

Retrospective Study on Intra-cervical Fistula and the Preferable Routes of Repair

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Abstract:

Genitourinary fistula has a devastating impact on women's health. In the developing countries, the most common cause is obstetrical which may occur following obstructed labor or operative injury. The study was designed to analyze 13 rare cases of intra-cervical fistula and preferable routes of repair. The study period was from December 2013 up to November 2021 at four different hospitals in Bangladesh. A standard data collection sheet was used to record important pre, per and post-operative information. All 13 cases were multipara and were delivered by caesarean section. Approaches to repair the fistula were vaginally and abdomino-vaginally. All the 13 cases were primarily closed successfully. The conclusion is that although the vaginal route is preferred in most of the cases but the route of repair should be determined by accessibility of the fistula tract.

Keywords: *Intra-cervical fistula, caesarean section, route of repair.*

Introduction:

Genitourinary fistula has a tremendous negative impact on women's health. In developing countries, the most common cause is obstetrical¹. The obstetric fistula may be due to prolonged obstructed labor or following operative injury. In the developing world, the common cause is prolonged obstructed labor. The relationship between obstructed labor and obstetric fistula was first documented by Avicenna (the renowned Arabo-Persian physician) in 1037 AD². Prolonged pressure of the baby's head against the back of the pubic bone produces ischaemic necrosis of the intervening soft tissues, i.e. some part of the genital tract and bladder³. In such a case, there is almost always a history of the birth of a stillborn baby. Ischaemic tissue necrosis following obstructed labor leads to the development of a genitourinary fistula, usually after 7-10 days⁴. Obstetric operative injury like caesarean section (CS), caesarean hysterectomy can also cause obstetric fistula. This injury may be direct or following ischaemia⁵. During lower segment caesarean section, the bladder base may be torn or may be included in a suture, resulting a fistula which usually communicates with the uterus or cervix⁶.

Yet, there is no universally accepted system of classification of obstetric fistula; the genitourinary fistula is mostly classified clinically on the basis of site, size and scarring⁷. According to the site of involvement, this fistula can be juxta-urethral, mid-vaginal, juxta-cervical, intracervical, circumferential and miscellaneous like ureterovaginal, vault fistula. Based on anatomy and physiology, Waaldijk has developed a classification system of genitourinary fistula⁸. According to him, vesico- cervico- vaginal fistula (VCVF) is classified as Type I⁸.

A urinary fistula between the bladder and the cervical canal is called intracervical fistula. This type of fistula is found infrequently and almost always follow a caesarean section; the intra-cervical fistula is one of a variety of juxta cervical fistula but cannot be seen in the vagina. Dye test shows leakage through the cervix⁹.

Genitourinary fistula can be repaired vaginally, abdominally or combinedly. In case of intracervical fistulas, if the cervix can be pulled down easily which is usually seen in multipara, the vaginal route is

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approachable. Andrew Browning repairs all intracervical fistulae from below, but Brian Hancock also likes to do abdominally in some selected cases⁹.

Although the majority of genitourinary fistula can be closed surgically, the possibility of the successful closure depends on several factors like fistula type, surgeon's skill and surgical method etc¹⁰. Urologists repair fistula abdominally irrespective of site and size, while most gynecologists prefer the vaginal route¹¹. However, the need to select the best approach depends on site, size and type of fistula¹².

The study was designed to analyze the 13 rare cases of intracervical fistula and preferable routes of repair.

Materials and Methods:

It was a cross sectional study and the period was from December 2013 to November 2021. In this period, a total of 13 intracervical fistula patients were admitted and operated at four hospitals in Bangladesh. All the patients were enrolled in this study. A standard data collection sheet was used. The information recorded on the sheet was taken by interviewing the patients/ attendants, after proper clinical examination and after performing the surgical procedure. All the data were entered into an Excel database.

Before operation, very careful evaluation was performed for diagnosis and treatment plan. Dye test was done in all cases under anesthesia. Sometimes the final diagnosis and treatment plan was decided just preceding the operation under anesthesia. Even in some cases treatment plan was modified during the surgery.

All the information and data were systematically recorded and analyzed.

Results:

All the data were analyzed and was shown in the tabulated form. Total 13 intracervical cases were repaired. Table-1 shows the important parameters of the patients before starting operation, with an aim to find out the cause of fistula and accessibility of fistula tract vaginally. Here all were multipara. Among 13 cases, 6 had a history of labor pain for less than 24 hours and rest had more than 24 hours. All cases were delivered by caesarean section, among which 2 needed caesarean sub-total hysterectomy. Here 3 patients had a history of live birth and 10 had still-

born. 6 patients started leaking immediately, even catheter in situ and 7 started leaking within 6-14 days. Among 13 cases, 6 had intact cervical lips and 7 had avulsed anterior lip. Regarding menstrual history, 11 were menstruating either regularly or irregularly and 2 were amenorrhic (due to caesarean sub-total/ supracervical hysterectomy) since fistula occurrence; nobody gave any history of cyclical menouria. There was no history of previous fistula repair operation of any of these patients.

Table-I
Distribution according to obstetric characterization (N=13)

Parameters	Number of patients (N=13)
Duration of labor pain:	
< 24 hours (8 to 20 hours)	6
> 24 hours (>24 to 72 hours)	7
Mode of delivery:	
Caesarean section	13
Interval between delivery and leakage:	
Immediate	6
Within 6 - 14 days	7
Condition of baby during birth:	
Live birth	3
Still-born	10
Condition of cervix:	
Both cervical lips intact	6
Anterior lip avulsed	7
Parity:	
Multipara	13
Primipara	00
Menstruation	
Yes (but no H/O of menouria)	11
No (sub-total/supracervical Hyst)	2
Previous H/O fistula surgery	00

Table-II shows, out of 13 cases, 5 had small (about 0.5-1.5 cm), 8 had medium (about 2.0-2.5 cm) sized fistula. During dissection, 9 fistulae were well exposed vaginally but 4 were not. Of 13 patients, 3 needed ureteric catheterization.

Table-II

Distribution of patients according to size, exposure of fistula tract vaginally and need of ureteric catheterization during surgery (N = 13)

Fistula	Number of patients
Size:	
Small (0.5-1.5 cm)	5
Medium (2.0-2.5 cm)	8
During dissection:	
Well exposed vaginally	9
Not well exposed vaginally	4
Ureteric catheterization:	
Needed	3
Not needed	10

Table-III shows, among 13 cases, 9 (69.23%) were repaired through vaginal approach by flap splitting method, 4 (30.77%) were repaired by combined method.

Table-III

Methods of Repair (N = 13)

Method	Number of patients	Percentage
Vaginal	9	69.23%
Combined	4	30.77%

Table-IV shows, all 13 patients were successfully closed during discharge from hospital without any complication. Among these, 10 were followed up after 6 months or more (physically or over telephone). Of these 10 follow-up patients, 9 were continent without any complication and 1 case had closed hole with mild stress incontinence (SI).

Table-IV

Outcome of Repair (N=13)

Outcome	Number of patients
During discharge from hospital:	
Successful (hole closed & dry)	13
Unsuccessful	00
Follow up after 6 months or more:	
Dry & no complication	9
Hole closed with mild SI	1
No follow-up	3

Discussion:

Intra-cervical fistulas almost always follow a caesarean section. In this study, all patients had caesarean

delivery. Most of these C-sections were done at peripheral private facilities. Deliveries by CS increased from 12% to 31% in Bangladesh in the last six years and the incidence in private facilities were 83% (BMMS) 2016¹³. After a CS, urinary leakage may start either immediately (due to direct cut) or few days later (by pressure necrosis due to accidental ligation of bladder tissue). So regarding CS, rationality and skill should be the first consideration.

Here intra-cervical fistula diagnosis was done from history, per vaginal examination and dye test under anaesthesia. For confirmation, other investigations like MRI, cystoscopy, cystography, CTU (computed tomography urography) etc were not done¹⁴. Also intra-cervical fistula should better be differentiate from vesico-uterine fistula where the fistula opens above the internal cervical os and the patient may have complains of menouria (cyclical hematuria). It is stated that menouria occurs as "the menstrual blood flow may be forced to enter the bladder due to the functional sphincter mechanism and the pressure difference between the bladder and the uterus (up to 50cm H₂O during voiding phase), especially during the menstrual cycle phase, when it can reach 130-160cm H₂O"¹⁴. If the fistula location is below the internal os level, urinary leakage occurs continuously¹⁵. In this study, all 13 patients had a history of continuous leakage for a reasonable period (>6 months to 10 years or more). In most of the low-resource settings, genito-urinary fistula diagnosis is based mainly on clinical findings along with dye test, sometimes intravenous urogram (IVU) in suspicious of uretero-vaginal fistula.

No large sized fistula was detected in this study. These findings differ from a study carried out at Dhaka Medical College Hospital (DMCH) over the period from January 2001 to December 2005, done by Homaira, where about 26% obstetric fistulas were large in size¹⁶. The decreased incidence of large sized fistula in rural area is an important indication of improved maternity care in Bangladesh.

Most of the fistulas between the bladder and vagina are accessible via vaginal route¹⁷ and the vaginal approach is preferred by most surgeons^{18, 19}. In this study, most (69.23%) were repaired vaginally. The rest cases were repaired combinedly, here dissection started vaginally but the whole of the fistula tract was not accessible, so ultimately repaired abdominally through trans-vesical approach.

Intra-cervical fistula is one of the varieties of juxta-cervical fistula. A retrospective study by Chigbu compared the outcome of juxta-cervical fistula from vaginal or abdominal approach²⁰, both approaches had similar primary repair success rate but the abdominal route was associated with more need of blood transfusion.

All the 13 cases were primarily closed successfully at first attempt of repair. Fistula surgery should be done by a skilled fistula surgeon, experienced in all techniques because the first attempt at repair is likely to be the most successful²¹.

Conclusion:

The intracervical fistula is not common. Regarding the route of repair, the vaginal route is the preferred method of choice. But an abdominal approach may also be needed depending on some factors, especially accessibility of the fistula.

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