Mayer–Rokitansky–Küster–Hauser syndrome (MRKHS) is the major cause of vaginal agenesis. Vaginoplasty with oxidized cellulose has been used by gynecologists as a surgical option in vaginal agenesis; however, it is not very widespread among pediatric surgeons. A case of MRKHS who underwent vaginoplasty with oxidized cellulose is reported here.

**Keywords:** Mayer–Rokitansky–Küster–Hauser syndrome, surgery, vagina

**Introduction**

Mayer–Rokitansky–Küster–Hauser syndrome (MRKHS) is the major cause of vaginal agenesis that affects 1:5000 female live births.[1] They present 46, XX karyotype, appropriate external genitalia, and primary amenorrhea. MRKHS is subdivided into two types: Type 1, which is characterized by Müllerian agenesis with a short vaginal pouch and no other congenital complications, and Type 2, which has the same characteristics but is associated with other congenital abnormalities such as renal, skeletal, hearing, and cardiac complications.[2] Surgical reconstruction of the vagina may be performed with different surgical techniques. Vaginoplasty with oxidized cellulose has been used by gynecologists as a surgical option in vaginal agenesis, with good cosmetic and functional results.[3] This surgical technique is not very widespread among pediatric surgeons. A case of MRKHS Type 1 that underwent vaginoplasty with oxidized cellulose is reported here.

**Case Report**

A 17 year old patient (46, XX karyotype) with normal development of sexual characteristics and primary amenorrhea. She had female external genitalia and the presence of vaginal introitus without vaginal canal [Figure 1]. No other congenital malformations were found (MRKHS Type 1). Ultrasound and magnetic resonance imaging confirmed the presence of ovaries and the absence of uterus and vaginal canal. She was referred to neovaginoplasty after confirmation of MRKHS. The patient was kept in a gynecological position. After bladder catheterization, a transverse incision was made in the vaginal introitus, followed by blunt digital dissection between rectal and retrourethral space to a depth of 10–15 cm [Figure 2]. The vaginal silicone mold wrapped in oxidized cellulose (Interceed®-Absorbable Adhesion Barrier; Johnson and Johnson, Cincinnati, USA) was placed into the dissected cavity, and it was

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kept there for 5 days. After that period, the vaginal mold was used daily at night. On the 15th postoperative day, there was fibrin on the depth of the vaginal canal. At the end of the 2nd month of follow-up, the vaginal canal had a length of 8–9 cm. The patient had complaints of no bleeding or discharge. There was no pain on the examination of the vaginal canal blind end. At the end of the 1st year, the vagina was epithelialized and presented an adequate diameter and depth. In the 4th year of late follow-up, the vagina remained pervious, and the patient was wearing a vaginal mold nightly because she had not initiated sexual intercourse.

**DISCUSSION**

Some congenital or acquired anomalies in pediatric surgery may require vaginal reconstruction. Frank’s method, one of the most common nonsurgical treatments, consists of using vaginal dilators for stretching and increasing the diameter of the vaginal canal. It is the first highly successful method, but it depends on patients’ motivation. Among surgical techniques, the Vecchietti procedure is a surgically placed traction system which uses an olive-shaped bead attached to the vaginal dimple (through the assistance of laparoscopy), creating an increased tension to stretch the vagina. This technique allows a vagina with original tissue, it does not depend on the patient’s motivation, and the dilation is only used to maintain the neovagina with an adequate diameter and size. In the Davydov procedure, the peritoneum is used to create the lining for the neovagina with the assistance of laparoscopy. Lower satisfaction with lubrication and pain during penetration was reported by patients undergoing this type of surgery. The Abbe–McIndoe vaginoplasty consists of perineal incisions, and classically, skin grafts are used to create epithelialization of a surgical neovagina. The scars in the donor area are one of the main problems related to this technique. The Wharton–Sheares–George vaginoplasty procedure creates a neovagina through bilateral dilation of vestiges of the Müllerian ducts identified 1 cm laterodorsal to the dimple. After blunt dissection, the median raphe between the two created cavities is diathermy sectioned and a vaginal mold coated with estriol is left in the neovagina. The nonuse of grafts and low rates of complications are advantages of this technique, but it requires prolonged use of molds. Vaginoplasties with intestinal segments (ileal or colonic) are certainly the most widespread surgical techniques among pediatric surgeons. Although the presence of mucus allows these neovaginas to be self-lubricating, the necessity of intra-abdominal access is a major disadvantage of these procedures.

The use of oxidized cellulose in modified Abbe–McIndoe procedure has been reported with good cosmetic and functional results. The oxidized cellulose acts as a protective covering of the bloody surgical area, and it is no longer observed after the 3rd postoperative month. These properties permit vaginal epithelialization without adhesion between the prosthesis and newly dissected surface. After 6 months of follow-up, these neovaginas present histological characteristics such as a normal vagina, showing squamous epithelium, similar amounts of collagen, and the presence of androgen receptors. Vaginal dilatations may be required if sexual intercourse is suspended for a prolonged period. The best results were obtained in patients with vaginal agenesis and no functional uterus. In MRKHS, the uterus is absent in most patients, thus making vaginoplasty with oxidized cellulose an excellent surgical option. This technique has been offered when patients are not motivated by vaginal dilatations that still constitute the first treatment option. It is a less invasive technique with little morbidity, which requires a brief hospitalization and use of vaginal molds until sexual activity begins.

The vaginoplasty with oxidized cellulose may be considered as a surgical alternative in MRKHS.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.
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