ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
Index Copernicus Value: 68 . 16
PubMed - National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 5, Issue –4, July - 2020, Page No. : 258 - 262

Davydov's Procedure: Innovative Method for Creation of Neovagina

[1]Dr. Ruby Bhatia, MD, FICOG, Professor And Head, Department Of Obstetrics And Gynaecology, Maharishi Markendeshwar Institute of Medical Sciences and Research, Mullana, Ambala, Haryana, (Maharishi Markandeshwar deemed to be university), Ex Professor GMC Patiala

[2]Dr. Ritika Gupta, M.S. (Obs and Gynae) , Fellow In Reproductive Medicine, Senior Resident, Department Of Obstetrics and Gynaecology, Maharishi Markendeshwar Institute Of Medical Sciences And Research, Mullana, Ambala, Haryana, (Maharishi Markandeshwar deemed to be university)

[3]Dr. Trisha Arora, M.S. (Obs and Gynae), Senior Resident, Department Of Obstetrics and Gynaecology, Maharishi Markendeshwar Institute Of Medical Sciences And Research, Mullana, Ambala, Haryana, (Maharishi Markandeshwar deemed to be university)

[4]Dr. Shivangi Jain, Junior resident , Department Of Obstetrics and Gynaecology, Maharishi Markendeshwar Institute Of Medical Sciences And Research, Mullana, Ambala, Haryana, (Maharishi Markandeshwar deemed to be university)

Corresponding Author: Dr. Trisha Arora, M.S. (Obs and Gynae), Senior Resident, Department Of Obstetrics and Gynaecology, Maharishi Markendeshwar Institute Of Medical Sciences And Research, Mullana, Ambala, Haryana, (Maharishi Markandeshwar deemed to be university)

Citation this Article: Dr. Ruby Bhatia, Dr. Ritika Gupta, Dr. Trisha Arora, Dr. Shivangi Jain, "Davydov's Procedure: Innovative Method for Creation of Neovagina", IJMSIR- July - 2020, Vol – 5, Issue - 4, P. No. 258 – 262.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

Mayer Rokitansky Kuster Hauser syndrome was first described by Mayer's in 1829. It is characterised by Mullerian agenesis with absence of vagina and rudimentary or absent uterus. It has incidence of 1 in 4500-5000 new born girls. Patient with MRKH syndrome have normal ovaries, development of secondary sex characteristics, normal external genitalia and 46 XX karyotype. These females in spite of having no or non-functional uterus and vaginal agenesis, can lead healthy sexual life by creation of neovagina. Several surgical and non-surgical techniques have been described for the treatment of vaginal agenesis with MRKH. The laparoscopic Davydov procedure has recently emerged as a simple surgical technique for neovagina creation with good cosmetic outcome. Here we report a case of MRKH performed by laparoscopic Davydov procedure with anatomic outcome with its surgical feasibility

Keywords: Mayer Rokitansky Kuster Hauser syndrome, Neovagina, Laparoscopic Davydov's Technique

Introduction

Mayer Rokitansky Kuster Hauser syndrome was first described by Mayer's in 1829, followed by Rokitansky in 1838, Küster in 1910 and finally Hauser et al in 1961 [1]. It is characterised by Mullerian agenesis with

absence of vagina and rudimentary or absent uterus. It has incidence of 1 in 4500-5000 new born girls[2].

Patient with MRKH syndrome have normal ovaries, development of secondary sex characteristics, normal external genitalia and 46 XX karyotype[2]. MRKH syndrome is classified as Type 1 or Type 2. In Type 1 findings are limited to uterovaginal agenesis only whereas in Type 2 uterovaginal agenesis is associated with other systemic defects such as of urinary tract and skeletal [3].

The primary complaint with which a girl usually presents to healthcare system is primary amenorrhea. They may sometime come as late as when they are to get married or face problem with sexual intercourse. These females in spite of having no or non-functional uterus and vaginal agenesis, can lead healthy sexual life by creation of neovagina. They may also be able to have children through Assisted Reproductive Technique such as gestational surrogacy and uterine transplantation [4,5].

Several surgical and non-surgical techniques have been described for the treatment of vaginal agenesis with MRKH. The American College of Obstetricians and Gynecologists recommends use of vaginal dilators without surgery as the initial treatment for creating a vagina. This treatment modality is effective, noninvasive, and it does not have the risks associated with surgery and anesthesia [6] . The surgical options in case of failure of above method include much popular Mc Indoe vaginoplasty, William vaginoplasty and Vechetti's procedure among others. The laparoscopic Davydov procedure has recently emerged as a simple surgical technique for neovagina creation with good cosmetic outcome. Here we report a case of MRKH performed by laparoscopic Davydov procedure with anatomic outcome along with its surgical feasibility.

Case Report

Our patient was 22 years old female, with height of five feet and weight 45 kilograms on admission. Her BMI was 19 Kg/m² and came to our centre with chief complaint of primary amenorrhea. Before surgery complete evaluation for primary amenorrhea was done including detailed history, abdominopelvic ultrasound, MRI, hormonal profile and karyotyping. The karyotype was 46 XX and she had normal TSH, Prolactin, FSH and LH levels for her age. Ultrasound and MRI confirmed the diagnosis of MRKH syndrome.

Operative Technique

Decision for surgery was taken as patient was getting married in 4 months. We informed patient and her relatives of objective and possible complications of vaginoplasty procedure and a written informed consent was obtained. Added risks due to laparoscopic procedure was also explained.

On day of surgery, general anaesthesia was given to the patient and in lithotomy position laparoscopic evaluation of abdominal cavity was done. In laparoscopy, the MRI findings of rudimentary uterus and normal ovaries was confirmed. A two cm transverse incision was made in perianal area on the vaginal vestibulum. With blunt and sharp dissection, a vaginal space between the bladder and the rectum was created till peritoneal margins were reached. Laparoscopically, the peritoneal strand that connects rudimentary uterine horns was lifted, and the peritoneum immediately below was incised transversely. Peritoneal margins were then pulled down to the edge of the introitus, and were sutured with 2-0 Vicryl. Laparoscopically purse-string suture is taken transfixing the round ligament, the tubal isthmus, the ovarian ligament, the lateral peritoneal leaf, and the rectal serosa to close peritoneum from above. Also the walls of neovagina

were then palpated and integrity of walls was confirmed at end of surgery before inserting mould. Finally the sponge mould was inserted into neovagina. The mould is made of foam and covered with condoms which were secured in their place with help of silk sutures fixed to labia. Soframycin is applied to mould so as to prevent infection. An indwelling Foley's catheter draining clear urine was left in situ.

Post-operative management

Patient was taken to OT for examination and dressing on seventh postoperative day. The mould was removed and it was noticed that proximal part of posterior urethral wall has undergone avascular necrosis. Examination under anaesthesia in OT was done by senior consultant urologist for its reason and management. It was concluded that urethral wall necrosis occurred due to pressure by tight mould. As per urologist, as the patient was continent, she was managed conservatively. Hence for further dilatation, mould was abandoned and digital dilatation of neovagina with two fingers (index and middle) was done daily. Patient was then observed for another ten days and was discharged after assuring urinary continence. Before discharge self digital dilatation of neovagina with soframycin was taught to the patient.

Clinical follow up was at every two weeks for first two months. Vaginal examinations were performed and the anatomic results were assessed by cervical dilators (hegar type) without undue pressure. At last visit a neovagina of six cm in length that allow easy introduction of two fingers (width 5 cm) was created (four months after surgery).

Results

Table 1

Age of consultation/ operation	22 years
Surgery duration	120 minutes
Total blood loss	125 cc
Intraoperative complication	None
Hospital stay	17 days

Table 2

Duration after surgery	Neovagina length
1 week	8 centimetres
3 week	5 centimetres
5 week	5 centimetres
7 week	6 centimetres
9 week	6 centimetres
3 months	6 centimetres
4 months	6 centimetres
5 months	6 centimetres
7 months	6-7 centimetres
9 months	6-7 centimetres

Patient was further undergoing follow up examination last examination on September 2019. The patient had been married for 4 months and couple is facing no problem in vaginal intercourse. The vaginal length was 6-7 cm and allowed easy passage of two fingers.

In this case although there was no intraoperative complication, postoperative complication in form of avascular necrosis of posterior wall of urethra occurred which was managed conservatively in opinion with consultant urologist. At present patient is continent and without any other complaint.

Discussion

Vaginal agenesis is a rare condition with ill consequences on fertility and sexual function. It usually presents in association with an absent uterus, as in Mayer–Rokitansky–Kuster–Hauser syndrome. The

blind ending vagina can vary from a shallow dimple to several centimetres. Vaginal reconstruction is required for sexual intercourse.

Given MRKH syndrome is a rare entity, most general gynecologists encounter it only once or twice during their career[2]. However in northern part of India, the incidence is high and such cases are encountered more frequently.

Among the several surgical techniques available, the McIndoe Reed vaginoplasty is most popular technique that has the advantage of not requiring abdominal entry. Neovagina is created by dissection and lined with a split thickness skin graft mounted on a mould obtained from the buttocks. The mould is left *in situ* for intial seven- ten days, which is followed up with regular dilation in order to maintain patency. Outcomes of this technique have been stated generally good with sexual intercourse being possible in over 90% of women. Vaginal dryness and strictures, graft necrosis are few common problems faced. Also, there is a reported risk of developing squamous cell carcinoma of the neovagina [7].

In order to avoid the drawbacks of skin graft, amnion has been used as an alternative to line the neovagina. However, this technique also carries risk of transmission of viral infection such as hepatitis and HIV.

Other methods include Vechietti procedure, which was first described in 1965 and was modified to a laparoscopic approach [8]. Another one, laparoscopic Davydov procedure, in which the vesicorectal space is covered by the peritoneum, is by far the simplest, safest, and quickest operative method for this type of case. Fedele *et al* compared both the laparoscopic techniques for creation of a neovagina in patients with MRKH syndrome. They reported that significantly longer length of the neovagina was achieved by the Davydov procedure[9].

In our patient the mean operating time was approximately 120 mins for combined vaginal and abdominal approach. Longer operating time can be due to the fact that this was our first experience with Laparoscopic Davydov's Technique. Although there was no intraoperative and immediate post operative complication, a delayed one was encountered due to pressure necrosis by mould.

Similar results with very few complications were obtained by K.Takahashi et al in 2016, in which they studied seven similar cases of MRKH syndrome with neovagina creation by Davydov's technique. According to them as their experience in the method increased, operating time and results improved [10].

Based on our experience Davydov's procedure had number of advantages. Firstly, it was associated with very few complications. The only complication that we experienced was related to mould which later was rejected. Avoidance of mould and self-digital dilatation of neovagina for maintaining vaginal patency added to another advantage. Thirdly it is has cosmetic benefit as no surgical scar is given. Fourthly the length of neovagina achieved is long enough as with other techniques.

Of few shortcomings that we faced were longer operating time and increased hospital stay. Postoperative counseling is as important as timing of surgery. Best time for performing surgery is when patient is emotionally mature and ready to start sexual activity. In our case patient and her relatives was cooperative, was able to understand the importance of post operative care and followup.

Conclusion

Thus to conclude we need more number of cases and longer follow up to know efficacy of laparoscopic Davydov's procedure modality. Although laparoscopic methods are more popular in urban area, in a rural tertiary care centre like ours where Mc Indoe vaginoplasty remains accepted modality, it will take much more effort to find acceptance for above method. It is mainly due to mental barrier of parents and relatives of unmarried girls for whom abdominal scar form laparoscopy remains social taboo.

References

1. Herlin M, Hojland AT, Petersen MB. Familial occurrence of Mayer-Rokitansky- Kuster-Hauser syndrome: a case report and review of the literature. Am J Med Genet A 2014; 164A: 2276-86.
2. Londra L, Chuong FS, Kolp L. Mayer-Rokitansky-Kuster-Hauser syndrome: a review. Int J Womens Health 2015; 7: 865-70.
3. Oppelt P, Renner SP, Kellermann A, Brucker S, Hauser GA, Ludwig KS, et al. Clinical aspects of Mayer-Rokitansky-KuesterHauser syndrome: recommendations for clinical diagnosis and staging. Hum Reprod 2006; 21: 792-7.
4. Brannstrom M, Johannesson L, Bokstrom H, Kvarnstrom N, Molne J, Dahm-Kahler P, et al. Livebirth after uterus transplantation. Lancet 2015; 385: 607-16.
5. Jarvholm S, Johannesson L, Clarke A, Brannstrom M. Uterus transplantation trial: Psychological evaluation of recipients and partners during the post-transplantation year. Fertil Steril 2015; 104: 1010-5.
6. Committee on Adolescent Health Care. Committee opinion: no. 728: müllerian agenesis: diagnosis, management, and treatment. Obstet Gynecol 2018; 131: 1.e35- 1.e42
7. Willemsen WN, Kluivers KB. Long-term results of vaginal construction with the use of Frank dilation and a peritoneal graft (Davydov procedure) in patients with Mayer- Rokitansky-Küster syndrome. Fertil Steril 2015; 103: 220-7.e1.
8. Bianchi S, Frontino G, Ciappina N, Restelli E, Fedele L. Creation of a neovagina in Rokitansky syndrome: comparison between two laparoscopic techniques. Fertil Steril 2011; 95: 1098-1100.e1- 3
9. Fedele L, Frontino G, Restelli E, Ciappina N, Motta F, Bianchi S. Creation of a neovagina by Davydov's laparoscopic modified technique in patients with Rokitansky syndrome. Am J Obstet Gynecol 2010; 202: 33.e1-33.e6.
10. Takahashi K et al.Laparoscopic Davydov Procedure for the Creation of a Neovagina in Patients with Mayer-Rokitansky-Küster-Hauser Syndrome: Analysis of 7 Cases. Tokai J Exp Clin Med. 2016; 41:. 81-87.