

TRANSPERITONEAL APPROACH WITH INTERPOSITION OF OMENTUM FOR THE REPAIR OF SUPRATRIGONAL VESICO-VAGINAL FISTULAE

Mohammad Islam, Sajjad Ahmed

Department of Urology, PGMI, Lady Reading Hospital, Peshawar - Pakistan

ABSTRACT

Objectives: To determine the technical benefits and success rate of transperitoneal approach with interposition of omentum for the repair of supratrigonal Vesico-vaginal fistulae (VVF).

Material and Methods: This study was carried out on 32 patients that were referred to our department from different gynae units and maternity homes of NWFP. Thirty-one patients had primary and one patient had recurrent VVF. The fistulae were approached transperitoneally, then Urinary bladder was opened between two stay sutures and closed by a single layered continous extramucosal suturing technique, the vagina was closed continuously with the suture passing through all layers. All the details of the patients were entered into a structured proforma.

Results: Mean fistula size was 2.8 cm (range 1.0 to 3.7 cm). Mean operation time was 120 minutes and only one patient required a blood transfusion, and one patient required ureteroneocystomy. All except 2 patients who had a recurrence, were dry after 2-3 weeks. One patient had wound infection and another has had frequency of micturition. No patient suffered from peritonitis or adhesive intestinal obstruction.

Conclusion: The transperitoneal approach is safe, effective and gives good access to the bladder and ureter as well as excellent functional results.

Key words: Supratrigonal, Vesicovaginal fistula, Transperitoneal.

INTRODUCTION

A vesicovaginal fistula (VVF) is an abnormal communication between the urinary bladder and the vagina resulting in an uncomfortable, involuntary leakage of urine per vaginum.¹ This is a multifaceted morbidity that not only leads to complications like local infection and vesical calculi formation but the continous foul odour makes the sufferer a social outcast.²

In developing countries, the incidence is 1-2/1000 deliveries with 500,000 cases occurring annually.³ Although the exact incidence of the disorder in Pakistan is unknown, 80-90% of the cases occur as obstetrical complications.⁴ The first successful repair of VVF was achieved by John Fatio in 1675.⁵ In the West, 90% of cases are caused by inadvertent trauma to the bladder during surgery.⁶

In the West, the incidence of vesicovaginal fistulae resulting from hysterectomy for various gynaecological indications is estimated to be less than 1%.⁷ In developing countries, such fistulae often result

following caesarean section for prolonged/complicated obstructed labour. The variation in the degree of ischaemic damage and resultant fibrosis have forced surgeons to modify these techniques to achieve the best results. The O'Connor operation has been the most accepted method of repairing supratrigonal VVF.⁸

The classical O'Connor's technique utilizes suprapubic access for extraperitoneal dissection of the retropubic space. A sagittal cystostomy (bivalving the bladder) is carried out upto fistula. The fistulous tract is then excised followed by two layered closure after tissue interposition between the bladder and the vaginal wall.⁸ In our series we modified the technique by performing supratrigonal VVF repair transperitoneally with interposition of omentum.

MATERIAL AND METHODS

This study was carried out in the Department of Urology, PGMI, LRH, Peshawar between March 2007 and January 2010. A total of 32 patients (31 primary and 1 recurrent) were included in this study. All these patients were referred from different Gynaecology units, maternity homes and DHQ hospitals of N.W.F.P. A detailed medical history of all patients was recorded focusing especially on the cause of fistula formation and previous attempts at repair. The patients were also subjected to examination under anaesthesia, three

Address for Correspondence:

Dr. Mohammad Islam

Department of Urology Lady Reading Hospital, Peshawar

Cell No: 0313-9883331

E-Mail: dr_sajjadahmad@yahoo.com

swab tests and cystourethroscopy to confirm the diagnosis and determine the site of the fistula. All women diagnosed to have a supratrigonal fistula were included in the study.

Cases of stress incontinence, coexistent rectovaginal fistula and those not consenting for examination under anaesthesia and cystoscopy were excluded. In our procedure, the abdomen is opened via a lower midline incision. The peritoneum is opened to approach the posterior surface of the bladder. The bowel is gently packed with abdominal sponges before bivalving the urinary bladder and effective suction is applied to minimize the leakage of urine. Full thickness stay sutures are placed using 2/0 or 3/0 chromic catgut at the lower part of the posterior wall of the urinary bladder. An 18 Fr foley's catheter is passed per urethra prior to placement of stay sutures. A short cystostomy incision is extended to the dome and anterior bladder wall until it is completely bivalved. The proximity of the ureteric orifices to the VVF is assessed at this stage and in those cases where the orifices sit close to the fistula edge, a 5-6 Fr feeding tube is passed into the ureter before fistula dissection is started. The cystostomy is extended to encircle the fistula and excision of the fistula is carried out as in the classical technique.

If the fistula is large (>2.5cm) the cystotomy is directed in a parasagittal line towards one side of the fistula. Complete excision of the fistula is done and the plane between the bladder and vagina wall is dissected as in classical O'Connor's technique. The urinary bladder is closed with a tensionless suture line. The vaginal wall is closed in single layer with continuous interlocking closely placed stitches using polyglycolic acid (vicryl 2/0) in a transverse line. The greater omentum is mobilized and is anchored on to the anterior vaginal wall to completely cover the vaginal suture line.

For the solitary recurrent case of V.V.F in which omentum was insufficient, paravesical peritoneal flaps were used for interposition. The urinary bladder was closed in a single layer using 2/0 polyglycolic acid after retaining the cystostomy catheter in the bladder and also per urethral catheter were placed to drain the bladder. The suprapubic cystostomy was extraperitonized and laparotomy wound was closed in layers and a drain was placed extravasically.

The suprapubic catheter was removed after two weeks and the urethral catheter after three weeks. The patient was advised to avoid sexual intercourse for at least three months. All patients were advised to void at frequent intervals after the removal of the urethral catheter to prevent over distention of the bladder. Patients desiring future pregnancy were advised strict antenatal and elective caesarean section.

RESULTS

In our series, which lasted over a period of about 3 years, thirty-two patients of supratrigonal VVF were included. Thirty two (93.75%) patients had history of prolonged obstructed labour while one 3.125% patient developed the morbidity after hysterectomy and another one (3.125%) acquired the condition after caesarean section and was a case of recurrent VVF Table 1. The age range was 18-35 years, with mean age of 32 years.

Thirty-one patients had primary VVF and one patient had recurrent VVF. One patient whose fistula was encroaching one of the ureteric orifices needed ureteroneocystostomy during the procedure. Transurethral cystolitholapxy was performed in one patient having associated vesical calculi, 2-3 weeks prior to the VVF repair. The out come following surgery is shown in Table 1.

Table 1: Results of transperitoneal VVF repair (n=32)

Results	Number of patients and percentage
Cure (fistula closed no symptoms)	28 (87.5%)
Fistula closed but presented with Frequency	1 (3.125%)
Infected wound	1 (3.125%)
Leak	2 (6.125%)

DISCUSSION

O'Connor's technique is recommended as the gold standard technique for managing supratrigonal VVF.⁸ In classical O'Connor's technique the bladder is approached and dissected extraperitoneally.⁸ In our series we modified the procedure by approaching the bladder transperitoneally (without doing any dissection in retro pubic space), which provided a quick access to the posterior wall of the bladder. Stay sutures are quite helpful to lift up the posterior wall and reduce the ooze from the edges of the urinary bladder. However some people have described their role as enhancing post operative voiding dysfunction and reflux.⁹

The fistulous edges are excised and closure of both the vaginal and bladder defect is done in a single layer using closely placed stitches. We prefer to use polyglycolic acid (Vicryl). Approaching the urinary bladder directly through the peritoneum was not attended by complications like intestinal obstruction, prolonged ileus or peritonitis. It also provided us with a wider field of work. We used omentum for interposition. However where omentum was not sufficient, we used paravesical fat or peritoneal fat.

In our series we had a 91.1% success in terms of continence. Ever since transabdominal approach to VVF has been described, continuous refinements in the technique have given better results. Several surgical techniques have been described in this context with failure rates ranging from 4 to 35%.^{11,12,13,14,15}

Tanveer et al, has claimed a success rate of 68.42%.¹⁶ Nasrullah LJ gave the success rate of transperitoneal O'Connor's procedure as 100%¹⁰ and considered it to be the gold standard for supratrigonal fistulae. Cetin et al, in series of 23 cases concluded that fistulae encroaching the ureteric orifices, were good candidates for suprapubic approach.¹⁷ Motiwala and associates in a series of 68 cases attributed the success of transperitoneal technique to the simple access, use of vascularised flaps and vicryl suture.¹⁸ Haung also worked and emphasized the importance of individually modifying the technique for each fistula.¹⁹

Transabdominal-transvesical approach is the preferred method of managing large supratrigonal VVF.^{20 21} Mondet evaluated the anatomical and functional results of transperitoneal-transvesical approach of VVF repair and concluded that it is the preferred approach to complex supratrigonal VVF.²² Leng and his colleagues as well as Sotelo et al. also reported that limited transvesical repair of uncomplicated supratrigonal VVF offers reliable success with minimal morbidity and hospital stay comparable to transvaginal approach.^{23,24}

We also suggest that this modified approach, may be adopted in laproscopic repair of VVF to have better results.

CONCLUSION

There was minimal intra operative blood loss, operating time and the procedure had a high success rate. We have suggested some modifications to the original technique of O'Connor's repair by approaching the fistula transperitoneally and interposition of omentum. The modifications are simple and easy to follow.

REFERENCE

1. Dalela D, Goel A, Shakhwar SN, Singh KM. Vesical calculi with unrepaired vesicovaginal fistula: a clinical appraisal of an uncommon association. *J Urol.* 2003; 170: 2206-8.
2. Sachdev PS. Surgical repairs of vesicovaginal fistulae. *J Coll Physicians Surg Pak.* 2002; 12: 223-26.
3. Hilton P. Vesicovaginal fistulae in developing countries. *Int J Gynecol Obstet.* 2003; 82: 285-95.
4. Parveen F, Shah Q. Vesicovaginal fistula: challenge for women in developing countries. *J. Coll Physicians Surg Pak.* 1998; 8: 230-32.
5. Zacharin RF. A history of vesico vaginal fistula. *Aust NZJ Surg* 2000; 70: 851-54.
6. Tancer ML. Observations on prevention and management of vesico-vaginal fistula after total hysterectomy. *Surg Gynecol Obstet* 1992; 175: 501-06.
7. Bhandari M, Dalela D. Complexities of a vesicovaginal fistula. *Arch Esp Urol* 1994; 47(3): 303-06.
8. O'Connor VJ. Review of experience with vesicovaginal fistula repair. *J Urol* 1980; 123: 367-69.
9. Sami ullah. Vesico vaginal fistula and its outcome. *Pak J Med Sciences* Jan 2007 Vol. 23, 47-50.
10. Nesrallah LJ, Srougi M, Gittes RF. The O'Connor technique: the gold standard for supratrigonal vesicovaginal fistula repair. *Urology* 1999; 161: 566-68.
11. Eilber KS, Kavalier E, Rodriguez LV, Rosenblum N, Raz S. Ten years experience with trans vaginal fistula repair using tissue interposition. *J. Urol:* 2003, 169: 1033.
12. Walsh K, Stone AR, How is the lower urinary tract affected by gynecological surgery? *BJU Int.* 2004; 94: 272-75.
13. Nasr A El-Tabey, Badier A ED, Ata- Ullah A.S Hamdy A. Alaa AM, Mohammad El A. Urological trauma after gynaecological and obstetric surgeries *Scand J Urology Nephrol* 2006; 40 225-31.
14. Goyal NK, Dwivedi US, Vyas N, Rao MP. Trivedi S, Singh PB. A decade experience with vesico vaginal fistula in India, *Int Urogynecol J Pelvic floor Dysfunct* 2007; 18: 39-42.
15. Raza MK, R Nabeela, J Mohammed, S Roqia, Vesicovaginal fistula, An experience of 30 cases at Ayub Teaching Hospital. *J. Ayub Medical Coll Abbottabad* 2005: 17(3).
16. Tanveer S, R Nasreen, H Musarrat, Profile and repair success of vesicovaginal fistula in NWFP. *JPMI* 2009 Vol. 23, No. 01: 99-101.
17. Cetin S, Yazicioglu A, Ozgur S, Ilker Y, Dalva I. Vesicovaginal fistula repair: a simple suprapubic transvesical approach. *Int Urol Nephrol* 1988; 20: 265-68.
18. Motiwala HG, Amlani JC, Desai KD, Shah KN, Patel PC. Transvesical vesicovaginal fistula repair: a revival. *Eur Urol* 1991; 19: 24-28.
19. Huang WC, Zinman LN, Bihrlle III W. Surgical repair of vesico-vaginal fistulas. *Urol Clin North. Am.* 2002; 29: 709-23.

20. Diaz CE, Calatrava GS, Caldentey GM, Moreno PF, Lapuerta TE, Garcia VF. Surgical repair of vesico-vaginal fistula with abdominal transvesical approach. Comments on this technique and long-term results. Arch Esp Urol 1997; 50: 55-60.
21. Sanchez JM, Gullian MC, Parra ML, Gomez SC, Laguna MP, Garcia AJ. Transvesical repair of non-complicated vesicovaginal fistula. Actas Urol Esp 2000; 24: 185-89.
22. Mondet F, Chartier EJ, Conrot P, Bitker MO, Chatelain C, Richard F. Anatomic and functional results of transperitoneal-transvesical vesico-vaginal fistula repair. Urology 2001; 58: 882-86.
23. Leng WW, Amundsen CL, McGuire EJ. Management of female genito urinary fistulas: transvesical or transvaginal approach. J Urol 1998; 160: 1995-99.
24. Sotelo R, Mariano MB, Garcia-Segui A, Dubois R, Spaliviero M. Laparoscopic repair of vesicovaginal fistula. J Urol 2005; 173(5): 1615-8.

ELECTRONIC SUBMISSION OF MANUSCRIPT

The Editorial Board encourages electronic submission of manuscript, at the following email address. It is quick, convenient, cheap and paperless.

E-mail: **arifrazakhan@ymail.com**

The intending writers are expected to follow the format and check list of the Journal. Author agreement can be easily downloaded from our website **www.jmedsci.com**

A duly signed author agreement must accompany initial submission of the manuscript.

The Journal of Medical Sciences, Peshawar is indexed with WHO IMEMR (World Health Organisation Index Medicus for Eastern Mediterranean Region) and can be accessed at the following URL.

<http://www.who.int/EMRJorList/details.aspx?docn=4468>