

Transverse Vaginal Septum in a young adolescent: A case report describing a novel approach in the initial surgical management

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Abstract

Transverse vaginal septum is a rare congenital anomaly. It is one of the variants of müllerian duct anomalies which results from defective fusion or recanalization of the vaginal and müllerian organs. It can present with primary amenorrhea with cyclical abdominal pain at early age or with infertility and dyspareunia later in life.

Keywords: Transverse vaginal septum, müllerian abnormalities.

Introduction

Transverse vaginal septum is a rare congenital anomaly. It is one of the variants of müllerian duct anomalies.¹ A transverse vaginal septum results when there is failure of fusion and/or canalization of the urogenital sinus and müllerian ducts.² The incidence is approximately 1 in 30,000 to 1 in 80,000 women.¹⁻³

Transverse vaginal septa can be located at various levels in the vagina, with the lower part being the most common.²⁻³ The septum is located in the upper vagina in 6% of cases, mid-vagina in 22 %, and in 72% it is found in the lower vagina.²⁻³ Transverse vaginal septa are broadly classified into perforated and imperforated, depending on the presence or absence of communication.²

The septa are generally less than 1cm in thickness and usually have a small central or eccentric perforation or indentation.²⁻³ Women with imperforated vaginal septa usually present in the neonatal period with mucocolpos due to vaginal secretion accumulation, whereas adolescents may present with primary amenorrhoea associated with cyclical pain and mucocolpos, hematocolpos, or pyohematocolpos and hematometra.^{1,3} Women with perforated transverse vaginal septa who have normal menstrual cycles can later in life present with primary infertility, dysmenorrhoea, dyspareunia and complications at childbirth.¹

Evaluation of these women includes full pelvic examination with radiological studies, including ultrasonography and magnetic resonance imaging (MRI). Treatment is surgical which ranges from resection with end to end anastomosis to vaginal mucosa and use of vaginal dilators.³ Postoperative

management is important, including the use of vaginal dilators to avoid scar tissue formation and stenosis.³

Surgical excision of the septum itself can be challenging, especially in young adolescents. Complications due to surgery include recto-vaginal and vesico-vaginal fistula following injury to the rectum or bladder respectively.⁴

We describe in this case report the management of a transverse vaginal septum in a 13 year old patient using a novel technique to safely excise the septum.

Case report

The patient is a 13-year-old adolescent presenting with a 10-month history of lower abdominal pain. The pain was initially cyclical, but then worsened to daily lower abdominal pain. The pain was worsened with urination and walking. She had not experienced menarche and had never been sexually active.

On clinical examination she had normal secondary sexual characteristics. The abdomen was tender over the pelvic area with a large pelvic mass of about 16 weeks. The vaginal examination was limited to external genitalia examination which was normal.

The transabdominal ultrasound examination showed an enlarged uterus with hematometra and hematocolpos measuring 10 x 11 cm. A vaginal septum was suspected, and this was confirmed on MRI examination, showing a grossly distended blood-filled proximal vaginal canal, with a septum at the level of the bladder neck measuring 4 mm in thickness. The upper third of the vagina had a thickened, incomplete mucosal fold measuring 6mm in thickness and projecting 15mm into the vagina. The cervix was present and open with direct distension of the uterine cavity confirming the presence of hematometra. The uterus was noted to be otherwise normal. Bilateral fallopian tubes were tortuous and dilated indicating

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hematosalpink. The ovaries and the bladder were normal.

The patient and her mother were extensively counselled before treatment. In theatre under general anaesthesia, clinical and ultrasound examination was performed. The septum, upper vagina, bladder and rectum were clearly identifiable on ultrasound. Primary surgical excision would have been challenging and risky due to the limited space to perform safe surgery in a 13-year-old adolescent. This challenge was successfully addressed by insertion of an 11 mm laparoscopy trocar under ultrasound guidance through the septum, which was easily achieved. The hematometra and hematocolpos, consisting of viscous old blood, were suctioned through the port. Excision of the septum around the port was easily achieved, as surgery could be performed knowing exactly where to perform the excision without risking injury to the bladder or rectum.

The immediate aim of the surgery in this patient was to allow her to have normal cyclical bleeding. She might require vaginal dilatation later in her life to address possible vaginal stenosis in the area where the septum was excised.

The patient was reviewed at the first follow up three weeks post-surgery. She did not report any recurrence of abdominal pain. She did however report per vaginal bleeding for a week post the surgery which then subsided to spotting for 7 more days until it stopped. Regular follow-up is indicated and planned to ensure vaginal patency and monitoring for possible vaginal stenosis, and further management in the form of vaginal dilatation once she is sexually active.

Discussion

A transverse vaginal septum results from either incomplete canalization of the vaginal plate or failure of the paramesonephric ducts to meet the urogenital sinus.^{2,4} It is noted to be one of the common causes of haematocolpos. The incidence of vaginal septum remains rare due to the anomaly having low frequency.²

Transverse vaginal septum is classified according to septum location, thickness, and degree of perforation.⁵ The location of the septum is classified based on the distance from the vaginal introitus to the septum. A low vaginal septum is less than 3 cm from introitus, mid septum is 3-6 cm from the introitus and high septum is more than 6 cm from the introitus.⁶ The patient in this case had a lower vaginal septum, which was reported to be at the level of the bladder neck on MRI. The septum can either be thin (<1cm) or thick (≥1cm).⁵ This patient had a thin septum which measured 4 mm on the MRI examination.

These patients can present with variable symptoms, either pre-puberty or post-puberty.² Pre-pubertal presentation includes hydrocolpos which results from obstruction preventing drainage of genital secretions.² Post-puberty patients have varying presentations depending on whether there is perforation of the septum or not. Post-puberty patients can present with cyclical to chronic abdominal pain with primary amenorrhoea.^{2,5} This can be associated with hematometra, hematocolpos or hematosalpink if the septum is not perforated. The patient in this case presented with the typical post-puberty symptoms and signs with the absence of menarche and normal sexual characteristics. If the septum is incomplete, patients can present with infertility, dyspareunia or in some cases they can be asymptomatic.²

The management of a transverse septum varies and for

unperforated septa it is usually surgical. The various techniques include incision and drainage of any collection with or without excision, simple vaginal excision, vaginostomy, vaginal septoplasty, abdominoperineal vaginoplasty, and laparoscopic resection.⁵⁻⁶ A thin and low septum can be approached vaginally with low complication rates. If the septum is thick, located mid or higher in the vagina, then the surgery is better approached via abdominoperineal route to avoid injury to the adjacent organs if approached from the vagina.⁶

Our patient had examination under anaesthesia with simple resection of the septum following direct ultrasound guided insertion of a laparoscopic trocar through the septum. The trocar facilitated easy drainage of the hematocolpos and hematometra. The septum was resected followed by suturing of the corresponding portions of the upper and lower mucosal membranes of the septum.

The surgical methods mentioned in recent data vary, although there is limited data. The Grünberger method consists of a cross shaped incision in the caudal part of the septum, and a cruciate incision on the cranial part with transvers closure.^{2,4,7} There were good results in 13 patients who had the Grünberger modification method with Z-plasty in a study done by Wierrani et al.⁸ Van Bijsterveldt et al. proposed two new techniques for the treatment of vaginal septa, namely the push and pull through technique. The push technique requires combined abdominal vaginal approach mainly used for patients with risk of stenosis after the surgery.⁹ The pull technique is mainly for patients with simple vaginal obstruction.⁹ Layman et al performed a modification of this technique with the pull through of proximal distension of the vagina using a Olbert balloon catheter to facilitate the surgical management and limit vaginal stenosis postoperatively.⁹

Brander et al. conducted a review of the literature to determine the technique, timing, and utility of dilatation in patients with transverse vaginal septa.¹⁰ They included 41 articles which were reviewed with 152 cases of transverse vaginal septa. The commonest management was simple vaginal excision. Five studies had outcomes from preoperative dilatation, and 11 studies from postoperative dilatation. Twenty-one cases had postoperative vaginal stenosis with half of them occurring without postoperative dilatation. They noted from the different management options that surgical delay until the patient is ready to participate in vaginal dilatation improves the outcome for these patients.¹⁰ The finding of simple septum resection being the commonest procedure, was in keeping with the management provided to our patient in this case. We did not provide any vaginal dilatation post-operatively due to the young age of the patient who was still virgo intact. A delay in surgical intervention in this case was not possible due to the chronic pelvic pain associated with hematometrocolpos and hematosalpink. Counselling was done with the patient and her mother for follow-up to monitor for stenosis with a future plan to provide vaginal dilatation once the patient is ready to be sexually active.

Post-operative complications such as stenosis and re-obstruction commonly occur in patients with thick septa and failure of repeated vaginal dilatation.^{2,4,9} Dilatation decreased scarring at the operated site which decreases the occurrence of stenosis.^{2,5,10} Other complications include dyspareunia, recto-vaginal or vesico-vaginal fistula, fertility challenges,

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and irregular menstrual cycles.^{4,10,11} Gupte et al. reported a case of recurrent stricture formation due to failure to perform dilatation repeatedly.¹² Long term follow up is vital for these patients to monitor complications with assistance where possible.

Conclusion

Transverse vaginal septa are rare female genital tract anomalies. The presentation varies according to the age of presentation and the characteristics of the septum mainly location, size and whether it is perforated or not. The management is mainly surgical with various techniques noted, with simple resection being the commonest. Ultrasound guided insertion of a laparoscopy trocar can safely be done and can assist in safe resection of low vaginal septa, especially in young adolescents.

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