

ABDOMINO-VAGINAL REPAIR OF DIFFICULT VESICO-VAGINAL FISTULA

(A new technique)

by

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Vesico-vaginal fistula, mostly of obstetric origin is still an important problem in our gynaecological practice. Most of these fistulae can be repaired by the vaginal route. Abdominal repair of fistula is rarely done. Sometimes a vesico-vaginal fistula can be very large extending from one pubic bone to the other involving the whole bladder base and the urethro-vesical junction. The bladder mucosa often prolapses through the fistulous opening. There may be considerable scarring around the fistula leading at times to vaginal stenosis. Sometimes a small fistula is at a very high level and thus becomes inaccessible. Repeated failure of repair produces extensive scarring. Same problems may be created by vesico-cervical or vesico-uterine fistula. (Figs. 1, 2 and 3). Repair of these difficult fistulae is labourious and sometimes impossible. Under such circumstances one naturally thinks of ureteric transplantation or artificial bladder.

Faced with the difficulty of repairing such fistulae on several occasions, we have devised a technique for their repair. It is done in cases where either a vaginal repair is impossible because of its large size, excess scar tissue or when a number

of previous repairs have failed. The technique is a combined abdominal and vaginal repair. When a vaginal approach alone is made in these cases, dissection and mobilisation is extremely difficult. Even with extreme care, patience and surgical skill, failure is quite common as the edges of the fistula cannot be reached and even if these are stitched it is not without tension. It was therefore thought that the mobilisation of the bladder per abdomen from its attachments, both extra-peritoneally and intra-peritoneally would facilitate dissection as well as closure of the fistula from below.

Anatomical considerations

The bladder has a base, an apex, a superior, two inferolateral surfaces and a neck. The base is triangular and is directed downwards and backwards. The apex is directed forwards towards the upper part of symphysis pubis. The infero-lateral surfaces are directed downwards and laterally towards the pubis and pelvic walls. The base of the bladder is related to the anterior wall of the vagina. The superior surface of the bladder is separated from the supra-vaginal portion of the cervix beyond the internal os by fibroareolar tissue. The infero-lateral surfaces are separated anteriorly from the pubis and pubovesical ligament by fatty tissue, known as retro-pubic pad of fat. Behind this, these

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two surfaces are separated from the levator ani and obturator internus muscles by fascia. The neck is related to the pelvic fascia which also surrounds the first part of the urethra.

The bladder is connected to the tendinous arch of the pelvic fascia on each side by a condensation of fibroareolar tissue called lateral true ligaments of the bladder. The same tissue forms anteriorly two bands on each side of the median plane known as lateral and medial pubovesical ligaments. The lateral pubovesical ligaments extend from the anterior end of the tendinous arch of the pelvic fascia downwards and medially to the bladder. The medial pubovesical ligaments are attached to the back of the symphysis pubis and passes downwards and backwards to form the floor of the retropubic space. The apex of the bladder is joined to the umbilicus by the median umbilical ligament. From the superior surface, the peritoneum is carried out into folds known as false ligaments of the bladder. Anteriorly there are three folds—median and two lateral umbilical folds. Similarly, there are lateral false ligaments to the side wall of the pelvis and also posterior false ligaments.

The female urethra begins at internal urethral meatus, travels downwards and forwards behind the symphysis pubis embedded in the anterior vaginal wall. It perforates the perineal membrane and ends in the external urethral meatus. In a V.V.F. it is the base of the bladder which is partly or wholly destroyed. It may also include part of the urethra. Sometimes the whole urethra is destroyed. Following development of the fistula there is always infection in and around the fistula which leads to fibrosis and scarring. The edges and the part beyond

gets densely adherent to the surrounding tissue e.g. vagina, cervix and to the lateral and anterior attachment of the bladder. The separation of the bladder from this fibrosed attachment is important for its mobilisation for successful repair. Such separation is at times difficult when the fistula is very large and when there is too much scarring.

Procedure

Examination under anaesthesia: An E.U.A. is absolutely necessary for planning the operation. The size, extent, situation, amount of scar tissue, vaginal stenosis is carefully noted. Ureteric openings are often seen in the prolapsed bladder mucosa. The examination is best done with the patient in lithotomy position. An excretory pyelography is routinely done.

Repair (I) Abdominal Approach

(a) *Extra-peritoneal Dissection of the Bladder:* A right paramedian infra-umbilical incision is made and by reflecting the peritoneum upwards the bladder is exposed extraperitoneally. The bladder is then mobilised from its attachment from the pubic bone and on its two sides from its lateral attachments. The mobilisation is mostly done by finger or gauze dissection separating the bladder from both sides and the pubic bone carefully. The dissection is carried out to the edges of the fistula. In places, fibrous bands which are mostly found behind the symphysis pubis are cut by snips with fine scissors. Some venous oozing may be met with in the process which can be held. Hot packs are also helpful. If care is not taken, the bladder can be easily opened. This dissection, if well done, increases the mobility of the edges of the fistula to a great degree (Fig. 4).

(b) *Intraperitoneal Dissection:* The peritoneal cavity is then opened. The

uterus is held with a vulcellum and the loose peritoneum of the utero-vesical pouch is cut open with scissors. The bladder is then pushed down from the cervix by sharp dissection with scissors and also gauze dissection. There is considerable scarring and fibrous tissue in this part. The mobilisation is carried out upto the edge of the fistula and the bladder should be separated from the cervical and vaginal wall. A sound can be passed into the vagina through the utero-vesical pouch following this dissection. The abdomen is not closed at this stage and the patient is put in lithotomy position. Two assistants remain for the abdominal part for simultaneous manipulation that may be required while the surgeon closes the fistula from vagina (Fig. 5, 6).

(II) Vaginal repair of the fistula

A Schuchardt's incision is now made for better exposure of the fistula. A Sims speculum is then introduced and the edges of the fistula are held with four tissue forceps. It would be found that the edges of the fistula which was formerly inaccessible are now comparatively free and lax. A circular incision is now made in the vaginal wall around the fistula followed by two vertical incisions, one upwards and one downwards from the circular incision. A rubber urethral catheter is introduced into the bladder. The vaginal wall is separated from the bladder by sharp dissection with scissors on all sides. If the dissection from above has been good, vaginal dissection is much easier. In the upper or anterior end of the fistula vaginal dissection can be assisted from above extra-peritoneally.

The scar tissue found in the edges of the fistula is now cut away with the help of scissors. Before closing the fistula, one should appose the edges to see that it can be closed without tension. The fistula is

then closed by interrupted No. 00 catgut sutures with atraumatic needle avoiding the bladder mucosa. A second layer of sutures is applied. The sutures may be applied either transversely or antero-posteriorly to avoid tension. A dye test is now performed to see if there is any leakage. A Martius graft is then put over the sutured fistula and the vaginal wall is closed over it by interrupted sutures. If closure of the vaginal wall is difficult it is left as such (Fig. 7, 8, 9, 10).

Bladder drainage: The urethral catheter which was inserted prior to the suture of the fistula is fixed in position. A suprapubic cystostomy is then performed. Alternatively, a vaginal cystostomy may also be performed. The utero-vesical peritoneum is sutured. After proper haemostasis the abdomen is closed. A stab drain is inserted in the retropubic space (Fig. 11, 12).

Postoperative Care: Chloromycetin injection-250 mg. i.m. 6 hourly and alkali mixture is given. The stab drain is removed on the 10th day. The suprapubic catheter or vaginal cystostomy catheter is removed on the 14th day. The urethral catheter is removed on the 16th postoperative day. Daily bladder irrigation with 1:1000 acriflavine solution is done. This is done usually through the suprapubic catheter. It is better to put the patient on light diet upto the 10th day.

Case Reports:

Five cases have been operated with this technique. All got cured.

Case 1:

Mrs. G. S., 45 years, was admitted on 29-9-77 with the complaint of dribbling of urine for 3 years following prolonged labour. She delivered a stillborn baby at home. She had no destructive operation.

On E.U.A. a V.V.F. was seen in the upper part of the anterior vaginal wall including the

anterior fornix. Its size was 2" x 2" extending from one pubic ramus to the other and anteriorly upto the pubic symphysis. The edges of the fistula were attached to the pubic ramus on both sides. The bladder mucosa prolapsed through the opening. There was also a vesico-cervical fistula through an opening in the anterior wall of the cervix (3/4" x 1"). A thick rim of scar tissue was present all round the fistula. There was a thick band of scar around mid vagina almost stenosing it. The fistula was repaired by the abdomino-vaginal technique described above.

Both the catheters were removed on the 16th day and the patient passed urine on her own. She developed stress incontinence for some time but improved on doing perineal exercises. She was discharged on the 26th postoperative day. She was found well on her first postoperative check up.

Case 2:

Mrs. D. D., 35 years, was admitted on 23-2-78 with the complaint of dribbling of urine for 16 years following prolonged labour at home. The child is alive. Following that after 3 years she had a caesarean section for obstructed labour with ligation of tubes. She had some hydronephrosis. On E.U.A. a big V.V.F. of about 2" x 2" in size was seen extending from 1" above the external urethral meatus upto the anterior fornix. On both sides, it extended upto the pubic rami with a fibrous band near the symphysis pubis close to the bone. There was moderate scarring.

She was operated on 3-3-78 by the same technique. There were no postoperative complications. The suprapubic catheter was removed on 12th day and the urethral catheter on 16th day. The patient could pass urine herself. She developed a bed sore and was discharged on 4-5-78.

Case 3:

Mrs. G. D., 35 years, was admitted on 31-1-78 with the complaint of dribbling of urine for 12 years following instrumental delivery of a stillborn baby. She had a failed repair for V.V.F. 8 years back in this hospital. She had a large vesical calculus and the pyelography showed hydroureteric changes of both the ureters.

On E.U.A. two small pinhole fistulae were seen—one in the urethro-vesical junction and

the other in the anterior fornix. Urine was leaking through both the fistulae. Dye test was positive. There was extensive scar tissue in the anterior vaginal wall. She was operated on 6-3-78. Cystolithotomy was done first extraperitoneally and calculus of 2" x 1 1/2" size was removed. On reflecting the vaginal wall two fistulae of 1/2" and 3/4" in diameter were detected in the bladder wall. Repair was done by the abdominovaginal technique.

On the 12th day the suprapubic catheter and on the 14th day the urethral catheter was removed. She could pass urine herself. She developed some stress incontinence which improved gradually on perineal exercises. She was discharged on 6-4-78.

Case 4:

Mrs. L. D., 35 years, was admitted on 14-2-78 with the complaint of dribbling of urine for 20 years following prolonged labour and delivery of a still born baby at home.

She had 3 previous failed repair in this hospital over the years. Ureteric transplantation was suggested but she refused. The last operation was done 8 months back. It was decided to try the new technique on her. On E.U.A. a V.V.F. of about 1/4" in diameter was seen in the urethro-vesical junction surrounded by very dense scar tissue. On 13-3-78 repair of the fistula was done by the abdomino-vaginal approach. On separation of the vaginal wall the fistula was found much larger, about 1 1/2" x 1". The postoperative period was satisfactory. On 14th day, the suprapubic and on 15th day, the urethral catheter was removed. She got cured except little stress incontinence for first few days. She was discharged on 4-4-78.

Case 5:

Mrs. P. B., 18 years, was admitted on 5-1-78 with the complaint of dribbling of urine for 6 months following prolonged labour and delivery of a stillborn baby after 3 days. She could not pass urine herself. On E.U.A. a V.V.F. of about 1/4" x 1/4" size was seen situated in the anterior vaginal wall 1 1/2" above the external urethral meatus. There was extensive stenosis of mid vagina admitting only a finger tip through it. The repair of the fistula was done on 1-5-78 by the same method. On reflecting the vaginal wall, the exposed fistula was of 1" diameter.

Her postoperative period was good. On 14th day, the suprapubic catheter and on 16th day the urethral catheter were removed. She was discharged on 21-5-78.

Summary and Conclusions

The abdomino-vaginal repair of large and difficult vesico-vaginal fistula with extensive scarring has been found a good technique and the result in this preliminary series of cases is satisfactory. These cases otherwise were probably candidates for ureteric transplantation. The extra-peritoneal and intra-peritoneal dissection

increases the mobility of the bladder for successful vaginal repair.

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Ref: Gray's Anatomy, 35th Edition, 1973, 1330-1332.

See Figs. on Art Paper III-IV-V