

VESICO-UTERINE FISTULA: CURRENT TREND IN AETIOLOGY AND MANAGEMENT

by

L. K. SHAH

M. S. RAO

S. VAIDYANATHAN

and

V. K. KAPOOR

Introduction

We describe four cases of vesico-uterine fistula of which, 2 were due to blunt pelvic trauma.

Material and Methods

Review of the records of the Department of Urology, PGIMER over a period of 11 years (1973 to 1983) revealed 4 cases of vesico-uterine fistula. Their clinical data are provided in Table I.

In the 2 patients with blunt pelvic trauma this diagnosis came as a surprise when cystogram was performed for assessment of vesical rupture. The classical symptom of menouria was present in only 1 case. The fistula healed spontaneously following suprapubic urinary diversion in 3 of them. The last case, which was classical of Youssef's syndrome, underwent surgical repair of the fistula by trans-abdominal supravescical approach with pedicled omental inter-position graft.

Discussion

Spontaneous closure of vesico-uterine fistula might occur over a period of one year (Rauch *et al* 1962; Graziotti *et al*

1978) which forms a strong argument against a hasty decision towards surgical repair. Further, hormone-induced amenorrhoea for at least 6 months might facilitate spontaneous closure of the fistula (Rubino 1980). In cases of associated vesical rupture, continuous vesical drainage (suprapubic cystostomy) would facilitate spontaneous closure as observed in our series. These measures should be adopted before making a decision towards surgical repair of the fistula.

We believe that surgical repair of vesico-uterine fistula should be performed by trans-abdominal supravescical approach with pedicled omental interposition graft in order to reduce the chances of failure. The supravescical approach in which the bladder is bivalved in sagittal plane, provides wide exposure of the posteriorly situated fistula. The access to the fistula is restricted in the transvesical approach and hence not recommended. Tissue plane is then developed between the bladder and the uterus. The fistula is excised alongwith fibrous margin. The rent in the uterus is closed in two layers with 2/0 Vicryl. The uterine suture line is reinforced by a pedicled omental graft.

In cases where omental apron is long enough to reach the pelvic floor without tension, it can be used as an inter-position

Department of Urology, Postgraduate Institute of Medical Education and Research, Chandigarh, India.

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TABLE I
Clinical Data of 4 Patients with Vesico-uterine fistula

S. No.	Age	Aetiology	Symptoms with duration	Upper Urinary Tract	Cystogram	Hystero-salpingogram	Cystoscopy	T/+	Remarks
1	28	Traffic accident	-Rupture bladder Fracture pelvis -No urine leak per vagina	Undilated	Uterus visualised	Not done	Not done	Suprapubic cystostomy	Spontaneous closure after 8 weeks
2	22	Traffic accident	-Rupture bladder Fracture pelvis -Wound dehiscence -No urine leak per vagina	Undilated	Uterus visualised	Not done	Not done	Secondary suturing of anterior abdominal wound	Spontaneous closure after 12 weeks
3	27	Post-caesarean section	-Bladder injury -Suprapubic urine leak -Wound dehiscence -Septic shock -No urine leak per vagina	Undilated	Uterus visualised	Not done	Not done	-do-	-do-
4	28	Post-caesarean	-Sterility amenorrhoea Mensuria -No urine leak per vagina	Undilated	Uterus visualised (Fig. 1)	Contrast seen in the bladder Communication delineated (Fig. 2)	Revealed fistula of 1 cm. diameter 2 cm. above trigone through which endometrium was protruding uterine orifices trigone normal	Repair of fistula by trans-abdominal suprapubic approach of O'conor's with pedicled omental interposition (See text)	Post-operative period uneventful. Kept on oral contraceptives for 2 months, at 1 year follow up; Normal periods

graft without mobilizing its vascular supply. However, separating it from the transverse colon and its mesocolon by developing the intervening avascular plane would reduce the chance of its dislocation due to bowel distention in the post-operative period. When the omental apron is short, it must be mobilized, so that it will reach the pelvis. The blood supply of the omentum is derived from the gastroepiploic arch on the greater curvature of the stomach. Omental graft may be based either on the right gastroepiploic artery (Turner Warwick, 1967) or on the left gastroepiploic artery (Bastiaanse, 1960). We prefer to base it on the right gastroepiploic artery. The skin incision should extend upto the xiphisternum to provide adequate access for division of the splenic origin of the left gastroepiploic vessels. The short gastric arteries must be individually ligated with 3/0 chromic catgut, without damaging the main gastroepiploic arch (Fig. 3). Ligation of bunch of branches could prove dangerous. Non-absorbable sutures should not be used since any one of them lying exposed within the fistulous area might act as a nidus for stone formation. The mobilization of the gastroepiploic arch should be complete upto its gastroduodenal origin, lest traction on the pedicle should tear the undivided short gastric arteries. Mobilized omentum should be fixed in the right paracolic gutter with 3/0 polyamide sutures at 4 to 5 places. Alternatively, the omental graft could be placed extraperitoneally behind the mobilized ascending colon. Omentum is folded upon itself to form a thick bulk of tissue and is brought distal to the uterine suture line, where it is fixed by 3/0 chromic catgut at three places. The bladder is closed by continuous inter-locking 3/0 Vicryl after keeping a circle cystostomy (Shah *et al*)

or suprapubic cystostomy. Second layer of interrupted horizontal mattress sutures buries the previous suture line. The wound is closed in layers.

In 35 patients in whom pedicled omental interposition was performed, no complication was encountered due to this step except in one patient, in whom the omental graft was anchored to the anterior abdominal wall (instead of the right paracolic gutter). This patient developed small bowel obstruction 14 days post-operatively, which responded to conservative regime.

Omentum is unique in that it is the only body tissue that is specifically developed for the resolution of the inflammatory process. It provides (i) healing support for complicated urinary reconstructions, (ii) a vascular graft to local tissue when healing is impaired by infection and so forth, (iii) a supple surrounding tissue allowing urodynamic mobility for the bladder because it never forms dense fibrosis.

Circle cystostomy (Shah, in press) is performed with a 24" long silastic tube with one limb emerging per urethra and the other in the suprapubic region. Three to four holes are made in the middle portion of the tube for urinary drainage. It is a self-retaining drainage system devoid of the disadvantages of balloon such as bladder spasms, pressure necrosis of the suture line, etc.

Vesico-uterine fistula following caesarean section is a preventable entity. Injury to the urinary bladder could be avoided by initial emptying by catheterisation, separation of the bladder from the lower segment of the uterus, immediate recognition of vesical injury should it occur, and layered closure of the bladder rent alongwith reinforcement of the

uterine suture line by a pedicled omental graft as described above.

With improved obstetric care, vesico-uterine fistula due to obstetric causes may not be encountered so frequently as in the past. However, increasing traffic accidents could result in vesico-uterine fistula due to blunt pelvic trauma which could form the major aetiological factor for this syndrome in the coming years.

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See Figs. on Art Paper I