

# Hysteroscopic Resection of Vaginal Septum in Didylphis Uterus With Hemio obstructed Vagina

Saeed Alborzi<sup>1</sup>; Zohreh Tavana<sup>1,\*</sup>; Madihe Amini<sup>1</sup>

<sup>1</sup>Laparoscopy Research Center, Department of Obstetrics and Gynecology, Shiraz University of Medical Sciences, Shiraz, IR Iran

\*Corresponding author: Zohreh Tavana, Laparoscopy Research Center, Qadir Hospital, Quran Avenue, Shiraz, IR Iran. Tel: +98-9173144462, E-mail: zotavana27@yahoo.com

Received: July 13, 2013; Accepted: April 12, 2014

**Background:** Uterus didelphys with imperforate hemivagina is a rare Müllerian anomaly occurring between the 12<sup>th</sup> and 16<sup>th</sup> weeks of gestation. Currently the excision of the vaginal septum is considered the treatment of choice for obstructed hemivagina, conventionally performed using scissors and scalpel. The hysteroscopic excision of vaginal septum in those with uterus didelphys has several advantages including feasibility, availability, effectiveness and preservation of virginity.

**Objectives:** We aimed to report the benefits of hysteroscopic resection of vaginal septum in patients with uterus didelphys and obstructed hemivagina.

**Patients and Methods:** This cross-sectional study was performed in Shiraz University of Medical Sciences including 11 patients with uterus didelphys and obstructed hemivagina. Hysteroscopic resection of vaginal septum was performed for all patients and the outcomes were observed.

**Results:** The mean age of the patients was 14.73 ± 2.3 (range 13-16) years. The most common symptom was cyclic dysmenorrhea. The vaginal septum was resected safely in all of the patients. The symptoms including cyclic dysmenorrhea and hematometra resolved after 3 months.

**Conclusions:** Hysteroscopic resection of the vaginal septum is an available, feasible, convenient, and effective tool in the management of uterus didelphys plus obstructed hemivagina which enables the surgeon to preserve the hymen integrity.

**Keywords:** Adolescent; Female; Humans

## 1. Background

Uterus didelphys with imperforate hemivagina is a rare Müllerian anomaly occurring between the 12<sup>th</sup> and 16<sup>th</sup> weeks of gestation. This anomaly is formed secondary to separation of the Müllerian duct accompanied by asymmetric obstruction of müllerian duct (1, 2). This defect may manifest itself as a duplication of all or part of the female reproductive system. The obstruction of one hemivagina will block the outflow, resulting in complications such as hematocolpos, infection and hematometria which may affect fertility by means of endometriosis and pelvic inflammatory disease (3). The most common clinical presentation is pelvic pain initiating shortly after the menarcheignition associated with a vaginal or pelvic mass and normal menstrual periods. It presents rarely with abnormal vaginal discharge, infertility, acute abdominal pain, vomiting, and fever (3-5). When the obstruction is removed, both the dilated uterus and corresponding tube recover their normal functions. Therefore, early diagnosis and treatment is the most important issue for preservation of fertility (1, 2).

Currently the excision of the vaginal septum is considered the treatment of choice for cases of obstructed

hemivagina, conventionally performed using scissors and scalpel (3-5). The procedure is technically difficult to perform in adolescents due to the restricted vaginal area. Frequently a high septum may be fused to the entire vaginal wall (1). In addition, the virginity could not be preserved via this method (6); thus, several studies have utilized hysteroscopy to treat uterus didelphys with obstructed hemivagina (7-12). The hysteroscopic excision of vaginal septum in uterus didelphys has several advantages, including feasibility, availability, effectiveness and preservation of virginity (6). The procedure has been previously described in single cases (7-12).

## 2. Objectives

In this study we report the procedure and outcome of 11 patients with diagnosis of uterus didelphys with obstructed hemivagina undergoing hysteroscopic resection of the vaginal septum.

## 3. Patients and Methods

This study is a case series of 11 patients with uterus didel-

### Implication for health policy makers/practice/research/medical education:

Hysteroscopic resection of the vaginal septum is an available, feasible, convenient, and effective tool in the management of uterus didelphys and obstructed hemivagina which enables the surgeon to preserve the hymen integrity.

Copyright © 2014, Minimally Invasive Surgery Research Center and Mediterranean & Middle Eastern Endoscopic Surgery Association. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

phys with obstructed hemivagina aged 13 to 16 years, who were referred to Zeynabieh hospital, a tertiary healthcare center affiliated to Shiraz University of Medical Sciences and a private hospital between August 1996 and September 2011. All the patients presented with obstructive symptoms and signs and were further diagnosed to suffer from uterus didelphys and obstructed hemivagina. The study protocol has been approved by institutional review board and ethics committee of Shiraz University of Medical Sciences and all the patients filled in written informed consent before recruitment. Ultrasonographic examination revealed two distinct uteri and a cystic mass along the lateral wall of vagina. All the patients were scheduled for hysteroscopic resection of vaginal septum after complete history taking and physical examination. All the patients underwent general anesthesia with the same protocol. Hysteroscopy was performed by one laparoscopic gynecologist without using speculum or tenaculum. For endoscopy, a 3.5-mm mini-hysteroscope Karl Storz, Germany (was used to preserve the integrity of the hymen; Normal saline was used as a medium distending factor. Because of the large bulging mass, vaginal space appeared narrowed. An endoscopic vaginal exploration showed the presence of one uterine cervix at the open vaginal side. The obstructed vaginal septum and the mini-hysteroscope tip were discriminated from the fluid-filled vagina. To confirm the bladder position and avoid bladder injury, the bladder was filled with normal saline after inserting a 16F Foley catheter. The vaginal septum was punctured approximately in the middle of the septum and hematocolpous. Sometimes a pussy discharge with old menstruation blood was drained from the punctured vaginal septum. Subsequently, without disrupting the hymen, an 8.7 mm resectoscope was inserted into the vagina, and an electrolyte-free 5:1 sorbitol/mannitol solution was used as medium dissector. Through the punctured site, we dissected the vaginal septum using a cutting electrode loop until the diameter of the opening reached about 4 cm. After vaginal septum dissection, the vaginal space had become enlarged and the other cervix was clearly visible. The operation took about 20 minutes. Intervention was simple and completely bloodless. All the patients were transferred to recovery unit postoperatively and then to gynecologic ward. Vital signs and vaginal bleeding was checked postoperatively till stability and the patients were discharged from the hospital 24 hours after the operation.

#### 4. Results

The mean age of the 11 patients with uterus didelphys and obstructed hemivagina was  $14.73 \pm 2.3$  (range 13-16) years. The most common presenting symptom was severe dysmenorrhea. All patients had a history of regular menses with cyclic pelvic pain. The most common finding in pelvic ultrasonography was hematocolpos with hematometra. Intravenous uretrography (IVU) revealed

ipsi-lateral renal agenesis. All the patients had uneventful hospital stay. In long-term follow-up (1 year) all the patients were symptom-free and without recurrence.

#### 5. Discussion

The specific association of uterus didelphys, obstructed hemivagina, and ipsilateral renal agenesis was diagnosed as early as 1922. Although the exact etiology of this specific syndrome is unknown, the consistent association of unilateral renal agenesis and obstructed hemivagina support the hypothesis that the syndrome represents an aberrancy of wolffian (mesonephric) as well as müllerian (paramesonephric) duct development (11). Obstructed hemivagina and ipsilateral renal anomaly is usually discovered at puberty, shortly after menarche, because of the cyclic, increasing lower abdominal pain secondary to hematocolpos resulting from long-standing, retained, partially clotted menstrual blood in the obstructed hemivagina (1, 2). Surgical resection of the vaginal septum remains the treatment of choice for the uterus didelphys with an obstructed hemivagina (1). The conventional method for vaginal septum resection is accomplished by utilizing retractors, scalpel, scissors, and sutures. This requires wide exposure of vagina and disruption of the hymen integrity. In addition, technical limitations including restricted surgical field and lack of appropriate view of the surgical site worsen the outcome of the operation (13). Hysteroscopic resection of vaginal septum has been shown to be an easy, safe, and effective alternative to the traditional method (7-12). This modality enables the surgeon to preserve the virginity, and provides him/her with excellent view of the surgical site. The limitation of this modality is that it requires high surgical skills and experience. In this study we reviewed the outcome of this procedure in 11 patients suffering from uterus didelphys with an obstructed hemivagina and demonstrated that hysteroscopic resection of vaginal septum in these patients is a feasible, available, effective and safe method with favorable outcomes. The virginity could easily be preserved which is an important parameter for the patients, especially in Middle East countries, which is of high social and cultural concerns and has high impact on physical, psychological and self-confidence of the patient (as virginity is a very important parameter in marriage in Middle East countries). Most of the patients avoid vaginal examination and procedures because of their tendency to preserve their virginity. It has been demonstrated that the acceptance of hysteroscopy among the virgin adolescence is about 78% (6). Thus hysteroscopy could be the best method for treatment of uterus didelphys with an obstructed hemivagina regarding preservation of virginity. To the best of our knowledge this is the first case series reporting several cases of hysteroscopic resection of vaginal septum of uterus didelphys with an obstructed hemivagina. In addition, this is the first report from Iran.

The symptoms of all the patients resolved within 3

months of operation and all of them were symptom free at 12 months. No recurrences were recorded at 12 months' follow-. We also did not record any complication including hematometra and/or hematocolpos in cases of uterus didelphys and obstructive hemivagina after resection of the vaginal septum, which indicates the simplicity and effectiveness of this method. In conclusion, hysteroscopic resection of the vaginal septum is an available, feasible, convenient, and effective tool in the management of uterus didelphys and obstructed hemivagina which enables the surgeon to preserve the hymen integrity.

### Acknowledgements

The authors would like to acknowledge all the patients and their families who participated in the study.

### Author's Contribution

Saeed Alborzi performed the hysteroscopic resections, Zohre Tavana managed the concept and design, Manuscript preparation, Malihe Amini gathered the data and prepared the manuscript.

### Funding/Support

This project was financially supported by a grant from the research council of Shiraz University of Medical Sciences.

### References

- Smith NA, Laufer MR. Obstructed hemivagina and ipsilateral renal anomaly (OHVIRA) syndrome: management and follow-up. *Fertil Steril*. 2007;**87**(4):918-22.
- Burgis J. Obstructive Mullerian anomalies: case report, diagnosis, and management. *Am J Obstet Gynecol*. 2001;**185**(2):338-44.
- Rock JA, Breech LL. *Surgery for anomalies of the Mullerian ducts*. 9th ed. Rock JA, Thompson JD editors. Philadelphia: Lippincott Williams and Wilkins; 2003.
- Mandava A, Prabhakar RR, Smitha S. OHVIRA syndrome (obstructed hemivagina and ipsilateral renal anomaly) with uterus didelphys, an unusual presentation. *J Pediatr Adolesc Gynecol*. 2012;**25**(2):e23-5.
- Zurawin RK, Dietrich JE, Heard MJ, Edwards CL. Didelphic uterus and obstructed hemivagina with renal agenesis: case report and review of the literature. *J Pediatr Adolesc Gynecol*. 2004;**17**(2):137-41.
- Kucuk T. When virginity does matter: rigid hysteroscopy for diagnostic and operative vaginoscopy—a series of 26 cases. *J Minim Invasive Gynecol*. 2007;**14**(5):651-3.
- Nassif J, Al Chami A, Abu Musa A, Nassar AH, Kurdi A, Ghulmiyyah L. Vaginoscopic resection of vaginal septum. *Surg Technol Int*. 2012;**22**:173-6.
- Cetinkaya SE, Kahraman K, Sonmezer M, Atabekoglu C. Hysteroscopic management of vaginal septum in a virginal patient with uterus didelphys and obstructed hemivagina. *Fertil Steril*. 2011;**96**(1):e16-8.
- Tsai EM, Chiang PH, Hsu SC, Su JH, Lee JN. Hysteroscopic resection of vaginal septum in an adolescent virgin with obstructed hemivagina. *Hum Reprod*. 1998;**13**(6):1500-1.
- Kim TE, Lee GH, Choi YM, Jee BC, Ku SY, Suh CS, et al. Hysteroscopic resection of the vaginal septum in uterus didelphys with obstructed hemivagina: a case report. *J Korean Med Sci*. 2007;**22**(4):766-9.
- Patterson D, Mueller C, Strubel N, Rivera R, Ginsburg HB, Nadler EP. Laparoscopic neo-os creation in an adolescent with uterus didelphys and obstructed hemivagina. *J Pediatr Surg*. 2006;**41**(10):E19-22.
- Xu D, Xue M, Cheng C, Wan Y. Hysteroscopy for the diagnosis and treatment of pathologic changes in the uterine cavity in women with an intact hymen. *J Minim Invasive Gynecol*. 2006;**13**(3):222-4.
- Rock JA, Jones HJ. The double uterus associated with an obstructed hemivagina and ipsilateral renal agenesis. *Am J Obstet Gynecol*. 1980;**138**(3):339-42.