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Modified Mcindoe Technique- Novel Modality in Treatment of Vaginal Agenesis in Young Women

KEYWORDS: Vaginal agensis , Vaginoplasty , McIndoe technique .

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ABSTRACT Incidence of vaginal agenesis varies from 4000 to 5000 live female births. Developmental anomalies of the Mullerian duct system is the major cause. This anomaly is also known as Mullerian aplasia. It can be complete or partial. Complete Mullerian aplasia (MRKH – Mayer Rokitonsky Kustner Hauser syndrome) - along with congenital absence of uterus & cervix Partial Mullerian aplasia is less common - presence of uterus & blind vaginal pouch. Tubes & ovries may be normal (normal endocrine function) in all the cases Creating a neovagina in these cases so as to mimic normal vagina in terms of Size, lining & appearance is a challenge. Though multiple techniques have been designed , Modified McIndoe vaginoplasty represents the simplest one with good results.

REVIEW OF LITERATURE

Congenital vaginal agenesis is a rare malformation that has an incidence of one in 4000 to 5000 female newborns 1. Although vaginal agenesis is most commonly encountered in women with Rokitansky syndrome (Mayer-Rokitansky-Kuster Hauser syndrome or Mullerian aplasia)2 and Androgen insensitivity syndrome (AIS).

It can also present in patients with Turner syndrome, Morris syndrome and as a part of combined congenital defects. Patients with Rokitansky syndrome and AIS have normal secondary sexual characteristics and external genitalia.

These patients present with primary amenorrhea typically in adolescence. A blind or absent vagina is discovered during gynaecological examination in such patients. The purpose of the treatment is not only to create an adequate passage way for penetration but also to facilitate satisfactory sexual intercourse. There are several nonsurgical and surgical treatment techniques described in the literature for treatment of vaginal agenesis. Nonsurgical options include vaginal dilation with a dilator, while surgical options include the Vecchietti procedure3-5 , Davydov technique6, McIndoe technique7 and intestinal vaginoplasty.

The first vaginal reconstruction was performed by Amussat in 18328 .In 1872, Heppner was the first surgeon who used split thickness skin grafting for vaginoplasty9. Baldwin used a vascularised segment of ileum to create a new vaginal canal in 1908, while Wagner used sigmoid colon for the same purpose in 1927 10

The McIndoe technique was first described in 1938 by Bainster and McIndoe9. Despite the existence of several alternative methods, there is still no consensus regarding the best option for surgical correction

INTRODUCTION:

Modified McIndoe technique of vaginoplasty is a simple reconstructive surgery for vaginal agenesis. This promotes satisfactory vaginal intercourse . & access to (neo) cervix and uterus . Thus it alleviates sexual inability & associated severe psychological problems. Numerous procedures were described for creation of neovagina with acceptable function. They include serial dilatation , vecchietti's technique , sigmoid or ileal flaps, Gracilis flap, Singapore flap, expanded vulval flap, davydov technique & so on. In this study, we have evaluated the ease & simplicity of modified McIndoe technique and also the functional & anatomical outcome with least morbidity

OBJECTIVE:

To present the results of Modified McIndoe technique with respect to sexual function ,vaginal length and complication rates in patients with vaginal agenesis

METHODS

This study was conducted in Government General Hospital, Kurnool in Department of Plastic Surgery from JANUARY 2014 TO SEPTEMBER 2014. Cases of Vaginal agenesis underwent surgical correction and neo vagina by McIndoe vaginoplasty . All the cases were young women in the age group of 16 to 20 years .

Clinical Presentation

Symptoms

- Primary amenorrhoea without cyclical abdominal pain in 12 cases
- Primary amenorrhoea with cyclical abdominal pain in 2 cases

Signs:

- Secondary sexual characters; Phenotype – female- in all cases were appropriate for age. Normal thelarache and adrenarche
- On local examination, external genitalia were normal. Appearance of both introitus and vagina had variations Vaginal vault was almost completely absent expect for a very small vaginal pouch in 13 cases (all unmarried girls). One married women who was sexually active had a 2cm length of blind vagina. She had presented with difficult and unsatisfactory intercourse.
- Per rectal examination showed

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No uterus	7 cases
Smooth band in pelvis	5 cases
Presence of uterus	2 cases

Ultra sound pelvis confirmed presence / absence of uterus , normal ovaries and normal kidneys in all cases.No skeletal / renal anomalies were noted in any of the cases.

Pre operative preparation:
- Counselling and Psychological support involving patient, parents and spouse.
- Need for long term use of vaginal prosthesis in post-operative period was stressed upon.
- Gains from the operation was explained. (Successful surgery would serve only the coital function. May not solve the problem of infertility)

Technique:
Modified McIndoe vaginoplasty was the standard procedure adopted in all cases to create Neovagina. Laparotomy was combined in 2 cases, where uterus was present. This was to create neocervix and to achieve drainage of haemotometra vaginally.

Patient was placed in lithotomy position under spinal anaesthesia. Under aseptic precautions, bladder was catheterized with Foley's catheter. 1 in 2 lakh adrenaline-saline solution was infiltrated in the space between bladder and rectum. Transverse incision was given in this area and space created between bladder and rectum by blunt finger dissection, just short of peritoneum. Bleeding points were taken care of.

Intermediate split thickness skin graft was harvested from thigh and was sutured in place over a foam mould fashioned to adopt to the length of created space. Prepared soft mould with the Split Skin Graft on, was introduced into the space, initially collapsing the foam mould by placing the active suction cannula. Once introduced the suction was disconnected and cannula removed. This followed expansion of the prepared mould within the space of neovagina helping adaptation of the Split Skin Graft to the space. The free edge of skin graft was sewn to the edges of the incision that are made in the perineum, forming the neovaginal introitus . Labial stitches applied to keep the mould in place. Colour & output of urine was checked.

Good graft take up was noted in all cases. Labial stitches & the mould were removed on 8th postoperative day and the newly created vagina was irrigated with diluted 1% betadine solution and normal saline consecutively. Foam mould was replaced by acrylic mould shaped to fit into the created neovagina. Patients were encouraged to use this mould continuously in the first 3 months. During this period, they were advised to remove the mould for only short periods of time for vaginal irrigation. After the first 3 months, patients were allowed to engage in sexual intercourse. For the following 3 months, mould use was incrementally decreased until the patient kept the mould in the new vaginal cavity for only 1 hour per day. If patient engaged in regular sexual intercourse, the frequency of mould used was left to the discretion of the patient depending on the rate of sexual intercourse per week.

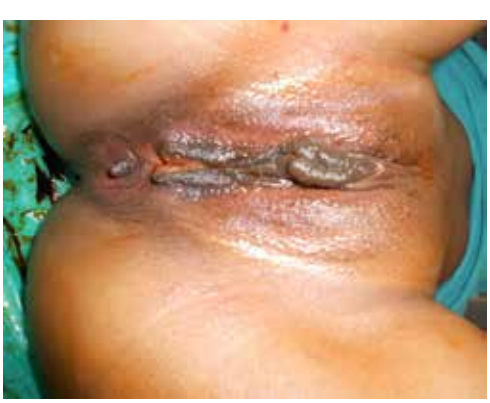
RESULTS
- Good results were noted in all our cases without any major complications.
- No injury to bladder / rectum / any of the surrounding structures occurred.
- Pain & swelling due to labial stitches were present in early post operative period. Pain of graft donor site was well managed by analgesics.
- 85 to 90 % graft takeup was noted at first dressing followed by complete epithelialisation by the end of 4th week
- Conservtive management was done with dilute betadine-normal saline vaginal douching & debridement of nonviable graft.
- Donar site healed completely by 15 days . Average hospital stay was around 8 days.
- The post operative mean vaginal length was 8.4 cm (6-11cm) in 14 patients who used the mould .Among 12 patients who used the mould regularly and had partners only 1 experienced severe pain during intercourse and 11 reported that they were engaging in satisfactory sexual activity with mild or no pain , and with good mucosal sensitivity .Conversely 2 patients who used the mould irregularly experienced severe pain during intercourse and had a mean vaginal length of 6 cm (4-8cm) .
- All husbands ratified their sexual relation as satisfactory.

DISCUSSION:
Modified McIndoe technique is a simple effective procedure to create neovagina for the treatment of vaginal agenesis. It is associated with low morbidity without any major complications as supported by our results. However use of mould in the postoperative period is a must to keep the vagina durable and functioning ,which calls for good patient compliance , as noticed in our patients . Neovagina created by this technique mimics normal vagina both anatomically and functionally as seen in our patients, 4 months post operatively. The average size of vagina obtained in our case series was 8.4 +/- 2 cm in length and 3.7 +/- 2 cm diameter which was approximately same as it was in other studies using the same technique .

McIndoe vaginoplasty is done in a single sitting. Good results were achieved in a relatively short period. Other techniques need sophisticated equipment with expertise and high motivation by the patient . It takes a long time to show results

CONCLUSION:
The findings suggest that a modified McIndoe technique is a simple effective procedure for the treatment of vaginal agenesis, however, proper mould use after surgery remains the corner stone of treatment.

FOLEY'S CATHETER AND FLATUS TUBE ARE INSERTED .LABIAL STITCHES ARE APPLIED



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TRANSVERSE INCISION IS MADE ON THE EPITHELIUM

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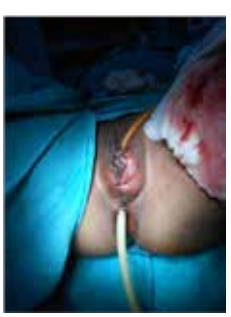
BLUNT DISSECTION WITH THE FINGERS OPENS THE SPACE BETWEEN THE BLADDER AND RECTUM TO CREATE AN ADEQUATE CAVITY

DONOR SITE – MEDIAL SIDE OF THIGH AFTER HARVESTING THE SKIN GRAFT

LABIAL STITCHES ARE APPLIED TO KEEP THE MOULD IN PLACE

FOAM MOULD IS COLLAPSED BE CAUSE OF ACTIVE SUCTION



LABIAL STITCHES ARE APPLIED TO KEEP THE MOULD IN PLACE

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