Sheares' Method of Vaginoplasty — Our Experience

Introduction: The Mayer-Rokitansky-Kuster-Hauser (MRKH) syndrome is one of the most common causes of primary amenorrhoea and is associated with vaginal atresia and absent uterus despite the presence of normal ovaries and external genitalia. Various techniques have been used, with many disadvantages, to create a neovagina. **Aims and Objectives:** Our aim is to create a neovagina with a simple and safe method. **Materials and Methods:** We have operated 18 cases of MRKH syndrome with the Sheares' method of vaginoplasty, in which the space between the two labia is dilated with a Hegar's dilator along the vestigial Mullerian ducts. Thus, two tunnels are created and the central septum is excised to form a single vagina. A mould covered with amnion is placed in the neovagina. All cases are followed up for six months. They have all had a good length of vagina with regular manual dilatation. **Conclusions:** The Sheares' method of vaginoplasty is an easy and safe method to create a neovagina with least complications, like injury to urinary bladder, rectum or bleeding.

KEYWORDS: Ectopic kidney, horseshoe kidney, neovagina, Rokitansky-Mayer-Kuster-Hauser syndrome, Sheares' method, vaginoplasty

INTRODUCTION

Congenital anomalies of the female genitourinary tract may include absence of the vagina (vaginal atresia or agenesis), either as an isolated developmental defect or within a complex of more extensive anomalies. Vaginal atresia is associated most commonly with the MRKH syndrome, wherein the principal association is with an absent uterus despite the presence of normal ovaries and normal external genitalia. The frequency of the MRKH syndrome has not been completely understood. Data in the literature estimates an incidence between 1 : 4000 and 1 : 5000 female live births.[1] Associated renal anomalies may include unilateral agenesis of the kidney, ectopic kidney(s), horseshoe kidney, and crossed-fused ectopia (occur in 30% of these patients). Associated skeletal anomalies may include anomalies found in the Klippel-Feil syndrome (i.e., aberrations of the cervicothoracic somite development), which manifests as fused vertebrae or other variants. Anomalies of the ribs and limbs are also encountered.

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Several techniques have been used to create a neovagina as a part of the treatment. Non-surgical dilation delivered by a multi-disciplinary team is an effective alternative to vaginal surgery,[2] but few are motivated enough to comply and succeed.

Creation of a space for the neovagina in the interlabial space lined with a split skin graft was tried (McIndoe,[3] 1938; MParikh,[4] 2000). Fedele[5] (1994), replaced Vecchietti's method of positioning an olive at the place of the neovagina and a traction suture passed extraperitoneally through a pfannensteil incision lateral to the rectus muscle, attached to a device attached on the abdominal wall for traction, with a laparoscope. Various other methods are all exquisite ways to create a neovagina. Due to the anatomic closeness of the rectum and bladder, injuries to these organs occur now and then, and at times bleeding in the neovaginal space is a problem. Sheares (1960)[6] introduced a simple and quick surgical procedure for creating a neovagina in patients with the MRKH syndrome that offerred good anatomic and functional results.

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MATERIALS AND METHODS

The study was done at the Eden Hospital, Department of Obstetrics and Gynaecology, Medical College and Hospital, Calcutta, between January 2005 and December 2009. All cases were properly counseled and consent was taken after informing the patients about the procedure and reproduction thereafter.

We selected our patients with a complaint of primary amenorrhoea from the Outpatient Department. The patients were thoroughly evaluated to exclude other causes of amenorrhoea; and other pathologies like renal, cardiological, and osteogenic abnormalities were also evaluated. After diagnosis of the MRKH syndrome was established and if the age of patients was more than 17 years, they were selected for surgery. The patient profiles are given in Table 1. All the patients were evaluated by clinical examination, renal function test, gonadotrophin level, Barr body, and karyotyping whenever possible, prior to operation. Laparoscopy was not done and this explains the simplicity of the procedure.

We followed the Sheares' method of vaginoplasty in 18 cases of MRKH syndrome. This technique, briefly, is based on the intervention of the space tunneled between the rectum and bladder, using the müllerian ducts for orientation and dilatation, by gently pushing the Hegar dilatators. The Hegar dilators and a vaginal device are used for epithelialisation in the post surgical period. We followed the Sheares' method in 18 cases of the MRKH syndrome and the operative procedure, advantages, disadvantages, and outcome were studied.

Steps of Sheares' method of vaginoplasty

Two dimples can be identified in between the two labia [Figure 1] below the urethral orifice, in the location of the normal hymen. These two dimples are the lower end of the vestigial Mullerian ducts. Hence, the Sheares' method is suitable for a flat perineum with no pouch. Hegar's dilators [Figure 2] of increasing size are gently pushed through the dimples. Thus two tunnels can be created along the vestigial Mullerian ducts, which look like double barrel tunnels with a central septum [Figure 3]. Then the central septum is excised and a single vagina is formed. A vaginal mould covered with the amniotic membrane is placed in the neovagina [Figure 4]. Sheares originally did not line the neovagina as it was believed that epithelialisation would be stimulated by the presence of the embryonic elements present in that area. The mould was kept for two months with repeated washing and cleaning, after which those patients were advised intermittent self-dilatation till active sexual function was established. All patients were followed up for six months with good results and without any major complications.

Table 1: Patients' profile (n=18)

Age	19 – 23 years
Marital status	Three married
Sonography	Vagina and normal uterus absent in all Normal urinary tract – 14, low lying right kidney – 1, right kidney absent – 1, horseshoe kidney – 2
Laparoscopy	Ovaries present on both sides, bilateral m. nodules in 14, unilateral in 3, absent in 1
Genetic study	Karyotype – 46xx (8), Barr body positive in others
Complications	Nil
Result	3 – 6 months follow-up satisfactory

RESULTS AND ANALYSIS

The Sheares' method of vaginoplasty was successfully performed in all patients. There was no injury to the urinary bladder and rectum. Only in one case there was intraoperative bleeding, which was managed by gauge packing for some time.

Normal axis and adequate length and width of neovagina could be achieved, that is, a length of seven centimeters and a width of two-and-a-half centimeters.

DISCUSSIONS

We have operated on our study group consisting of 18 patients. The age range was 19 to 23 years and three were married. The vagina and normal uterus were absent in all. Fourteen patients had a normal urinary tract and four had congenital renal abnormalities. Ovaries were present on both sides, bilateral Mullerian nodules in 14, unilateral in three, and absent in one. Eight patients had karyotype of 46XX and the remaining had Barr bodies. Postoperative complications were nil and all had a satisfactory neovaginal status at six months.

As per institutional practice, we prefer to defer the operation to 17 years, till the time both physical and psychological orientation to sexual debut occurs. Also as in India the official age for marriage is 18 years, it is expected that by this further one year of postoperative dilatation, the patient will be in a better situation to maintain post marital conjugal life.

Wharton-Sheares neovaginoplasty was successfully performed in three patients at the Department of Gynaecology and Obstetrics, University of Vienna Medical School, Vienna, Austria.[5] The results were excellent (normal axis and adequate length and width of neovagina), and there were no major complications. The authors concluded that the Sheares technique represents a simple, safe, and effective surgical option for creating a neovagina. The procedure is not highly complex and is therefore easy to learn and perform; no special surgical equipment is needed. The anatomic and functional results are very satisfying. Short-term hospitalization, accelerated recovery, and a rapid return to everyday life

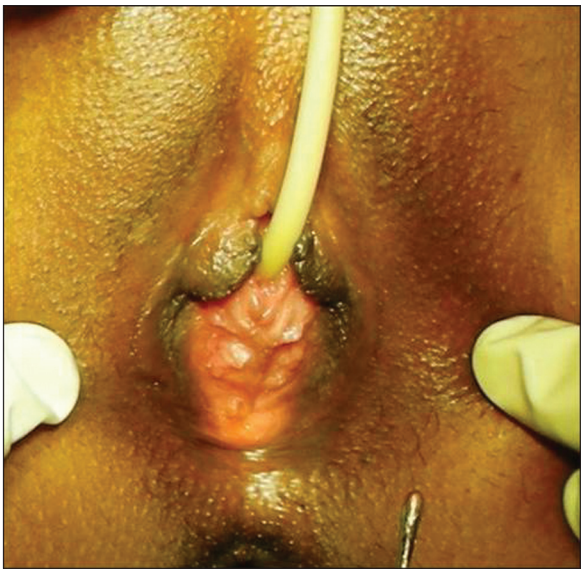

Figure 1: Arrows indicating two dimples

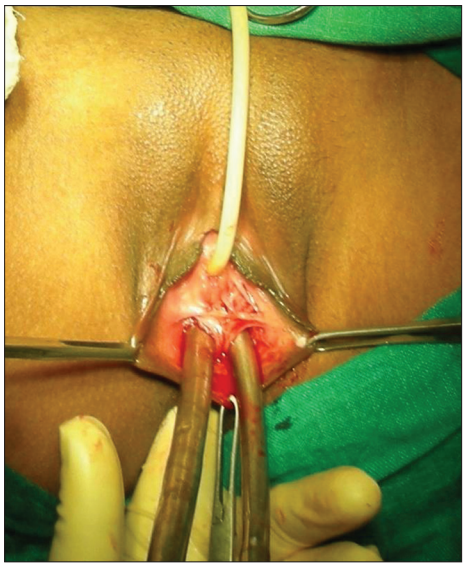

Figure 2: Dilatation by Hagers dilator

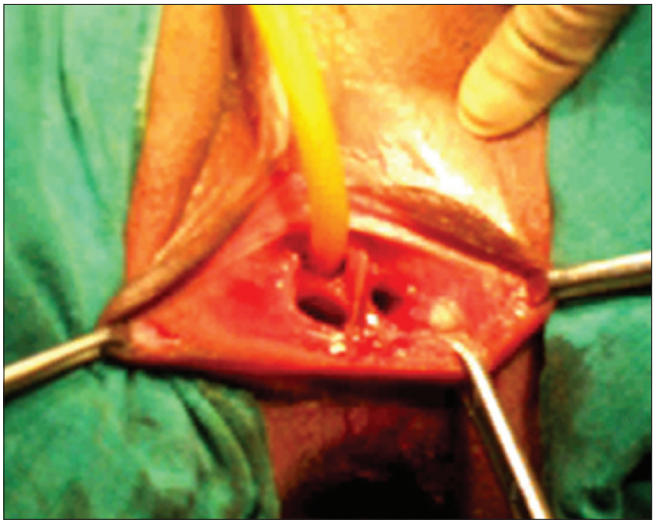

Figure 3: Double barrel appearance

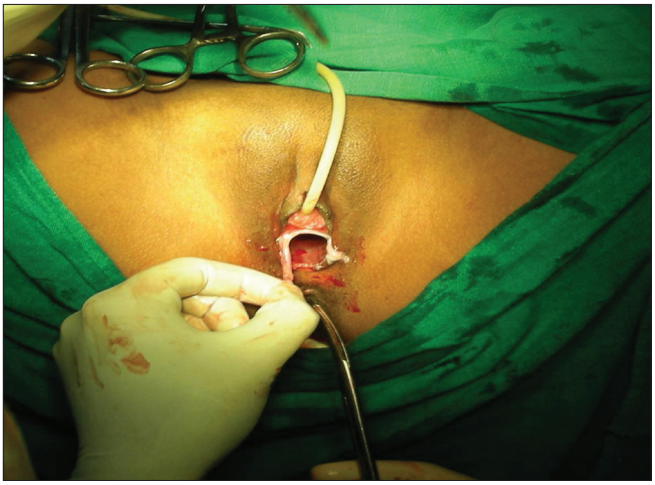

Figure 4: Mould covered with amnion inserted

are important benefits for these young patients. These benefits also result in lower surgery-related expenses, and therefore, reduce the strain on the hospital's budget compared with other therapeutic options. The creation of a neovagina according to Wharton-Sheares-George might provide a satisfactory alternative for the surgical management of vaginal aplasia in patients with the MRKH syndrome. Unsophisticated surgical equipments are needed. In spite of the close proximity of rectum and urinary bladder, chances of injury to these organs are rare. They were advised regular self-vaginal dilatation with a metallic dilator till active sexual function is established. Dr. M. N. Parikh analysed his data on vaginoplasty done by the McIndoe's method. The author's personal experiences with 38 cases were analysed. McIndoe's operation was performed on 29 patients with excellent results in 21. Cicatrisation and closure of the vagina due to the patient's neglect resulted in two patients, while six patients were to follow-up. The author concluded that dissection of generous vaginal space and obtaining an adequate size of skin to line the vaginal cavity, proper postoperative care and meticulous prolonged use of the mould by the patient are the essentials of success.

Retro pubic balloon vaginoplasty has been a good approach for neovagina creation. In three case series[7-9] reported by El Saman *et al.*, Retro pubic balloon vaginoplasty with and without laparoscopic assistance were analysed. In both the approaches satisfactory length of the neovagina (8 cm) was achieved and intercourse was advised soon after removing the catheter. Although injuries to the anterior rectal wall and injury to the posterior urethra were reported (both repaired uneventfully) in the case series where laparoscopy was not performed, the author concluded that it was feasible to perform balloon vaginoplasty

operations without specialised instrument sets, with a comparable outcome.

CONCLUSION

The MRKH syndrome is associated with an absent uterus despite the presence of normal ovaries and normal external genitalia and the most common presentation is primary amenorrhoea. Basic treatment is the creation of a neovagina. Surgical intervention is usually delayed until the age of 17 years. Girls who are offered the vaginoplasty operation require a certain level of psychological and sexual maturity to be motivated and compliant with the dilation regimens necessary for a successful outcome. The complexities of various surgical processes that need an alternative strategy rely on advances in surgical techniques. The creation of a neovagina according to Sheares' technique might provide a satisfactory alternative for the surgical management of vaginal atresia in patients with the MRKH syndrome.

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