

VESICO VAGINAL FISTULA

by

DEVANTALA SINGH,* M.B., M.S., M.R.C.O.G.

Few problems in gynaecology need such knowledge and experience as is required in treating urinary fistulae. Omission of a very minute detail may tip the balance between success and failure, and in no other operation the result means so much to the patient.

This account deals with our experience in one unit of the Patna Medical College Hospital over a period of 9 years, from 1960-1968. During this period 270 cases of urinary fistulae were admitted; 236 were treated while the others left the hospital unoperated for various personal reasons.

As shown in Table I, obstetric trauma accounted for 96 per cent of

TABLE I

The causes of urinary fistulae in 270 cases

Causes	No. of cases
Obstetric trauma	260
Prolonged labour	132
Instrumental delivery	102
Caesarean-section	10
Ruptured uterus	16
Gynaecological trauma	10
Manchester repair	2
Hysterectomy	5
Wertheim's hysterectomy	2
Vulvo-vaginitis	1
Total	270

*Tutor in Obst. and Gynec., P.W. Medical College, Patna (Bihar).

Received for publication on 17-11-1969.

the cases while trauma due to gynaecological operations was responsible only in 10 cases. Only 6 cases had delivered in our hospital and all the others had their confinements in various district hospitals or at their homes. In Moir's series, 69.1 per cent of cases were after gynaecological operations. Vulvo-vaginitis in a young girl of ten years was followed by fistula formation in the anterior wall of the bladder. Fistulae caused by cancer and radium burns are not included in this series.

Clinical picture

Fistulae are so different from one another and the picture so varied that it is very difficult to classify them. All cases were examined on admission for typing the fistulae and the condition of the surrounding tissue and its approachability for surgery noted. The broad anatomical types of fistulae that we came across were:

Vesico-vaginal	161
Juxta-urethral and urethral	72
Juxta-cervical	34
Uretero-vaginal	3
	270

Vesico-vaginal or mid-vaginal fistulae were the commonest and they are easy to repair. They may vary in size from a pin-point to such size as to cause prolapse of the whole bladder through the opening. The fistulae which involve bladder neck and ure

thra are of various types and degrees; some of them are termed "Complex juxta-urethral" by Naidu (1962) and "Circumferential" by Moir (1965). Fifty-six urethrae were partially or completely detached from the bladder neck and one end (upper end) of the urethra was closed in many cases, forming a blind tube. The fistulous opening at the bladder neck is often quite large and has everted edges of oedematous mucous membrane all round.

Certain associated conditions

Some of the common associated pathological conditions that we came across in the series were:

Recto-vaginal fistulae	18 cases
Vaginal stenosis	20 cases
Third degree perineal tear	6 cases
Cervical tear	15 cases

Surprisingly, no case of bladder calculus was seen in the present series. Only three ureteric fistulae were found although the ureteric orifices were exposed on the edges of large fistulae in 6 cases. Two ureteric fistulae were caused by lower segment caesarean section and one followed total hysterectomy for endometriosis.

Extensive cervical tears were seen quite often and the lips of the cervix were flush with the vaginal wall in some cases. This type of picture always occurred after prolonged and obstructed labour. Along with repair of the fistulae, tracheorrhaphy was also done in these cases. Complete perineal tear in 4 cases was due to a difficult delivery after prolonged labour. The tear was repaired at the same sitting as the repair of the fistulae in two cases and the operation was found to be easy and less time

consuming. In the other two cases the operation for complete perineal tear was deferred till after the fistulae were repaired and had healed. The exposure for repair was excellent in such cases.

Management

Routine pre-operative investigations were carried out. Intravenous pyelography was necessary only in big fistulae. Methylene blue injections were used in pin-point fistulae for proper localisation. The patients were suitably prepared and perineal conditions were well attended to prior to the operation. Correction of malnutrition was considered an essential step. A three months' interval between the occurrence of the fistula and its repair was considered optimum. Cortisone was administered post-partum in some cases but no noticeable difference was noted. Examination under anaesthesia for operability and appearance of fistulae was carried out prior to proceeding with the operation. Even when the first impression was that a vaginal repair may not be possible all attempts were made to do so and it was only in very few cases that an approach through other routes was resorted to. One or two attempts at vaginal repair were at least made in all those cases who later required ureteric transplantation. Lithotomy position was used in all cases. The flap splitting method was preferred. The bladder was separated widely from the vaginal mucosa. The mobilization of the bladder from the vaginal wall was considered the most important step, although Moir (1961) deprecates extensive mobilization for fear of sloughing of the unsupported vagi-

nal wall. An incision is made around the fistula and the vaginal wall is separated from the bladder wall by cutting all bands and adhesions that are felt with the fingers. When the big bladder opening appears to close by approximation of its released edges, then only mobilization is considered satisfactory and no tension on the stitches is apprehended. In cases of juxta-cervical fistulae or vesico-vaginal fistulae, the bladder is separated and pushed up from the anterior cervical wall, as is done while doing an anterior colporrhaphy. Wider dissection is the key to success, more so in bigger fistulae. Vaginal sloughing, as apprehended by Moir (1965), did not occur in any of my cases. Special care is taken to prevent this while stitches are being placed in vaginal wall, so as not to leave any dead space. Some of the vaginal stitches were taken through the bladder musculature. This insured against the formation of any haematoma and also gave support to vaginal wall. This procedure was advocated by Mahfouz (1938). An unfavourable prognosis was predicted whenever mobilization of the bladder was not upto one's satisfaction.

Fine catgut with atraumatic needle was used for stitching. In a few of my earlier cases I had used nylon stitches with edge-paring method. Later experience was different. Latterly every case has been tackled by the flap splitting method, even when the fistulae were only pinpoint. The bladder was stitched in two layers.

The juxta-cervical or vesico-cervical fistulae were difficult to operate upon, but once the bladder was mobilized, further stitching was not diffi-

cult and healing was perfect in all cases. Mid-cervical tear was found associated with such cases and after pushing the bladder up along with the fistulae, the cervix was repaired before the final vaginal stitches were taken.

The urethra was completely torn off or absent in 6 cases and in another 10 it was partially damaged along with mid-vaginal fistulae. All cases were due to obstetric injury. Moir (1964) reported 40 cases of urethral damage out of his series of 300 cases who had injuries due to gynaecological operations, mainly anterior colporrhaphy. I have seen only two cases of fistulae, one juxta-cervical, and the other mid-vaginal, which had occurred as a result of the Manchester repair done in some district hospitals.

The repair or reconstruction of the urethra was always done by the same method that has been described by Moir in 1961 and again in 1964 and 1965 with minor modification to suit individual cases.

In five cases of complete and partial urethral damage the most difficult problem was not the reconstruction of the urethra but its proper anastomosis with the bladder neck and specially when the latter is pulled high up in the vagina or behind the symphysis pubis with a lot of scar tissue intervening and when the bladder neck with internal meatus had markedly everted and edges were oedematous. Few interrupted stitches were first placed laterally and the fistulous opening narrowed to enable proper anastomosis with delicate and small upper end of urethra.

In one case the urethral bed was completely absent. All attempt was made to reconstruct the urethra from

adjoining tissue used to cover the rubber catheter in a tubular form, and the proximal or upper end of this artificially constructed urethra was anastomosed with the fistula and this anastomosis was strengthened by a Martius graft. Where the proximal end of the urethra had become blind due to adhesions, patency was restored first with a metal catheter and anastomosis performed. Interrupted sutures of fine catgut were put to approximate the upper margin of the urethra with the lower end of the bladder. The second layer was of continuous type. Meticulous care had to be taken in placing these stitches as the tissue on the urethral side to avoid tension on stitches. Moir (1965) advises stitches to be placed on the bladder neck for the same purpose. Reinforcement stitches in all and Martius graft in some were put at the bladder neck, as suggested by Moir (1965). Coetzee and Lithglow (1966) advises the use of the external oblique fascia for the same purpose.

Drainage was maintained by a rubber catheter in all cases. Vaginal or abdominal cystotomy was not done in any case. Stress incontinence, a post-operative problem, occurred in 23 patients. Ten out of these 23 improved spontaneously as time passed; probably, perineal exercises helped them to a certain extent. None of the patients had to undergo any rehabilitation operation for this complaint.

Eighteen cases were associated with recto-vaginal fistulae, they were all repaired vaginally; 8 were done at the same sitting and the results were very satisfactory although the vagina was much reduced in size. In one

case there was a ring-like stricture at the introitus which admitted hardly a finger. This girl, however, delivered a baby by caesarean section one year later.

In more extensive cases, faecal fistulae were repaired first. A preliminary colostomy was never necessary. In cases of a scarred vagina, which was almost always present in the combined type of fistulae, deep episiotomy incisions were made to give good exposure. In a few cases the sphincter was cut and the fistula converted into a complete perineal tear before repairing it. The approximation of the torn rectal wall was always achieved but could not always be covered by the vaginal wall. An attempt to do so in some cases reduced the size of the vagina. When left uncovered the whole vagina will shrink and get fibrosed and colpocleisis will naturally occur. Such a situation occurred in cases with big bladder fistulae. The bladder opening was closed but could not be covered with the vaginal mucosa. Putting in a mould with a skin graft was attempted in three cases at the same sitting with resultant failure in two of them. Attempts at skin grafting and the McIndoe's operation at a later stage is also fraught with dangers of recurrences. Some light, but inelastic, moulds of plastic or polythene with skin grafts may be helpful in such cases. Grafts from the labial and gracilis muscles were not so successful.

Three cases were operated upon abdominally. In one of these, the fistula extended so high upto one corner that proper mobilization of the bladder could not be achieved vaginally and a supra-vaginal approach

was made with no success. This fistula healed ultimately after another vaginal approach. The other two who were operated transvesically, healed well. Three cases of ureteric fistulae healed successfully after ureteric transplantation into the bladder. Uretero-colic transplantation was done in 6 cases, all of them are living and healthy.

Martius graft was found necessary only in those cases where the fistula was high up in the corner and scanty tissue was available for covering the fistulae, one of them failed to heal.

Results

Out of 236 cases operated upon, 210 (88.2 per cent) were cured. One hundred and eighty-eight had healed at the first attempt and the rest required 2 or 3 attempts. More than three attempts were never found necessary. There was no mortality in this series.

The results of treated cases are summarised in Table II.

by connecting the rubber or polythene catheter to a tubing which drained into a bottle containing dettol lotion.

Stress incontinence and apareunia did remain a problem in a few cases but that was a small price they had to pay for being wet even during rest. Only one patient had the Marshal-Marchetti operation successfully.

Comments

Two hundred and thirty-six cases of different types of urinary fistulae were operated upon with 88.2 per cent cure rate during the period of 9 years. Obstetric trauma accounted for 96 per cent of the cases. Although the low percentage of fistulae due to obstetric trauma in Western authors' reports is quite understandable but the number of fistulae occurring after the Manchester repairs and hysterectomies is quite puzzling. Seventy two cases in the present series were juxta-urethral or urethral and all were caused by obstructed labour.

TABLE II
Results

Nature of operation	No. of cases	Cured	Failed
Flap splitting	135	117	18
Saucerisation	15	12	3
Partial or complete urethral reconstruction	72	69	3
Abdominal repair	3	2	1
Uretero-vesico implantation	3	3	—
Martius graft	2	1	1
Transplantation of ureters	6	6	—
Total	236	210	26

Post-operative care consists mainly in maintaining proper drainage. The direct drainage method was used

Moir (1965) reports 57 cases of urethral injuries due to gynaecological operations, mainly anterior colpor-

rhaphy and 101 cases of vesico-vaginal fistulae following hysterectomies. Various types and degrees of urethral injuries were observed, more commonly at the urethrovesical junction rather than involving urethra alone. Every case had to be judged and treated individually. The use of Martius graft was found necessary in three cases only. It certainly has a place in the repair of a fistulae at the urethro-vesical junction and also after urethral reconstruction. It did not prove to be of much help where the vaginal epithelium was found insufficient to cover the repaired bladder or urethral area. Vaginal stenosis ultimately did occur in these cases.

Wide mobilization of the bladder, dissection of all scar tissues and continuous drainage of the bladder are the essentials for success. Proper prognostic predictions could be made right after the completion of the operation, depending upon the degree of mobilization and type of apposition that could be obtained ultimately. Vaginal or abdominal cystotomy was not found necessary in any of the cases and this never seemed to be the cause of failure, although Moir (1964) has preferred this mode of drainage. The problem of infection of the urine by the indwelling catheter did not arise as the bladder was washed with acriflavin 1:1000 daily.

Colpocleisis was never performed. Fistulae which occurred after a hysterectomy were also repaired by the flap splitting method, by immobilizing and pulling down the vault with long Allis' forceps. Difficult, extensive and immobile fistulae are often seen in quite young patients, mostly primigravidae having had pre-

vious obstructed labour. The Lazko's operation is no true answer to patients' tragedy at her age, although it may be a treatment of choice in the older age group.

The problem of difficult fistulae is yet unsolved. It is a condition where mucosal transplantation can have wide scope and may give encouraging results provided the problem of 'donors' and 'take up' of the tissue graft could be overcome. The vascular scarred edges of the fistula is yet other unfavourable factor for proper acceptability of the graft. One wonders whether it would be possible to transplant a complete bladder from a donor as more and more reports about heart and kidney transplants are pouring in.

Summary

270 cases of urinary fistulae seen in one unit of the Patna Medical College Hospital, are described.

260 of these were due to obstetric causes.

236 of these were operated upon with a cure rate of 88.2 per cent.

Special reference is made to the repair of fistula at urethro-vesical junction.

Acknowledgement

My optimism in this field of gynaecology was aroused by my previous chief, Dr. (Miss) M. P. John, whose debts can never be made good.

I am also grateful to my present chief, Prof. S. N. Upadhyay, who helped me with his constant advice and encouragement to keep this interest alive.

I also express my thanks to Dr. P. C. Ghosh, Superintendent Patna

Medical College Hospital, Patna, for allowing me to utilize the hospital records for publication.

References

1. Coetzee and Lithglow: J. Obst. & Gynec. Brit. Comm. 73: 837, 1966.
2. Mahfouz, N. P.: J. Obst. & Gynec. Brit. Emp. 45: 405, 1938.
3. Moir, J. C.: The Vesico-vaginal Fistulea London, 1961, Bailliere, Tandal & Cox.
4. Moir, J. C.: J. Obst. & Gynec. Brit. Emp. 71: 349, 1964.
5. Moir, J. C.: J. Obst. & Gynec. India 15: 441, 1965.
6. Naidu, P. M.: J. Obst. & Gynec. Brit. Comm., 69: 311, 1962.