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Research Article

A STUDY ON CONGENITAL VAGINAL MALFORMATIONS IN RURAL POPULATION OF NORTH MAHARASHTRA REGION

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ABSTRACT

Objective: To find out types of vaginal malformations in rural population of North Maharashtra, to study various operative procedures designed for vaginal malformations and to evaluate the use of rubber mould for McIndoe operation. **Method**: Eighteen cases of congenital vaginal malformations were screened in OPD. We found seventeen patients of primary amenorrhea were having congenital vaginal malformation. One patient of stricture of upper vagina was having normal menstruation. They were investigated according to the standard protocol. After clinical examination patients were investigated by U.S.G. and I.V.P. sos and diagnostic laparoscopy, the investigations for operation were Hb, Urine (Alb. Sug. Microscopy), BSL (R), BUL, Serum creatine. Then all of them were operated between Jan.1985 to Oct. 2002 under general anaesthesia & the analysis was done. The type of operations done were 1) Mcindoe operation 2) Pull through operation 3) Excision of imperforate hymen. **Results:** Twelve cases of Rokitansky-Kuster-Hauster Syndrome were operated by McIndoe technique. None of the patients developed V.V.F. or R.V.F. The average vaginal length was 8.76 cms.; Four cases of imperforate hymen had undergone excision & Two cases of congenital stricture in upper vagina had undergone pull through operation **Conclusions:** Use of foam rubber mold is without any pressure necrosis of bladder or rectum.

Keywords: Foam rubber mould, Vaginal malformations, McIndoe

INTRODUCTION

Malformations of vagina though not very common, are well known to us. About 10% of infants are born with some abnormality of the genitourinary system and anomalies in one system are often mirrored by abnormalities in another system[1]. Three main principles govern the practical approach to malformations of the genital tract.

The mullerian and wolffian ducts are so closely linked embryologically that gross malformations of the uterus and vagina are commonly associated with congenital anomalies of the kidney and ureter.

The development of gonads is separate from that of the ducts. Normal and functional ovaries are usually present when the vagina, uterus, and fallopian tubes are absent or malformed.

Gross malformation such as absence of vagina and uterus may be associated with anomalies in sex chromosome of the individual.

In our practice we have come across a variety of them, from imperforate hymen to congenital absence of vagina. All of them were operated accordingly and follow up was done.

The types of Malformations of vagina commonly reported in the literature are: [2]

Absence of vagina: The vagina may be completely absent or more often, the mullerian duct portion is absent and the urogenital sinus part is present as a depression of variable depth. The condition may be associated with inter sexuality.

Vaginal Hypoplasia: It is caused by an inherent fault in Mullerian ducts or by absence of estrogen stimulus from ovary.

Congenital Stricture or Imperforate vagina: A congenital incomplete membrane or stricture of varying thickness in the upper or lower vagina occurs due to failure to canalise the mulletrian and sinovaginal bulb tissues which forms the vagina.

Imperforate hymen

Septate and subseptate vagina: A sagittal septum may be present in upper vagina or throughout its length. This is due to late fusion of mullerian ducts giving rise to two mullerian tubercles, or because of failure of proper canalisation of two sinovaginal bulbs.

Double vagina (duplication): It occurs in association with double vulva, double uterus, doubles bladder, and urethra, and sometimes supernumerary lower limb.

Aims and Objectives: 1) To find out types of vaginal malformations in rural population 2) To study various operative procedures designed for vaginal malformations 3) To evaluate the use of rubber mould for McIndoe operation.

MATERIAL AND METHODS

This was a prospective study done at Mohini Hospital, Shrirampur & Shri. Sainath Hospital, Shirdi between 1985 & 2002.

Sample size: 18 patients were included according to inclusion and exclusion criteria.

Study period: The Study period was seventeen years starting from January 1985 till December 2002. Patients attending OPD at Mohini Hospital, Shrirampur, & Shri. Sainath Hospital, Shirdi, was diagnosed clinically (by taking history, physical examination) to be having a congenital malformation of the vagina, were enrolled in the study. They were investigated latter by USG, Diagnostic laparoscopy and IVP (in patients of congenital absence of vagina).

Inclusion criteria: 1) Patients ready to give informed consent 2) Patients from the age of menarche to menopause 3) Patients willing to come for regular follow up 4) Patients who are married or about to marry within six months of time in cases of absence of the vagina.

Exclusion criteria: 1. Uncooperative patients 2. Patients not willing to follow the protocol 3. Patients above the reproductive age 4. Acquired vaginal anomalies.

Written informed consent was taken from each patient.

Out of eighteen patients of vaginal malformations twelve had undergone McIndoe operation under spinal anaesthesia. The surgical technique of McIndoe operation was as follows: With the patient in lithotomy position, bladder was catheterised & the balloon of the foley's catheter was inflated. A transverse incision was given in the vaginal vestibule and a space dissected between urethra, bladder anteriorly and rectum posteriorly, until the under surface of peritoneum was reached. A split thickness skin graft was taken from the lateral side of thigh with the help of Blair Brown dermatome. This was sutured with chromic catgut No.3" 0" on a mould prepared from foam rubber covered with condom. The size of mould used was 10 cm. x 5 cm. at the widest part of its circumference. The mould covered with skin graft was kept in the space created for vagina. Labial stitches were applied over the mould.

Mould was kept in place for 7 days and again put in after cleaning daily for 2 months, and then kept overnight for 6 months. Follow up was done

every month for 3 months and then every 3 months interval.

Out of eighteen cases of vaginal malformations two were of congenital stricture in the upper vagina. Surgical technique under spinal anaesthesia was as follows:

Lithotomy position and catherization of bladder was done. A transverse incision was made through the vault of short vagina. Sharp and blunt dissection was made till cervix was visualised. The lateral margin of the excised septum was extended widely to avoid postoperative stricture formation. The edges of the upper and lower margin of excised septum were mobilized and anastomosis made of both margins using 2"0" chromic catgut.

III. Excision of imperforate hymen: In four patients of vaginal malformations there was imperforate hymen. The imperforate hymen was incised at 2, 4,8,10 O'clock position and cut edges were excised and sutured with 2"0" chromic catgut. The Collected altered menstrual flow was allowed to drain on its own. Vulva was covered with sterile pads till flow had stopped.

Follow up of all patients were done for two years at various intervals as mentioned depending on the type of case.

RESULTS

In our study various types of malformations which we came across are given in table no 1.

Table.1: Type of malformations

Type of malformations	No.of cases	Percentage
Imperforate hymen	4	22.22
Congenital stricture in upper vagina	2	11.11
Congenital absence of vagina	12	66.67
TOTAL	18	-

The various symptoms for which patient visited O.P.D. were as follows: Seventeen out of eighteen patients had Primary amenorrhea. One patient of stricture of upper vagina had normal menstruation, through a tiny hole situated laterally. Three patients of imperforate hymen had pain in the abdomen, while thirteen patients had dyspareunia and infertility. Out of eighteen patients five patients were unmarried. The rest of them were married. In that four were of imperforate hymen and one was of stricture of the upper vagina. The cases of imperforate hymen were under 15 years of age. The remaining were above 15 years. On examination in our study all patients were found to be having normal secondary sex characters. patients of congenital absence of vagina all patients were having dimple at introitus with P/R examination has revealed absence of uterus. In all four cases of imperforate hymen bulging of blue membrane at introitus was noticed. The examination findings of all patients are tabulated in table no 2 as given below.

Table .2: Examination findings

Examination findings	No.of cases	Percentage
Normal Secondary Sex characters	18	100
Bulging blue memberane at introitus	4	22.22
Stricture of upper vagina with pinhole lateral opening	1	5.56
Stricture of upper vagina without opening	1	5.56
Dimple at introitus	12	66.67
Absence of uterus at P/R examination	12	66.67

Out of eighteen cases of vaginal malformations two patients of congenital absence of vagina had absent left kidney. They were detected by USG & confirmed on IVP. Out of eighteen patients of vaginal malformation, on laparoscopy, patients of congenital stricture in upper vagina and imperforate hymen had normal development of uterus, F. Tubes, fimbrae and ovaries. Remaining twelve patients, who were of congenital absence of vagina, all of them had an absent uterus replaced by a fibrous band with normal ovaries. Only two out of twelve patients of congenital absence of vagina had absent fimbrae and F. Tubes replaced by fibrous bands. Showed in tables no 3.

Table . 3: Laparoscopy findings

Laproscopy finding	No.of Cases	Percentage
Uterus replaced by fibrous bands	12	66.67
Normal fimbrae with part of normal Fallopian tubes.	10	55.56
Fimbrae and fallopian tubes replaced by fibrous band	2	11.11
Normal ovaries	18	100
Nothing abnormal detected	6	33.33

Since the facility of genetic study was not available nearby, and patients were not willing to go to the higher center, genetic study could not be done in all eighteen cases. Out of eighteen patients twelve had undergone McIndoe operation where there was a congenital absence of vagina, In four patients of imperforate hymen excision of imperforate hymen was done and in two patients of congenital stricture in the upper vagina pull through operation was done as shown in table no 4.

Table. 4: Surgical procedures done

Types of surgical procedure done	No.of Cases	Percentage
McIndoe operation	12	66.67
Pull through operation	2	11.11
Excision of imperforate hymen.	4	22.22
TOTAL	18	-

Table no.5. Complications in McIndoe operation

Complications	No.of cases	Percentage
Post operative infection	2	11.11
Accidental injury of bladder during operation	2	11.11
Accidental injury of rectum during operation	1	5.56

Results of Follow Up

In McIndoe's operation in four out of twelve patients 100 % graft was taken within 7 days. While remaining had patchy accepted which healed within 3 to 4 weeks of operation. In the

pull through the operation and excision of imperforate hymen, the raw area had healed within 7 days. Patients had come for follow up for various lengths of time varying from 6 months to 2 years. The mean vaginal length obtained in McIndoe operation was 8.76 cms. One patient of congenital stricture of upper vagina had conceived and delivered at home within a year from operation. Patient of imperforate hymen had normal regular menstruation for one year and then was lost to follow up. Eight out of 12 patients of McIndoe complained of dyspareunia.

DISCUSSION

Failure of normal development of the vagina may be due to any embryologic or genetic abnormality. Briefly, the vagina is developed from urogenital sinus and the paired mullerian ducts. The urogenital sinus is formed from Primitive cloaca as a result of separation of hindgut by urorectalseptum at 6 wks[3]The upper 2/3rd and sometimes the whole vagina is formed from a solid down growth of lower end of fused mullerian duct. While lower 1/3rd or part or it is formed from the proliferation of urogenital sinus tissue (i.e. Sinovaginal bulb). The Process of canalization is complete until 21st weeks of foetal life[4].

Failureof development of mullerian ducts and sinovaginal bulb will result in failure of development of uterus and vagina i.e. Rokitansky - Kuster - Hauser syndrome.[3]

While the failure of Mullerian duct down growth or failure of two components of vagina i.e. upper 2/3rd and lower 1/3rd results in either congenital stricture in upper vagina or transverse vaginal septum[3] .

The failure of development of hymenal orifice is not a rare congenital malformation . Other aberrations of vaginal development are veginal adenosis, due to the effect of oestrogen during organogenesis of vagina and a variety of cloacal dysgenesis is seen which include congenital rectovaginal firstula[3].

In the present series we have come across twelve cases of Rokitansky- Kuster-Hauser syndrome, four cases of imperforate hymen and two cases of congenital stricture of the upper vagina as shown in Table No.1

Veginal agenesis was first described in 1572 by Realdus Columbus[5]. According to Engstadt[6]etal (1949) found it in 1:4000 female admissions in Mayo Clinic. When a patient with Rokitansky syndrome are explored surgically the outer portion of Fallopian tubes are seen continuous with attenuated medallion cords of underdeveloped uterus. There may be bilateral non-cannulated muscular buds of rudimentary uterus, described by Kuster[7] as uterus biparticus solidus rudimentarius cum vagina solida. The ovaries are always present and function quite well.

In the present series only two patients had total failure of development including fimbrae, tube and uterus. While in ten patients fimbrae and part of fallopian tubes were normal as shown in Table No.3.

Ulfelder[8] suggested that use of I.V.P. to determine associated anomalies and examination of nuclear chromatin to determine genetic sex, would avoid laparotomy. A high percentage of patients with vaginal agenesis also have urinary tract anomalies such as absence of one kidney, horse shoe shaped kidney, pelvic kidney or duplicate collecting system. Concomitant urological anomalies are estimated to occur in 25-50% of patients with vaginal agenesis. According to Counsellor[9] and Devis I.V.P. is must in all cases. Garcia[10] & Jones found urinary tract anomalies in 17 out of 35 patients (48.5 %) on I.V.P. Unilateral agenesis was most frequent within 8 cases and 4 of them had pelvic kidney. In present series, U.S.G. was done in all cases. Normal USG kidney findings were found in 16 patients. Two patients had absent left kidney which was confirmed on IVP i.e. in 11.1 % of cases. Counseller[11] and Sluder investigated 15

cases of congenital absence of vagina by I.V.P. and found an absence of left kidney in 6 cases i.e. 40 %.

Formation of an artificial vagina was first attempted by Dupuytren[12] in 1817. Since then numerous procedures have been described which include Frank's no surgical method, William's Wharton operation, and McIndoe operation.

McIndoe[13] and Banister described the procedure of split thickness skin graft into the newly formed vagina which was kept in place with vaginal mold. This is still the procedure of choice today. As it is simple, and safe. It produces vagina with almost normal depth and diameter. In our series final vaginal depth achieved was from 8.4 to 9.2 cms, with an average of 8.76 cms. The coitus was painful in eight cases. It is very important as functional result is more important than the depth of vagina achieved. Thompson[14] et al have reported 81 % success rate after 10 years follow up. Complication in our series is given in Table No.5 occurred in cases of congenital vaginal agenesis.

Out of twelve patients of McIndoe, only two had a postoperative infection which was then cured with change of antibiotic. The incidence was almost 16.6 % as compared to an incidence of 17 % in series of Evan s[15] (1967). The accidental injury of the bladder and rectum during operation was sutured immediately on the table with 3" 0" chromic catgut. None of the patients developed V.V.F. or R.V.F.

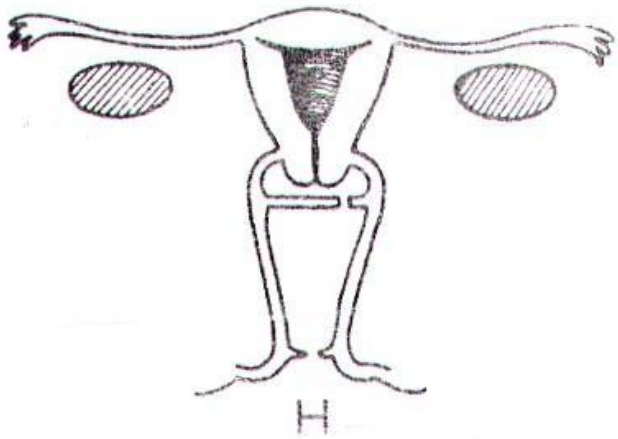

Fig.1: A congenital incomplete membrane or stricture in the upper vagina

It is a rare condition. In our series patient of congenital stricture in upper vagina did not have the post operative complication. One patient out of 2 was then seen after 6 months with normal pregnancy. She had home delivery without complication. Patients of imperforate hymen also did not have the post operative complication. All of them had normal menstruation following an operation. All of them were seen for two to three cycles and then were lost for follow up.

SUMMARY

Eighteen cases of vaginal malformations were operated by various techniques, depending on the malformations, between Jan 1985 to Oct 2002 are reported. Four cases of imperforate hymen had undergone excision, two cases of congenital stricture in upper vagina had undergone pull through the operation and the remaining twelve cases were of Rokitansky-Kuster-Hauser syndrome. These twelve cases were operated by McIndoe technique. One patient of congenital stricture in upper vagina had conceived within six months of operation and patient operated with McIndoe technique had an average vaginal length of 8.76 cm.

CONCLUSION

The rubber mould is found to be a useful alternative to acrylic solid mould to reduce the

postoperative complications like pressure necrosis of bladder.

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