



Prophylactic Management of Vesicovaginal Fistula Using Amniotic Membrane: A Case Report

Tahereh Poordast¹, Elham Askary², Sareh Doustfateme^{3*}

¹ 1. Assistant professor, Infertility Research Center, Perinatology Ward, Shiraz University of Medical Sciences, Shiraz, Iran.

² 2 Fellowship of gynecologist endoscopy, Shiraz University of Medical Sciences, Shiraz, Iran.

³ 3 Resident of Obstetrics & Gynecology, Maternal-Fetal Medicine Research Center, Perinatology Ward, Shiraz University of Medical Sciences, Shiraz, Iran.

ABSTRACT

Stress urinary incontinence (SUI) is a common disorder among the females; women with SUI are faced with deterioration of the quality of life due to involuntary urine leakage. The management of SUI is surgical. Trans-obturator tape (TOT) is one of the methods used to improve this problem. In the present study, we report a menopausal woman aged 64 years old, referred to Shiraz University of Medical Sciences gynecology clinic due to stress urinary incontinence and was scheduled for TOT surgery. During the operation due to an iatrogenic rupture of the bladder, we introduced a novel technique in which vesicovaginal fistula was prevented intraoperatively using an amniotic membrane.

Key Words: Vesicovaginal Fistula, Urinary Incontinence, Stress, Amnion.

eJPPR 2019; 9(1):81-84

HOW TO CITE THIS ARTICLE: Tahereh Poordast, Elham Askary, Sareh Doustfateme (2019). "Prophylactic Management of Vesicovaginal Fistula Using Amniotic Membrane: A Case Report", International Journal of Pharmaceutical and Phytopharmacological Research, 9(1), pp. 81-84.

INTRODUCTION

Stress urinary incontinence (SUI) is a common disorder in the female reproductive age population with a prevalence of between 4-35%. Women with SUI are faced with deterioration of the quality of life due to involuntary urine leakage in their lifespan [1]. Women with repeated pregnancies and vaginal deliveries are more prone to develop SUI [2]. The management of SUI is surgical [3]. Trans-obturator tape (TOT) is one of the methods to improve this problem [4]. TOT is a gold standard surgical procedure due to its minimal invasive nature, high success and acceptable complication rates [5]. The complications of TOT are erosion of the vagina or bladder by mesh, perforation of the bladder and bleeding [6].

Vesicovaginal fistulas (VVF) represent a significant clinical challenge caused by a pathological communication

between the urinary bladder and vagina [7]. The most common cause of VVF is hysterectomy, while the other causes are pelvic surgery and obstetrical trauma [8]. Several studies have described different methods of VVF repair including transabdominal, transvaginal and laparoscopic approaches, depending on the characteristics of the fistula [9, 10]. Also, there are various types of tissue grafts which can be used in both vaginal (labial fat pad and gracilis muscle) and abdominal repair (peritoneum, omentum, and myocutaneous muscle flaps) to prevent the recurrence of the fistula [11-13]. In the present study, we report a newly introduced technique in which vesicovaginal fistula was prevented intraoperatively using an amniotic membrane.

Case Report

In 2015, a menopausal woman aged 64 years old, who had experienced 6 pregnancies and normal vaginal delivery referred to SUMS gynecology clinic due to stress urinary

Corresponding author: Sareh Doustfateme

Address: Resident of Obstetrics & Gynecology, Maternal-Fetal Medicine Research Center, Perinatology Ward, Shiraz University of Medical Sciences, Shiraz, Iran.

Postal Code: 71348-14336.

E-mail: sare_doustfateme@yahoo.com

Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Received: 12 October 2018; **Revised:** 10 February 2019; **Accepted:** 20 February 2019



incontinence. Stress urinary incontinence was diagnosed by positive cystometric findings (urinary leakage with increased abdominal pressure) in standing and sitting position. The patient was candidate for transobturator tape (TOT) sling surgery. She was a known case of hypertension and coronary artery disease, and did not have any previous surgery. A small incision (about 1 to 1.5 inches, 3 cm) was made in the vagina 1.5 cm below the opening of the urethra, and two 1/4 inch (0.5 cm) incisions in the inner thigh. While dissecting vaginal epithelium away from the bladder and creating a channel for passage of the tape, we found bladder rupture occurred. Cystoscopy was performed in order to observe two urethral orifices and rupture characteristics (location, size and associations). One centimeter bladder mucosal rupture near the bladder neck was observed. Then, the location of rupture had been repaired by 4.0 vicryl suture in two layers by an urologist. But due to severe atrophy of the bladder wall, leakage of methylene blue happened despite suturing for several times. Any site of needle penetration was a source of new leakage. In order to prevent vesicovaginal fistula, we used a three-layered amniotic membrane of placenta as a barrier at rupture location.

The amniotic membrane was extracted from a normal placenta resulting from a natural term pregnancy vaginal delivery. The subject donating placenta did not have any medical problem or underlying disease; viral markers (HIV, HBs Ag, HCV Ab) were also checked, all being negative. The amniotic membrane was separated from the chorionic layer and washed with normal saline before it was used (Figure 1). The three-layered amniotic membrane was placed at the site of rupture and the vaginal epithelium was sutured by 2.0 vicryl suture (Figure 2). The groin incisions were closed with stitches. The whole operation lasted for two hours.

It is noteworthy to declare that both patients (the one who underwent TOT surgery and the one whose placenta was used) filled the informed consent.

At the first 6 weeks, the patient had fixed internal foley catheter and used prophylactic antibiotic. During the follow up, the patient was visited every week for 1 month and then for 3 months, monthly and there was not any complication after exiting the foleycatheter, such as leakage, infection, dysuria or dribbling.

DISCUSSION

VVF is a relatively uncommon urological disorder. In Hadzi-Djokic et al.'s study, it was reported that the most common causes of VVFs were hysterectomy for benign conditions (62.7%), hysterectomy for malignant tumors (30.4%), cesarean section (5.9%), and obstetric injuries (0.9%) [14]. Different techniques of fistula repair have been described in the literature, which include

transabdominal, transvaginal and laparoscopic methods, depending on the characteristics of the fistula [9, 10]. Usually, complex and recurrent VVFs are thought to be treated with the interposition of a tissue graft. The tissue graft can be taken from the surrounding tissues, with stalk (flap), or it can be a free graft from a distant tissue or an organ. In the present study, we used amniotic membrane as a tissue graft. However, in our study the tissue graft was applied during TOT surgery as a prophylactic management of vesicovaginal fistula. Despite the fact that the mean operative time is significantly shorter in TOT method, the risk of bladder injury is also considerably lower than other sling procedures. But in the present case while dissecting vaginal epithelium away from the bladder, we found that the bladder was ruptured. Thus, we used the mentioned method to prevent the occurrence of fistula.

As discussed in previous studies, the surgical approach in VVF management has always been an issue of contention. The major principles of repair, i.e. adequate exposure, tension-free approximation of fistula edges, multilayered closure of the bladder and vagina at right angles to each other, good hemostasis, etc. Therefore, we need to evaluate the main advantages and disadvantages of this method in further investigations with larger sample size and longer follow up.

ACKNOWLEDGMENTS

The authors are thankful to Dr Alireza Aminsharifi, Dr Samaneh Karimi, and Dr Ziba Dorzadeh. The authors would like to thank Shiraz University of Medical Sciences, Shiraz, Iran and also Center for Development of Clinical Research of Nemazee Hospital and Dr. Nasrin Shokrpour for editorial assistance.

We declare that we do not have any conflicts of interest and there is no financial support in this study.

Author's Contributions

T.P., S.D., F.N., E.A.; Participated in study design, data collection and evaluation, drafting the manuscript. All authors read and approved the final manuscript.

REFERENCES

- [1] Subak LL, Brown JS, Kraus SR, Brubaker L, Lin F, Richter HE, et al. The "costs" of urinary incontinence for women. *Obstet Gynecol.* 2006;107(4):908-916.
- [2] V. G. Padubidri SND. Diseases of the urinary system. Shaw's Textbook of Gynaecology. 12 ed. India: Elsevier; 2010.
- [3] Williams G. The Addis Ababa fistula hospital: an holistic approach to the management of patients with vesicovaginal fistulae. *Surgeon.* 2007;5(1):54-57.



- [4] Pardo Schanz J, Ricci Arriola P, Tacla Fernandez X, Betancourt Ortiz E. [Trans obturator tape (TOT) for female stress incontinence. Experience with three years follow-up in 200 patients]. *Actas Urol Esp.* 2007;31(10):1141-1147.
- [5] Novara G, Artibani W, Barber MD, Chapple CR, Costantini E, Ficarra V, et al. Updated systematic review and meta-analysis of the comparative data on colposuspensions, pubovaginal slings, and midurethral tapes in the surgical treatment of female stress urinary incontinence. *Eur Urol.* 2010;58(2):218-238.
- [6] Delorme E, Droupy S, de Tayrac R, Delmas V. Transobturator tape (Uratape): a new minimally-invasive procedure to treat female urinary incontinence. *Eur Urol.* 2004;45(2):203-207.
- [7] Stamatakos M, Sargedi C, Stasinou T, Kontzoglou K. Vesicovaginal fistula: diagnosis and management. *Indian J Surg.* 2014;76(2):131-136.
- [8] Garthwaite M, Harris N. Vesicovaginal fistulae. *Indian J Urol.* 2010;26(2):253-256.
- [9] Enzelsberger H, Gitsch E. Surgical management of vesicovaginal fistulas according to Chassar Moir's method. *Surg Gynecol Obstet.* 1991;173(3):183-186.
- [10] Keettel WC, Sehring FG, deProse CA, Scott JR. Surgical management of urethrovaginal and vesicovaginal fistulas. *Am J Obstet Gynecol.* 1978;131(4):425-431.
- [11] James MH, Tisdale BE, Davies TO, McCammon KA. The urachal flap: a previously unreported tissue flap in vesicovaginal fistula repair. *Female Pelvic Med Reconstr Surg.* 2013;19(3):148-151.
- [12] Fu Q, Bian W, Lv J. Bulbocavernosus muscle flap for the repair of vesicovaginal fistula. Anatomic study and clinical results. *Urol Int.* 2009;82(4):416-419.
- [13] Choudhrie AV, Thomas AJ, Gopalakrishnan G. Vesicovaginal fistula repair using tunneled gluteal cutaneous fat-pad flap. *Int Urogynecol J Pelvic Floor Dysfunct.* 2009;20(1):121-122.
- [14] Hadzi-Djokic JB, Pejic TP, Colovic VC. Vesico-uterine fistula: report of 14 cases. *BJU Int.* 2007;100(6):1361-1363.

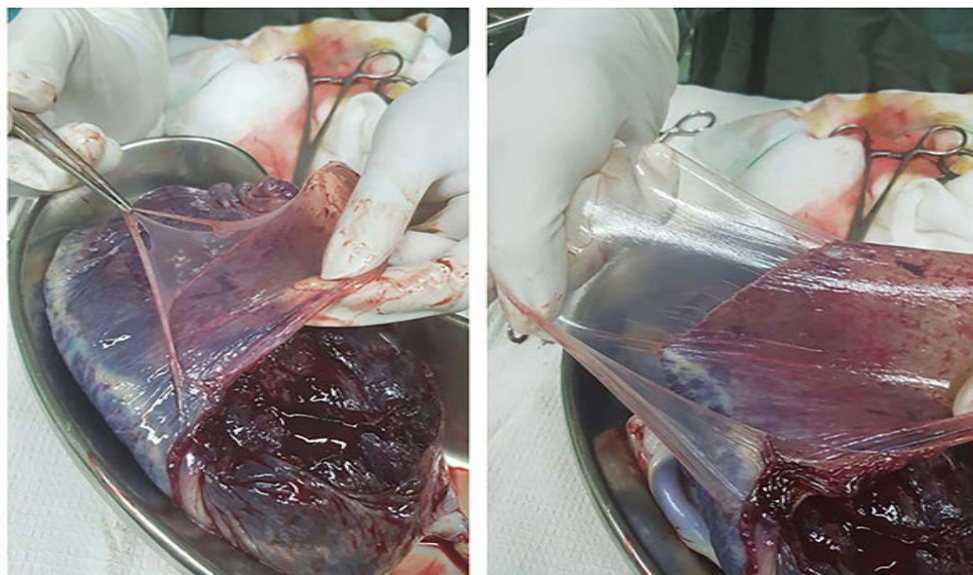


Fig. 1: Separation of Chorion layer from amnion (amniotic membrane)

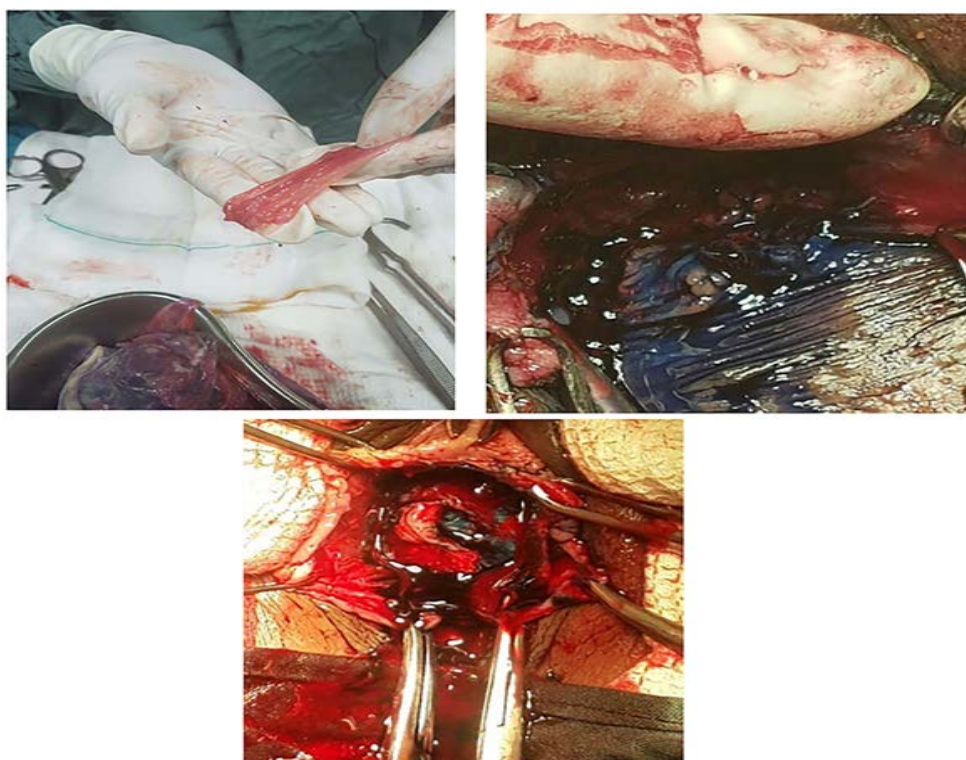


Fig. 2: Placing three layered amniotic membrane between bladder and vaginal epithelium