

Original Research Article

Novel laparoscopic repair of VVF with limited cystotomy

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Abstract

Background: A Fistula is an extra anatomic communication between two or more epithelial lined body cavities or skin surface. Most of the vesicovaginal fistulas in industrialized and well developed countries are iatrogenic and most of the vesicovaginal fistulas in underdeveloped and developing countries are obstetric.

Materials and methods: 10 cases of VVF presented to OGH OPD from October 2013 till September 2016 with age range 22 years to 43 years were included in study. Radiation fistulas, malignant fistulas, complex obstetric fistulas were excluded. Eight of the Ten cases were post hysterectomy (TAH) supra trigonal fistulas (7 single fistulas 1 case had two fistulas side by side), One case was post obstetric trigonal fistula, One case was post caesarean section where the fistula was in the anterior fornix close cervix.

Results: Out of 10 patients, we had 1 port site infection, fever in 2 cases, increased drain for initial 2 days in 1 case. None of the 10 cases required blood transfusion, and there was no leak per vagina in all cases before and after catheter removal. All the patients were working patients, and resumed their work as early as 12 days after surgery.

Conclusion: Conventional open repair with bivalving of bladder is associated with morbidity in the form of higher pain scores, higher HB % drop, prolonged hospitalization, prolonged catheterizations, and delayed resumption of work. Laparoscopic repair with limited cystotomy overcomes all the disadvantages of the conventional repair with equal results.

Key words

Novel, Laparoscopic repair, VVF, Vesicovaginal fistula, Cystotomy.

Introduction

A Fistula is an extra anatomic communication between two or more epithelial lined body cavities or skin surface. Most of the vesicovaginal fistulas in industrialized and well developed countries are iatrogenic and most of the vesicovaginal fistulas in underdeveloped and developing countries are obstetric.

In India, incidence of obstetric vesicovaginal fistulas is decreasing and the incidence of post-operative vesicovaginal fistulas is increasing especially after total abdominal hysterectomy and laparoscopic assisted vaginal hysterectomy.

Post-operative fistulas are involved with lot of stress and anxiety on the part of the primary surgeon and lot of social, emotional, physical and economic inconvenience to the patient. Traditional repair of VVFs include a vaginal approach if it is infratrighonal and an abdominal approach if it is supratrighonal. Abdominal approach can be a transperitoneal with O'conor's bivalving of bladder or extraperitoneal transvesical repair. All these abdominal approach procedures can be performed by laparoscopic approach also [1].

Here, we present our modification of laparoscopic repair of VVF where we initially do a cystoscopy, pass DJ stents bilaterally, pass a different colored ureteric catheter through the fistula and both the ends of the ureteric catheter are brought out, laparoscopy is done, with the patient in steep trendelenberg position the plane between bladder and vaginal vault is dissected till the ureteric catheter is seen or if there is difficulty in dissecting that plane a cystotomy can be given at this stage and followed towards the fistula, the fistula is encircled, followed by separation of the bladder and vagina, closure of the vagina, placement of omentum or local peritoneum as vascular interposition, placement of suprapubic catheter (cystocath), and then closure of the bladder in single layer, placement of drain, closure of ports is done.

Post operatively our patients had minimal to no HB drop, less analgesic requirement, early oral feeding, less hospital stay.

Aims of the study

To study the effectiveness of success of laparoscopic repair of VVF by limited cystotomy approach in selected females presenting to OGH urology opd with VVF.

Materials and methods

10 cases of VVF presented to OGH OPD from October 2013 till September 2016 with age range 22 years to 43 years were included in study. Radiation fistulas, malignant fistulas, complex obstetric fistulas were excluded. Eight of the Ten cases were post hysterectomy (TAH) supra trighonal fistulas (7 single fistulas 1 case had two fistulas side by side), One case was post obstetric trighonal fistula, One case was post caesarian section where the fistula was in the anterior fornix close cervix. Time interval between fistula formation and repair ranged from one month to 2 years (because of their delayed presentation).

Evaluation

All the patients underwent urinalysis, urine C/S, Ultrasound abdomen and pelvis, IVU, Cystoscopy and retrograde catheterization before taking up for repair. All the patients are advised local hyegine and vaginal betadine tablets 2 days before the procedure (**Figure – 1, 2**).

Technique

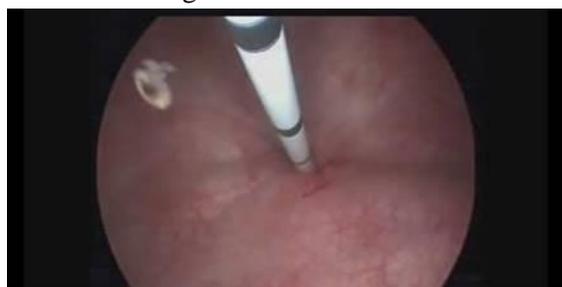
With the patient in general anesthesia and in lithotomy position we initially do a cystoscopy, pass DJ stents bilaterally, pass a different colored ureteric catheter through the fistula and both the ends of the ureteric catheter were brought out, laparoscopy was done, with the patient in steep trendelenberg position the plane between bladder and vaginal vault was dissected till the ureteric catheter is seen or if there was difficulty in dissecting that plane a cystotomy can be given at this stage and followed towards the fistula, the fistula was encircled, separation of the bladder

and vagina, closure of the vagina, placement of omentum or local peritoneum as vascular interposition, placement of suprapubic catheter (cystocath), then closure of the bladder in single layer, placement of drain, closure of ports.

Figure – 1: IVU of a case with post TAH showing ‘cup and saucer’ appearance with cup being vagina with pooled contrast and saucer being partially full bladder.



Figure – 2: Placement of ureteric catheter just prior to laparoscopy, both the ends of the catheter should be brought out.



In two of the above patients uterus was present and was preserved at the time of the repair as they have not completed their families yet. One was obstetric trigonal fistula where we had no problem in suturing the vaginal wall, the other case was post Caesarean section we had difficulty in suturing as we had to suture the vaginal wall very close to cervix.

Post operatively orals were resumed as soon as patient was out of anesthesia, drain is removed

on 3rd pod and the patient was discharged with supra pubic and perurethral catheters in situ. After 3 weeks stents were removed and supra pubic and perurethral catheters were removed.

Results

Out of 10 patients, we had 1 port site infection, fever in 2 cases, increased drain for initial 2 days in 1 case. None of the 10 cases required blood transfusion, and there was no leak per vagina in all cases before and after catheter removal. All the patients were working patients, and resumed their work as early as 12 days after surgery (**Table – 1**).

Table – 1: General data of laparoscopic vesicovaginal repair in 10 patients. All could be completed laparoscopically.

Parameter	Observation
Operative time (min)	90.4±30 Range (70 – 186)
Blood loss (ml)	180±70 Range (90-300)
Dj stents placement	All Patients
Ureteric catheter through fistula	All patients
Blood transfusions	0 patients
Fever	2 patients
Prolonged drain	1 patient
Success rate	100%
Resumption of work	12 days (9-21)
Follow up time	2 months to 36 months

Follow up

Follow up ranged from 2 months to 3 years with history taking and physical examination during every visit. There was no case of long term recurrence of fistula till now.

Discussion

Although most fistulas in industrialized world are iatrogenic they may also occur as a result of congenital anomalies, malignancies, infections, radiation therapy, iatrogenic (surgical) or external trauma, ischemia, parturition, and variety of other processes.

Laparoscopic VVF repair is an alternative to classical open approach .compared with the O`Conor`s transabdominal approach, laparoscopic repair is reported to be associated with less surgical trauma, early recovery, less pain, less morbidity with equivalent results [2, 3, 4, 6, 7].

Nezhat, et al. [2] first reported the laparoscopic repair of a VVF, and later assessed the laparoscopic closure of intentional and unintentional bladder lacerations in a series of 20 cystotomies. In that study, the only complication was one VVF that required reoperation, successfully repaired laparoscopically with single-layer closure [5]. The authors concluded that in experienced hands, the endoscopic management of complex VVF might be an alternative to the traditional abdominal approach. Von Theobald, et al. [3] used an omental J-flap interposition during the laparoscopic repair of VVF. Recurrent VVF was similarly successfully repaired laparoscopically by Miklos, et al. [7]. Their patient had previous two failed Latzko partial colpocleisis, and closing the vagina and bladder with an interposed omental flap using a laparoscopic approach ultimately repaired the persistent fistula [8].

Conclusion

Incidence of post-operative VVFs is on increase in developing countries. Conventional open repair with bivalving of bladder is associated with morbidity in the form of higher pain scores, higher HB % drop, prolonged hospitalization, prolonged catheterizations, and delayed resumption of work. Laparoscopic repair with limited cystotomy overcomes all the disadvantages of the conventional repair with

equal results. However, prospective RCTs with larger volumes of patients are required to properly compare conventional and laparoscopic VVF repair for worldwide acceptance.

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