladder neck is opened and urine leakage occurs. The urine loss is uncontrolled and the patient does not perceive the exact moment of leakage.

The aim of the treatment is the restoration of elasticity in the bladder neck area of the vagina. Different procedures are described [1, 2, 4]: I-plasty, which aims to increase the amount of vaginal tissue under the bladder neck, indicated if there is a co-existing cystocele, or labium major Martius skin graft with vascular fat pedicle, indicated when there is an important tissue defect.

Case report

We present the case of 65 years old patient who previously underwent surgery for cystocele 6 months before. According to the medical records, the procedure performed was transvaginal anterior colporaphy with fascia repair, no mesh implant was used. No concomitant procedure for stress incontinence was performed. The patient developed uncontrolled urine leakage one month after surgery. Since then, the patient was treated with anticholinergic medication, but with no positive effect on symptomatology. The moment of leakage was not perceived by the patient. She reported feeling wet after getting out of bed. This event was noticed constantly each morning. The patient also reported inconstant urine leakage after standing up from a chair. No symptoms of stress incontinence or de novo urgency were reported.

The patient was investigated as follows: urine sample to exclude infection was performed. No signs of infection were found. Patient was asked to fill in the urinary diary for a week and no abnormalities such as urgency, frequency or nocturia were found. The patient was investigated in gynecological position after the introduction of 250 ml of saline with methylene blue in the bladder. No signs of vesico-vaginal fistula were found. Patient did not leak on cough test. On speculum examination a short and narrow anterior vaginal wall was noticed (figure 1A). A big scar situated at the level of the posterior urethra and bladder neck of the vagina was found. The scar was very tight at the level of the bladder neck area of the vagina. We performed a provocative test, as described by Petros [3, 4], that mimics the movement of the vagina during the pelvic floor contraction. With a small Allis forceps we gently grasped the scar in the area of the bladder neck and pressed backwards. Leakage was noticed while pressure was exerted.

We also performed the pad test. Bladder was filled with 250 ml of saline with methylene blue. Leakage was noticed when patient got out of bed or stood up from a chair.

Urodynamics test was performed in order to exclude intrinsec sfincter deficiency. Maximal urethral closing pressure and the Valsalva leakage point were in normal ranges revealing a normal function of the urethral sphincter.

We concluded that the cause of leakage was tethered vagina syndrome caused by the previous surgery performed at the level of the anterior vaginal wall.

The treatment plan was to perform urethrolisys and to cover the defect using the labium majus Martius skin graft with vascular fat pedicle. The procedure was performed under spinal anesthesia. Single dose antibiotic was administered.

Technique description

The scar tissue under the urethra and bladder neck area of the vagina was removed completely (figure 1B). The result was complete urethrolysis with elastic tissue surrounding the urethra and the bladder neck area. The complete removal of the scar tissue created a tissue defect of 5/3 cm at the level of the anterior vaginal wall (figure 1C). An elliptical 6/4 cm incision was performed at the level of the right labium majus. Incision margins were retracted laterally and using sharp dissection the fat pad was mobilized with respect to its vascularization (figure 1D). By blunt dissection a tunnel was created under the vaginal wall towards the bladder neck area of the vagina. The tunnel must be wide enough not to constrict the fat pad vascular pedicle (figure 1E). The edges of the graft were sutured to the cut edges of the vagina (figure 1F).. The incision at the level of the labium majus was sutured

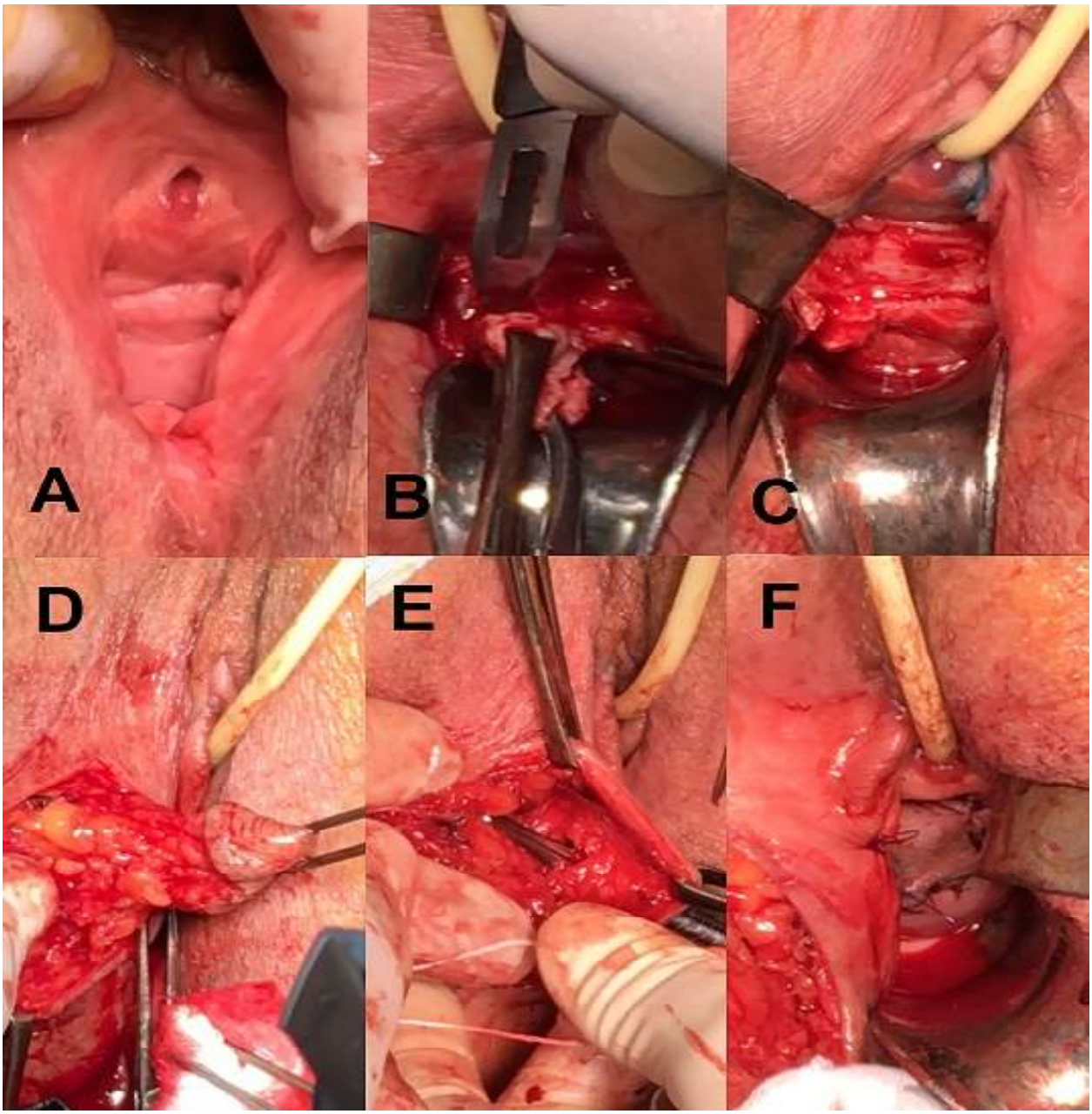

Figure 1: a – scar tissue at the level of the bladder neck area of the vagina; **b** and **c** – excision of scar tissue; **d** – aspect of Martius skin graft; **e** - tunnel created under the vaginal wall towards the bladder neck area of the vagina; **f** – final aspect of the suture of the edges of the graft to suburethral vaginal tissue defect.

The urinary catheter was removed the first day after surgery. The patient reported no more urine loss while getting out of bed or standing up. The patient was followed for 12 months after surgery. No recurrence of the symptoms was reported.

Discussion

The syndrome was described for the first time by Petros and Ulmsten in 1990, which found and reported 19 patients with "tethered vagina syndrome" after bladder neck elevation surgery [1]. The same pathology was reported by Goeschen et al, who treated 119 patients with Tethered vagina syndrome using three different techniques and concluded that Labius majus Martius skin graft is the most effective method [2]. Pirtea et al reported a case of "tethered vagina syndrome" after transobturator tape insertion for stress incontinence. In that case the removal of the tape was necessary [5].

The tethered vagina syndrome may be encountered in patients with previous surgery in the bladder neck area of the vagina. This complication can also be generated by the extensive excision of

the vaginal tissue considered "in excess" during the anterior vaginal repair for cystocele. Since the mechanism for the opening of the bladder neck is mechanical, urgency is not reported by those patients and anticholinergic medication has no effect.

The process of urethrolysis can generate excessive laxity in the urethral area of the vagina. This can cause urethral hyper mobility and urinary stress incontinence [3, 6]. Hence, patients should be informed about this possibility.

Martius labial fat pad is a technique used for vesico-vaginal fistula repair. The aim is to bring some tissue between the bladder and the vagina in order to create proper conditions for healing. In our case a skin graft was necessary in order to cover the substance defect at the level of the vaginal wall [6]. Other procedures such as I-plasty or free skin graft have been described, but the method described by Martius offers some important advantages. Compared to I-plasty, by using the Martius skin graft one can cover bigger tissue defects, because the incision at the level of the labia can be tailored according to the extent of the defect. Compared to the free skin graft technique, the Martius graft has its own vascular pedicle.

When tethered vagina syndrome is suspected, other possible causes for leakage, such as vesico-vaginal fistula or intrinsec sphincter deficiency, must be excluded.

Conclusion

Extensive dissection at the level of the bladder neck area of the vagina and excessive removal of vaginal tissue during surgery at the level of the anterior vaginal wall should be avoided. Leakage occurring when getting out of bed, combined with scar induced tightness at the level of the bladder neck area of the vagina after surgery of the anterior vaginal wall should raise the suspicion of "tethered vagina syndrome".

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