The Use of Pedicled Omental Graft in the Transperitoneal Repair of Vesicovaginal Fistula

M IQBAL N PERVEEN M ASLAM S HUSSAIN M J.AKHTAR M RASHID
Department of Surgery, Allama Iqbal Medical College / Jinnah Hospital, Lahore
Correspondence to Dr. Muhammad Iqbal

To assess the role of pedicled omental graft in the treatment of vesicovaginal fistula, a prospective study was conducted from January, 1996 to December, 2003 in the department of surgery Allama Iqbal medical College / Jinnah hospital, Lahore. 17 patients with vesicovaginal fistula were included in the study. All were having symptoms of persistent leakage of urine per vagina. Seven patients had history of prolonged obstructed labour. 9 patients developed this complaint after hysterectomies for benign conditions, and one patient suffered this complication after caesarian section. An initial operation and prior attempts at fistula repair had been performed in 5 patients. All patients were treated with trans peritoneal repair of VVF with pedicled omental graft. All fistulas healed successfully with this technique at first attempt. One patient (5.8%) had detrusal instability and one patient had superficial wound infection (5.8%).

Key words: vesicovaginal fistula, transperitoneal approach, omental pedicled graft.

Vesicovaginal fistulas (VVF) represent a significant morbidity in female urology. Continual wetness, ordour, and discomfort cause serious social problems. VVF usually result from local trauma and necrosis following prolonged obstructed labour or an iatrogenic event during gynaecological surgery or radiation given to pelvic organs. In cases of iatrogenic events fistulas are typically supratrigonal and occur when the procedure is technically difficult or the ability of local tissue healing is altered by fibrosis, infections or previous radiotherapy.

Injury to urinary bladder with development of fistula was first mentioned 1030 AD in the opus called Al-Kanoon by Arabic physician and philosopher Avicenna (Ali Ibne-Sina). He noted, “in cases which women are married too young and in patients who have weak bladders, the physicians should instruct the patients in way of prevention of pregnancy. In these patients the fetus may cause a tear in the bladder that result incontinence of urine. The condition is incurable and remains so until death.

The oldest evidence of obstructed labour and vesicovaginal fistula can be found in the remains of queen Henhenit, the wife of Egyptian ruler around the time of 2050 BC. Queen Henhenit belongs to the dubious honour of having suffered the most antique vesicovaginal fistula documented.

In 1849, Dr. Marion Sims completely closed the enormous vesicovaginal fistula of Anarcha. Since then many techniques for repair of VVF have been reported by using the vaginal, transvesical or transperitoneal approach. Although the surgical results are mainly related to the etiology of fistula and experience of surgeon, success is achieved in 65–96% of cases. The surgical failure usually represent a burden for surgeon and the patient who suffer from the distress and social limitation imposed by urine leakage. Thus every one involved in the care of such patients has appreciated the need for a reliable and successful technique.

The omentum is uniquely adopted for resolution of local inflammatory process, not only on account of its blood supply, but also its abundant lymphatic drainage, which reabsorbs inflammatory cell debris and macromolecular protein exudates. Omentum has well-established place in complex urinary tract reconstructions in general.

We present our experience with the treatment of supratrigonal VVF corrected with transperitoneal supravesical approach with the use of pedicled omental inter position graft.

Patients and methods:
This prospective study was conducted over eight years starting from January, 1996 to December, 2003 in the department of Surgery, Allama Iqbal Medical College / Jinnah hospital, Lahore. During this period 17 patients who presented with the diagnosis of VVF were treated with O’Conor supravesical transperitoneal technique.

Indications for transperitoneal repair were; indurated vaginal epithelium approximately 2cms in circumference around the fistula, fistula more than 2cm in diameter, a vault fistula with poor vaginal exposure, and fistulas involving the ureters.

The fistulas developed after abdominal hysterectomies in 9 patients, after prolong labour in 7 patients. In one patient VVF resulted from internal bladder during caesarian section. Of the 17 patients 5(29%) had undergone one or more previous surgical attempts at fistula repairs including one attempt in one patient 2 attempts in two patients, and 3 attempt in two patients. All the patients presented with urinary loss through vagina. One out of 17 patients (6%) had the additional symptoms of foot drop after prolonged labour. Diagnoses of fistulas were confirmed by excreatory urography, cystoscopy, methylene blue test and often-retrograde pyelography. Preexisting urinary tract infections
were treated with appropriate antibiotics. Sufficient time (2 months) between the diagnosis and repair was given to allow improvement of local inflammatory changes.

The patient was given general anaesthesia and placed in low lithotomy position with legs abducted and supported in moderate Trendelenberg position. A Foley's catheter was passed per urethra. Abdomen, perineum and vagina were cleaned and draped. The peritoneal cavity was accessed through vertical midline incision. The intraoperative contents were mobilized in a cranial and pelvic manner. The intestines were opened along the sagittal plane near the dome of bladder. The greater omentum was mobilized on right gastroepiploic pedicle. The omentum based on right gastroepiploic pedicle was passed behind the ascending colon and into the pelvis. Abdominal bladder was opened along the sagittal plane near the dome of bladder. Intestines were packed out of way. Urinary bladder was mobilized in the transverse fashion. An omental pedicled flap was planned. Avascular adhesions of the omentum with transverse colon were separated. The left gastroepiploic and short gastric vessels were divided and ligated with absorbable sutures. The greater omentum was mobilized on right gastroepiploic artery. The hepatic flexure and ascending colon was mobilized. A routine appendicectomy was performed in each case to avoid the possibility that a subsequent appendicitis or emergency appendicectomy might compromise the immediately adjacent pedicle. The omentum based on right gastroepiploic pedicle was passed behind the ascending colon and into the pelvis. The distal end of the omentum was stitched to the distal limits of space between vagina and urinary bladder. The ureteric feeding tubes were taken out. Urinary bladder was closed in two layers in longitudinal fashion with 2/0 polyglyactin sutures after passing 22F suprapubic cystostomy tube through separate stab incision. Unilateral ureterovesical reimplantation was performed in three patients to allow safer closure of fistulas, which were involving, or too close to the ureteral meatus. A 22F Nelaton drain was passed in pelvis. Abdomen was closed with non-absorbable sutures after repositioning the gut into its place. Pelvic drains were removed when the output became minimal. Urethral catheter was removed 21 days after surgery.

Results:
Seventeen patients of VVF were repaired with pedicled omental graft through trans peritoneal approach during 8 years from January 1996–December 2003.

Etiological factors were, prolonged obstructive labour in 7 patients (41%), hysterectomies in 9 patients (59%), and accidental injury to bladder during caesarean section in one patient. Out of prolonged obstructed labour group 6 patients belong to younger age group (18–23 year), seventh was 25 years old. All the patients who belong to obstructed labour group were primary Para.

All the patients were cured of VVF at first attempt with this technique (100%) with no surgical reintervention or recurrence at last follow-up (6–90 months). One of the 17 patients (5.8%) had superficial wound infection, which was successfully treated with parental antibiotics. One out of 17 patient (5.8%) had detrusal instability, which was treated with oxybutynin. Except for minor complications of wound infection and detrusal instability success turned out to be 100% with technique of pedicled omental graft in transperitoneal repair of VVF.

Discussion:
VVF always represent devastating medical condition with profound effects on both physical and psychological health of the patient. VVF is more common in developing world and relatively uncommon in developed world. In developed world >90% of VVF are caused by inadvertent injury to the bladder during surgery, whereas in developing world >90% of VVF are caused by obstetrics complications. In our study 47% of the VVF are due to obstetrics complications and 53% due to inadvertent injury to urinary bladder which is in between the two ends.

Women with obstetric fistula may have associated foot drop. A study from Nigeria showed that 65% of the women with obstetrics fistula currently or previously had symptoms of perineal nerve injury, including finding of foot drop. At the Ethiopian fistula hospital 20% of the patients were reported to have foot drop. In our study one out 17 patients (5.8%) presented with foot drop. The foot drop is thought to result from excessive compression of sacral nerve plexus by faetal head.

In most case definite cure of VVF requires surgery, in particular large VVF never resolve with conservative management. Several surgical techniques have been used in the management of VVF with failure rate from 4 – 35%. The principles of successful surgical repair are that it is tension free, water tight, and uninfected using a well vascularised flaps. Regardless of the approach used it is important to recognize that the first attempt at surgical closure has highest success rate.

The ideal time interval between onset of fistula and surgical repair is controversial. Some authors prefer early
The Use of Pedicled Omental Graft in the Transperitoneal Repair of Vesicovaginal Fistula

intervention (<3 months), while other advocate delayed (>6 months) closure. In general we suggest an interval of 8 weeks (early closure) between the diagnosis of VVF and its repair, which is favored by many authors. This shortens the length of hospital stay for patients and alleviates much of the morbidity endured. Early repair doesn’t appear to affect closure adversely and avoid the discomfort and psychosocial consequence of prolonged urinary leakage. However, in all cases early repair is not appropriate. A longer interval should be adopted when the fistula results from radiotherapy or if there is extensive tissue damage due to infection, surgical trauma, or cellulitis. Surgical timing and route of repair are best tailored to individual patient.

Regardless of the approach selected, vascularised interposition flaps may be required to reinforce the repair. Some surgeons recommend the use of flaps in repairing all but the smallest fistula. When the viability of the tissue used in the repair is doubtful importance of bringing well vascularised tissue into repair site is undisputed. The omentum is the preferred interposition flap in trans abdominal VVF repair. When possible we use the omental flap, which provide tissue support that allows definite closure of the path and permits mobility of the neighboring tissues. The omentum has an efficient lymphatic system which resorbes cell remnants and local exudates thus reducing the chance of infected fluid collection.

The trans peritoneal supravesical technique provides adequate mobilization of the bladder and vaginal wall, complete excision of fibrotic, and devitalized tissues and efficient closure of healthy layers without tension. This technique also allows safe uretero-vesical reimplantation when required, as well as mobilization of pedicled omental interposition between the vagina and bladder. These principles explain the absence of recurrence in our study. The reported success rate of VVF repair in the literature varies from 87–96% by vaginal route, and 85–100% by abdominal route. Since we successfully repaired the fistula in all patients (100%) our study is comparable to others.

References: