

ORIGINAL

PROF-763

# VESICOVAGINAL FISTULA; SURGICAL MANAGEMENT

**DR. ABDUL LATIF KHAN****MBBS, MCPS, FCPS**Associate Professor Surgical unit-III  
Bolan Medical College & BMC Hospital, Quetta.**DR. AKHTAR BANO****MBBS, MCPS**Consultant Gynaecologist  
Sandeman Teaching Hospital, Quetta.**DR. MASHA KHAN MBBS, FCPS**Assistant Professor, Urology Department  
Bolan Medical College & Sandeman  
Teaching Hospital, Quetta.

**ABSTRACT...** [drabdullatifkhan@hotmail.com](mailto:drabdullatifkhan@hotmail.com) **Objective:** To present the efficacy and complications of vesicovaginal fistulae repair in our setting. **Place and duration of the study:** Surgical unit-III, Bolan Medical Complex Hospital, Akram Hospital Zarghoon Road, Quetta and Uhad Charity Hospital Quetta from April 1999 to March 2003. **Patients and methods:** A total of 32 patients of vesicovaginal fistulae resulting from causes other than malignancies and pelvic radiations were included in the study. Patients were divided in to two groups on the basis of the site of the fistula and the method of repair. Group-I comprised of 18 patients who had type-II and low type-I fistulae and were operated by vaginal approach while group-II consisted of 14 patients who had type-III and high type-I fistulae and were operated by abdominal approach. Patients of both groups were discharged to go home after 5-7 days postoperatively. Postoperative follow up was carried out at out door on weekly basis for two months. **Results:** The cause of vesico-vaginal fistulae was obstetrical in 28 (87.5%) and gynaecological (hysterectomy) in 4 (12.5%) patients. Trans-vaginal repair of fistula was successful in 16 (88.9%) patients at first operation while in abdominal approach the cure rate was 100%. However preoperative bleeding requiring blood transfusion occurred in 5 (35.7%) patients of group-II. Another one patient in this group developed wound infection. Dysuria/urinary frequency and hematuria persisted for few days postoperatively in some patients of both groups. Urinary stress incontinence was present postoperatively in 5(27.7%) and 3 (21.4%) patients of group-I and group-II respectively but it subsided in two months time in all except 2 (11.1%) patients of group-I. **Conclusion:** Birth trauma is still a major cause of vesicovaginal fistula in our region. Improvement in health services and socio-cultural status can help to reduce the incidence of this demoralizing injury. Once occurred VVF, can successfully be repaired by strictly adhering to principles of; a tension free repair, adequate blood supply, prevention of infection and adequate postoperative bladder drainage.

**Key Words:** Vesicovaginal fistula, Repair, Transvaginal, Transabdominal.

## INTRODUCTION

Vesicovaginal fistula (VVF) is still a common devastating problem of female population in developing countries, where it ranges from 3 to 4 in 1000 deliveries<sup>1</sup>. It makes an important contribution to morbidity and psychological trauma to the individual affected & its family. It is also greatly feared complication of gynecological surgery and difficult labour.

Pakistan being a developing country with wide spread population in remote rural areas with the lack of infrastructure (like roads and transport), primary education and awareness of diseases; is one of the most effected country with special reference to the Balochistan. The risk factors in under developed and developing countries are home deliveries and difficult labour, while in developed countries gynecological surgeries and Pelvic radiation for malignancies is the most common risk factor<sup>2</sup>. VVF is occurring in women, since antiquity. A large VVF was discovered in a mummy of Henhenit belonging to 11<sup>th</sup> dynasty about 2500 B.C<sup>3</sup>. VVF once thought to be one of the most dread full and incurable diseases, is greatly settling down with modern ligatures, techniques and has become a curable problem in experienced hands<sup>4</sup>.

Van Roonhuysse reported the first VVF closure in 1672. Sims is widely recognized as being the pioneer of modern fistula repair. He published the basic principles of fistula repair in 1852 which we still adhere today, including adequate exposure, tension free approximation of wound edges, use of non reactive fine sutures and continuous bladder drainage following closure of fistula<sup>5</sup>.

The incidence of this dreadful and devastating problem can be decreased to some extent by public awareness, intine handling by trained persons and early management of difficult labour. But still some of the patients develop the disease, which needs special skill and experience to be treated. For the repair of VVF, various methods are adopted in various centers with an intention to improve the efficacy and decrease the complication rate of this procedure. The aims of this study were to present the

efficacy and complications of VVF repair in our setting.

## PATIENTS & METHODS

This study was conducted in Akram Hospital Zarghoon road Quetta, Bolan Medical College Hospital Surgical Unit III and Uhad Charity Hospital Quetta from April 1999 to March 2003. A total of 32 patients of vesicovaginal fistulae resulting from causes other than malignancies and pelvic radiations were included in this study.

The diagnosis were made by careful history and physical examination, EUA and Cystoscopy. In addition to routine investigations, IVU was carried out in all patients while Retrograde Urography, and dye test were carried out in few cases to exclude associated ureteric injuries.

Fistulae were classified according to Waaldijk<sup>6</sup> as under:

### Type-I

Fistula not involving the closing mechanism of bladder, (> 5 cm from urethral orifice).

- A. High Type-I < 2cm from cervix
- B. Low Type-I > 2cm from cervix

### Type-II

Fistula involving the closing mechanism (< 5 cm from urethral opening).

- A. Without involving urethra (> 2 cm from urethral opening orifice).
  - a. Not circumferential.
  - b. Circumferential.
- B. Involving the urethra (< 2 cm from urethral opening orifice).
  - a. Not circumferential.
  - b. Circumferential.

### Type-III

### Miscellaneous

The patients were divided into two groups on the basis of the site of fistula and the method of repair. Group-I consisted of patients who had type-II and low type-I VVF and were operated by vaginal approach while Group-II comprised of patients who had type-III and high type-I VVF and were operated by abdominal approach. Prophylactic antibiotics of third generation cephalosporin were given to both groups of patients and were continued for 3-5 days postoperatively. Sitz bath and vaginal douches were given in the morning of surgery to both groups of patients.

In group-I patients VVF was repaired by vaginal approach as:

Under general anaesthesia patients were put in extended lithotomy position and cystoscopy was performed to assess the relationship of the ureteral orifices to the fistula. If they were in close proximity to the fistula ureteric catheter was passed and left indwelling during the repair. The space between vagina and bladder was dissected around the fistula for at least 1 cm. Bladder was closed by vicryl 3/0 in two layers and then vaginal flaps were closed avoiding over lapping of the suture lines. Catheter was retained for two weeks post operatively. For the patients selected for VVF repair by abdominal approach (Group-II) two units of blood were arranged and the procedure was as:

Under general anaesthesia in supine position lower midline incision was made and peritoneal cavity was entered. Bladder and Pelvic organ were examined. Bladder was opened from the dome and ureteric opening were identified and per urethra ureteric catheter was passed and fixed. Fistula was identified. Bladder was dissected from vaginal wall up to 1 to 2 cm below the fistula opening. Haemostasis was secured. Then vaginal fistulous opening was freshed and closed by 3/0 vicryl. Bladder was closed in two layers. Omentum was stitched over vagina just distal to fistulous opening and abdomen was closed. Catheter was passed and retained for two weeks

postoperatively. Patients of both groups were discharged to go home on 5-7 days postoperatively. Postoperative follow up was carried out at outdoor basis weekly for two months. Patients, who developed recurrence, were scheduled for re-operation at least six weeks after their first operation for VVF repair.

## RESULTS

Out of total 32 VVF patients 18 were operated by vaginal approach (Group-I) and 14 patients were operated by abdominal approach (Group-II). Age range of the patients of Group-I was 22 to 40 years and Group-II was 20 to 41 years.

The causes of vesicovaginal fistulae were obstetrical in 28 (87.5%) and gynaecological (hysterectomy) in 4 (12.5%) patients. Out of total 18 patients of Group-I, 3 patients initially suffered a recurrence within 15 days of their repair. In one of these 3 patients, fistulae closed spontaneously by continuous catheter drainage for 6 weeks. She was included in successfully cured patients for subsequent analysis. So the success rate of VVF repair by vaginal approach was 88.9% at first operation (Table-I). The two patients with recurrence were successfully treated by second operation, augmenting the success rate to 100% in this Group of patients.

In Group-II (abdominal approach) no patient developed recurrence, so the success rate was 100% in this Group of patients. However perioperative bleeding requiring blood transfusion occurred in 5 (35.7%) patients in Group-II as compared to none in Group-I (Table-II). Similarly one (7.1%) patient in Group-II developed wound infection while no such complication occurred in Group-I. Dysuria was present for few days postoperatively in 6 (33.3%) and 2 (14.2%) patients in Group-I and Group-II respectively. Postoperative hematuria was present for 2-3 days in 2 (11.1%) patients in Group-I but no such complication was found in Group-II.

The complications of dysuria and hematuria were transient and subsided spontaneously in few days. Postoperative urinary stress incontinence was present

in 5 (27.7%) patients in Group-I and 3 (21.4%) patients in Group-II but ultimately subsided by the end of two months postoperatively in all except 2

(11.1%) patients from Group-I, who has still minor leakage of urine on heavy exertion.

Group	Total # of cases	Successfully cured		Recurrence	
		No.	(%)	No.	(%)
Group-I (Trans vaginal)	18	19	(88.9)	2	(11.1)
Group-II (Trans abdominal)	14	14	100.0	0	0.0

Complications	Group-I (Transvaginal)		Group-II (Trans abdominal)	
	No.	(%)	No.	(%)
Peroperative Hemorrhage	0	(0.0)	5	(35.7)
Wound infection	0	(0.0)	1	(7.1)
Dysuria	6	(33.3)	2	(14.3)
Hematuria	2	(11.1)	0	(0.0)
Stress Incontinence	5	(27.8)	3	(21.4)

## DISCUSSION

In developing countries over 90% of VVF are due to obstetric causes<sup>7</sup>. The main reason is pressure necrosis of bladder and vaginal wall between the foetal head and pubic bone due to unassisted prolong labour. The same was the case in our series in which cause of fistulae was obstetrical in 87.5% patients and gynaecological (hysterectomy) in 12.5% cases. These findings are in contrast to those in developed countries where more than 75% cases of VVF are secondary to the gynaecologic surgery while obstetric trauma accounts for 10-15% of VVF<sup>8</sup>.

Approach for VVF repair depends mostly on the surgeon's training and experience. The best approach is probably the one with which the surgeon feels most comfortable and has had the most experience.

It also depends on the site of the fistula. In general the higher the fistula, difficult is the approach from below and the lower the fistula, difficult is the

approach from above. However more than 90 % of vesicovaginal fistulae can and should be repaired transvaginally<sup>9</sup> as this approach being less invasive has obvious advantages in terms of cosmesis and patient discomfort.

It also ensures that the repair is performed outside of a recently operated pelvis. In addition there is a reduction in the length of postoperative hospitalization as well as peri-operative bleeding<sup>10</sup>. The only disadvantage of this approach is the limited access.

We used this approach for type-II and low type-I fistulae repair and achieved 88.9 % cure rate at first attempt. Only 2 (11.1%) patients had to undergo second operation transvaginally and were cured subsequently, augmenting the success rate of vaginal approach to 100 %. These results can be compared to 90-93 % cure rate after first repair as mentioned in the literature<sup>2,11</sup>.

We used abdominal approach for type-III and high type-I fistulae. This approach has the advantages of optimal exposure of the fistula as well as intra-operative assessment and management of concomitant ureteric and other intra-abdominal pathologies. In this series 14 patients underwent VVF repair by abdominal approach with no single recurrence, resulting in 100% cure rate at first repair.

Our findings are again comparable to those of Evans et al<sup>12</sup>. Although controversies exist regarding optimal approach for VVF repair, but many authors<sup>13,14</sup> are of the opinion that there is no observable difference in outcome between the various surgical approaches. As such, the more important determinants of a successful repair are the principles of a tension free repair, adequate blood supply, prevention of infection and adequate postoperative bladder drainage. Regarding complications of the surgery, intra-operative bleeding requiring blood transfusion occurred in 5(35.7%) patients of Group-II. This complication is usually the result of excessive scarring and adhesions due to previous surgery.

Wound infection occurred in 1(7.1%) patient in Group-II, which was managed by appropriate antibiotics. Dysuria and increased urinary frequency was present postoperatively for few days in 6(33.3%) patients of Group-I and 2(14.3%) patients of Group-II. Similarly hematuria persisted for 2-3 days postoperatively in 2(11.1%) patients of Group-I. These complications of dysuria, increased urinary frequency and hematuria were probably caused by prolonged catheterization and associated infection. However these complications were transient, persisted few days postoperatively and had no adverse effects on the final outcome. Postoperative urinary stress incontinence was present in 5(27.8%) patients of Group-I and 3(21.4%) patients of Group-II.

The condition gradually subsided in most of the patients and by the end of two months, only 2(11.1%) patients of Group-I had minor leakage of urine on heavy exertion but all others had improved. In these two patients with urinary stress incontinence,

the fistulae did not extend to the vesico-urethral junction or bladder neck, so the incontinence was probably secondary to relaxation of the pelvic floor as a result of previous pregnancies.

## CONCLUSION

Birth trauma is still a major cause of vesicovaginal fistula in our region. Improvement in health services and socio-cultural status can help to reduce the incidence of this demoralizing injury. Once occurred VVF can successfully be repaired by strictly adhering to principles of a tension free repair, adequate blood supply, prevention of infection and adequate postoperative bladder drainage.

## REFERENCES

1. Margolis T, Elkin TE, Seffah J et al. **Full thickness Martius grafts to preserve vaginal depth as an adjunct in the repair of large obstetric fistulas.** *Obstet Gynecol* 1994; 84(1): 148-52.
2. Hardley HR. **Vesicovaginal fistula.** *Curr Urol Rep* 2002; 3(5): 401-7.
3. Bey NM. **Urinary and recto-vaginal fistulae in women.** *J Obstet Gynaecol Br Emp* 1929; 36: 581-9.
4. Zacharin RF. **Grafting as a principle in the surgical management of vesicovaginal and rectovaginal fistulae.** *Aust N Z J Obstet Gynaecol* 1980; 20(1): 10-7.
5. Sims JM. **On the treatment of vesicovaginal fistulae.** *Am J Med Sci* 1852; 23: 59-83.
6. Waaldijk K. **Surgical classification of obstetric fistulas.** *Int J Gynaecol Obstet* 1995; 49(2): 161-3.
7. Raassen T. **Vesicovaginal fistulae.** *Surgery* 2002; 56: 15-8.
8. Batra AK. Urinary fistulae. In: Hanno PM and Wein AJ (eds): **Clinical manual of urology.** 2<sup>nd</sup> Ed. Singapore, Mc Graw-Hill Book Co; 1994; 297-303.
9. Raz S, Little NA, Juma S. Female urology. In: Walsh PC, Retik AB, Stamey TA, Vaughan ED (eds): **Campbell's Urology.** 6<sup>th</sup> Ed. Vol.3 Philadelphia, Saunders Company 1992; 2782-2828.
10. Margolis T, Mercer LJ. **Vesicovaginal fistula.** *Obstet Gynaecol Surv* 1994; 49(12): 840-7.

11. Wang Y, Hadley HR. **Non delayed transvaginal repair of high lying vesicovaginal fistula.** J Urol 1990; 144(1): 34-6.
12. Evans DH, Madjar S, Politano VA, Bejany DE, Lynne CM, Gousse AE. **Interposition flaps in transabdominal vesicovaginal fistula repairs: are they really necessary?.** Urology 2001; 57(4): 670-4.
13. Langkilde NC, Pless TK, Lundbeck F, Nerstrom B. Surgical repair of vesicovaginal fistulae: **A ten year retrospective study.** Scand J Urol Nephrol 1999; 33(2): 100-4.
14. Kam MH, Tan YH, Wong MYC. **A 12 year experience in the surgical management of vesicovaginal fistulae.** Singapore Med J 2003; 44(4): 181-4.

## THE 7TH SHAUKAT KHANUM MEMORIAL CANCER SYMPOSIUM

11th - 13th March, 2005

The Seventh Biennial SKMCH&RC Cancer Symposium will be held in Lahore, from March 11th-13th, 2005.

Physicians, Scientists and Medical Students are encouraged to submit abstract pertaining to original research work. The last date for submission is 15th October 2004.

1. Genito-Urinary Cancer
2. Gastro-Intestinal Cancer
3. Bone Marrow Transplantation
4. Breast Cancer
5. Lung Cancer
6. Head and Neck Cancer

**A special prize of Rs. 50,000/- will be given for the best abstract submitted by a medical student from any recognized medical school in Pakistan.**

A Research Methodology Workshop will also be held on 13th March, 2005.

Contact: THE CANCER SYMPOSIUM SECRETARIAT

Shaukat Khanum Memorial Cancer Hospital & Research Centre,  
Johar Town, Lahore, Pakistan.

Voice: (+92 42) 518 0725 Ext: 2365, Fax: (+92 42) 518 0723 / 25

[www.shaukatkhanum.org.pk](http://www.shaukatkhanum.org.pk), [trainingmanager@skm.org.pk](mailto:trainingmanager@skm.org.pk)