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Case report

Transverse vaginal septum managed by simple flap surgery technique: A case report☆

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ABSTRACT

Background: Transverse Vaginal Septum (TVS) is a rare congenital abnormality, classified as the Mullerian duct anomaly development.[1,2] TVS incidence range from 1:2.000 to 1:72.000. Management of TVS may only requirement local excision with a simple end to end anastomosis of the vagina, and use of skin grafts, but this technique has been reported has common complications of secondary tissue contracture, which often lead to stenosis of the vagina.[3] In this case we managed TVS with simple flap technique to avoid such postoperative complications and maintain caliber of vagina.

Case: A 11 years old girl complained cyclical abdominal pain since a year ago without history of menstrual blood. Patient already had vaginal surgery for removing menstrual blood, but after vaginal surgery the menstrual blood cannot be removed, then referred to our hospital. Ultrasound examination revealed hematometra and hemocolpos. The septum location was 3,38 cm proximal distance from vaginal introitus with the thickness of 8.1 mm. We performed simple excision of the septum with formerly performed distal vaginal septum mucosa preparation creating lateral flaps, then approximating the flaps to the edge of the proximal vaginal mucosa with interrupted suture continued with hymenorraphy. The patient has no complaint 6 months after surgery with vaginal length 8 cm, and had regular menstrual cycle.

Conclusion: A simple flap surgery technique can be done in transverse vaginal septum, with no complication such as tissue contracture, vaginal stenosis, or insightly scarring. This is a simple technique and can be done with hymenorraphy to restore normal anatomy of hymen.

1. Introduction and importance

Transverse Vaginal Septum (TVS) is a rare congenital abnormality, it classified as the Mullerian duct anomaly development, where vaginal palate and the caudal end of Mullerian duct fail to fused [1,2]. TVS incidence ranges from 1:2.100 to 1:72.000. The European Society of Human Reproduction and Embryology/European Society for Gynaecological Endoscopy consensus in 2013 has classified TVS as the V3 subgroup among the Mullerian duct anomalies [2]. Septal can be classified by location, thickness, and presence or absence of a perforation. Thickness of the transverse vaginal septum is the important thing before deciding which surgical techniques are the best to proceed, low thin septal or thin perforated septum are less complex, and obstructed, mid, high, and thick septum are more complex. In study conducted by Williams, et al., demonstrated good outcomes for all low and perforated transverse septum, except for high thick septum were poorer, with a high chance of repeat surgery as well as major complications such as rectovaginal fistulae and ended with hysterectomy [3]. Management of transverse vaginal septum may only requirement local excision with a simple end to end anastomosis of the vaginal mucosa, and the use of skin grafts has been reported has common complications of secondary tissue contracture, which often lead to stenosis of the vagina. There are some surgical modalities that have been developed with the intentions of treating congenital transverse vaginal septum.

In this report, we present a case of a young girl with transverse vaginal septal, managed by simple flap surgery technique with purpose to avoid postoperative complications.

This case report has been reported in line with the SCARE 2020 criteria [4].

☆ No patient or author details are included in the figures.

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2. Case presentation

An 11 years girl complained cyclical abdominal pain since one year before admission and getting heavier with time. Since last month, the pain was getting worse and was continuously accompanied by a lump in the lower abdominal. On August 21st 2020, patient went to gynecologist and had ultrasound examination then prepared for vaginal surgery to removed trapped menstrual blood. After the procedure menstrual blood could not be removed because there was no connected between vagina and uterus and then the patient was referred to Urogynecology Outpatient Unit in Doctor Cipto Mangunkusumo National Central General Hospital. There was no family history of the same disease. Patient is elementary school student. She has no history of drug consumption.

3. Clinical finding

In abdominal physical examination palpated a cystic mass until 1 finger below umbilicus, mobile, and regular surface. In vaginal exploration, vaginal length was only 3,5 cm (from hymen) measured by tubal sound (Fig. 1). Then rectal examination palpated mass sized 15 × 16 cm bulging from anterior suspected hematocolpos. The mass palpated until abdominal area up to 1 finger below umbilicus suspected hematometra. Cervix was difficult to be assessed, both adnexa and parametrium were normal. Rectal touch combined with vaginal sound was performed, palpable thick structure between solid sound inside distal vagina and cystic mass from proximal vagina, around 1 cm length suspected vaginal septum.

4. Diagnostic assessment

4.1. Abdominal ultrasound

Uterus was filled with hypoechoic fluid sized 4,7 × 3,1 cm in accordance with hematometra. Cervix was dilated, connected with filled with hypoechoic fluid size 15 × 7,6 cm in accordance with hematocolpos (Fig. 2A). Both ovaries were normal.

Fig. 1. Physical examination.

4.2. Transperineal ultrasound

Hematocolpos was seen with 8,1 mm thick septum, distance from vaginal septum to vaginal introitus was 3,38 cm (Fig. 2B).

4.3. Transrectal ultrasound

Hematocolpos with 7,6 mm thick septum, and 3,38 cm distance from vaginal introitus (Fig. 2C).

5. Therapeutic intervention (Fig. 3)

Surgery was performed under spinal anesthesia. Experienced urogynecologyst performed the procedure. Inferior speculum was inserted, and septal was identified 3 cm proximal from hymenal ring. We performed hydrodissection at distal vaginal septum mucosa. Midline incision was performed at distal vaginal septum mucosa, then continued with dissection and release distal vaginal septum mucosa from the septum structure creating lateral flaps. We performed puncture at midline of septum with syringe needle and aspirate until chocolate thick fluid came out to ascertain our tract was penetrate into the proximal vagina behind the septum which filled with hematocolpos. The tract was widened with clamp then a thick chocolate fluid came out. We excise the septum structure approximately 2 × 2 cm. Then identifying vaginal length with vaginal touch, portio was palpated with vaginal length 10 cm, and 6 cm uterus sound measurement. The edge of the proximal vaginal mucosa was approximated to distal lateral flaps of vaginal mucosa with PGA (Polygycolic Acid) 2.0 interrupted suture encircling vaginal caliber. Procedure was ended with hymenorraphy using PGA 3.0.

6. Follow up and outcome

Histopathology result revealed fibrotic connective tissue with smooth muscles in accordance with vaginal septum (Fig. 4). Post-surgery period was uneventful, and patient was discharged in satisfactory condition. Patient experience normal menstrual cycle and controlled regularly every month to Urogynecology Outpatient Unit in good condition. The physical view of vulval condition at 2nd month after surgery could be seen in Fig. 5.

7. Clinical discussion

Transverse vaginal septum is a rare congenital disease that is mainly undiagnosed until the age of menarche when the period has not come yet [1]. Thickness of transverse vaginal septum is important as it influenced surgical management, including short- and long-term outcomes. MRI is the gold standard for diagnosing abnormal anatomy in the vagina, including the depth and the length between one organ to another in the female reproductive organ [5]. But due to consideration of the high cost of its examination, ultrasound imaging also could be used and give informative images for our diagnostic purpose.

There are several surgical options, like vaginal approach, combined abdominoperineal approach and also laparoscopic resection from abdominal approach [3,6–8]. There are few guidelines in the medical literature regarding the classification of transverse vaginal septum or various surgical procedures in TVS. The guideline about surgical management is still debatable. The thickness of TVS is essential and influencing the management. These techniques sometimes make significant drawbacks and developing high rate of ring scarring, resulting in vaginal shortening and dyspareunia [9]. The high complication rate following resection of the thick transverse septum needs the best alternative surgical technique to resolve these obstacles.

The low thin and perforated septum is less complex, and can be resected vaginally with a low complication rate. It is important that the entire septum is resected to prevent re-stenosis and scarring. Thick

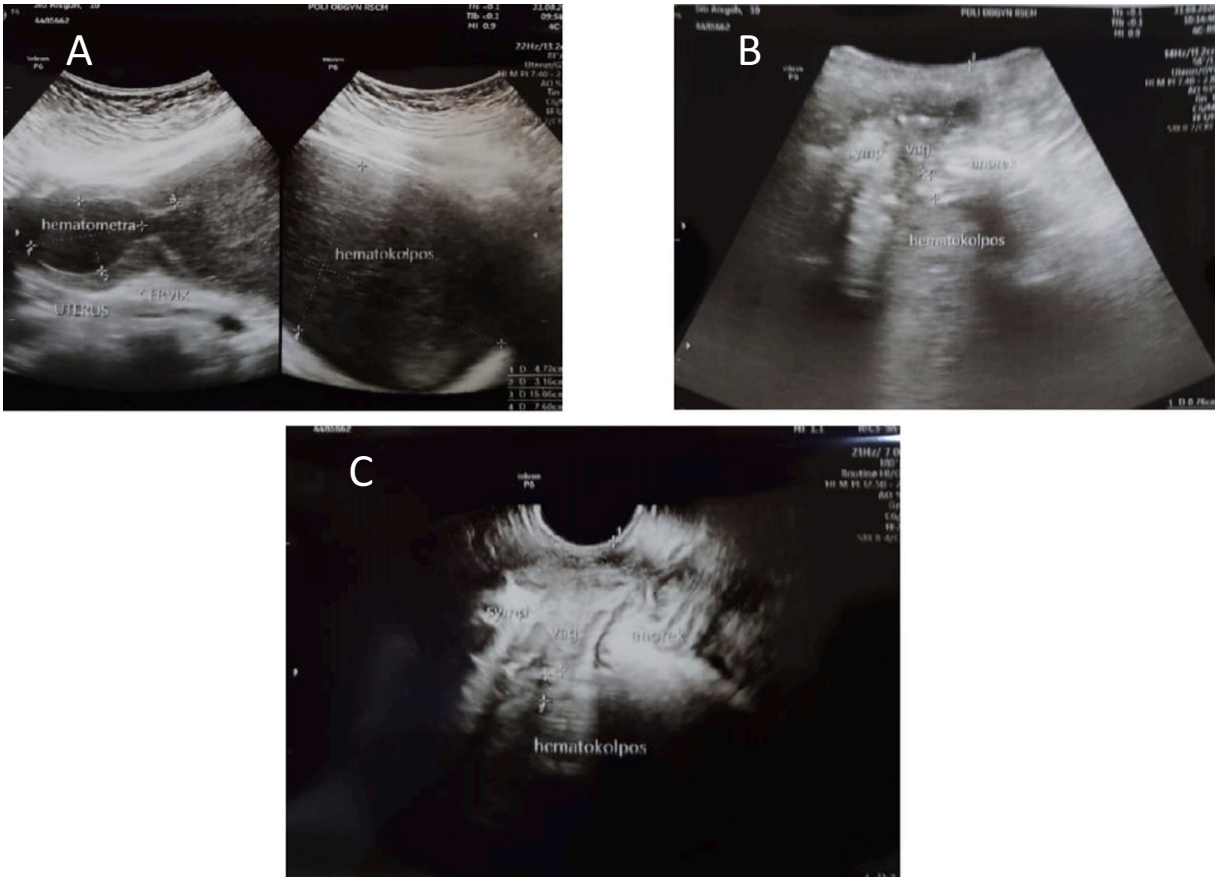

Fig. 2. (A) Abdominal ultrasound, (B) Transperineal ultrasound, (C) Transrectal ultrasound.

septum may be difficult to be removed and may leave a wide raw-surface in the vagina between the proximal and distal edge of vagina. If the gap between the two parts of the vagina is too wide for anastomosis, especially in thick septum, the surgical technique should consist of grafts or flaps technique [2,8–10]. Flap procedure is defined as transferring skin and blood supply without depending on the donor tissue to perfuse that contained by skin, fascia, amnion, muscle, and bone. Flaps are very versatile and can be used in many situations. Flap procedure is an operative method that provides neovascularization of the remaining pelvic tissue, which is particularly necessary for successful wound healing and faster healing for the patient. Loss of the vaginal introitus requires careful planning to provide a flap design with adequate length and width to prevent stenosis of the vaginal entrance in the future. On the other side, a flap's survival depends on delivering oxygenated blood to the flap's leading edges; the portion of the flap sutured under the significant tension happens because the stress from the closure produces a pressure force on the artery and vein.

In our centre we use a section of amnion graft to bridge the vaginal gap and leave the mold covered by it for 7–10 days before continue with vaginal dilatation by regularly molding or kept vaginal catheter for 3 months to avoid stenosis. If the patient does not have frequent coitus postoperatively, she must use this vaginal mold frequently or having risk closure of the vaginal graft. The patient is instructed to reinsert the mold during extended times of sexual inactivity to prevent contracture of the vagina. This step actually could make difficulties in poor compliance young patient. The use of prolonging mold can create psychological trauma, especially for the girl and adolescence who have never had sexual intercourse. The vaginal molds are mainly used to prevent re-stenosis of a created neovagina, but it may be correlated with problems including potential rectal injury, poor drainage, graft maceration, sloughing, and graft detachment leading to an inadequate reconstruction. The probability of stenosis raises if the mold is removed early or regular sexual activity does not occur. Rather than using that procedure, simple flap surgery advises the advantages of preventing adhesiolysis when using the molding.

In this case, we noticed that thick septum is more complex and effort has to be made to prevent the risk of trauma during surgery. Due to less compliance and avoid psychological trauma for this young patient, we decided to create simple flap from distal septum mucosa, excision of the septum then sutured the flap to the edge of the proximal vaginal mucosa behind the septum with interrupted suture continued with hymenorraphy. With this technique we created the flap to covered raw-surface in the vagina between the proximal and distal edge of vagina, than it can avoid the use of prolonging mold for this young patient. Two month after surgery, the vaginal mucosa was smooth with vaginal length 8 cm and the patient had regularly menstrual cycle after 6 month later.

8. Conclusion

A simple flap vaginal technique can be done in transverse vaginal septum management, without any complication such as tissue contracture, vaginal stenosis or scarring. This report gave an option in a simple and effective method that allows the gynecologist to treat this case to reach a good result and still needed to follow up in the future.

Provenance and peer review

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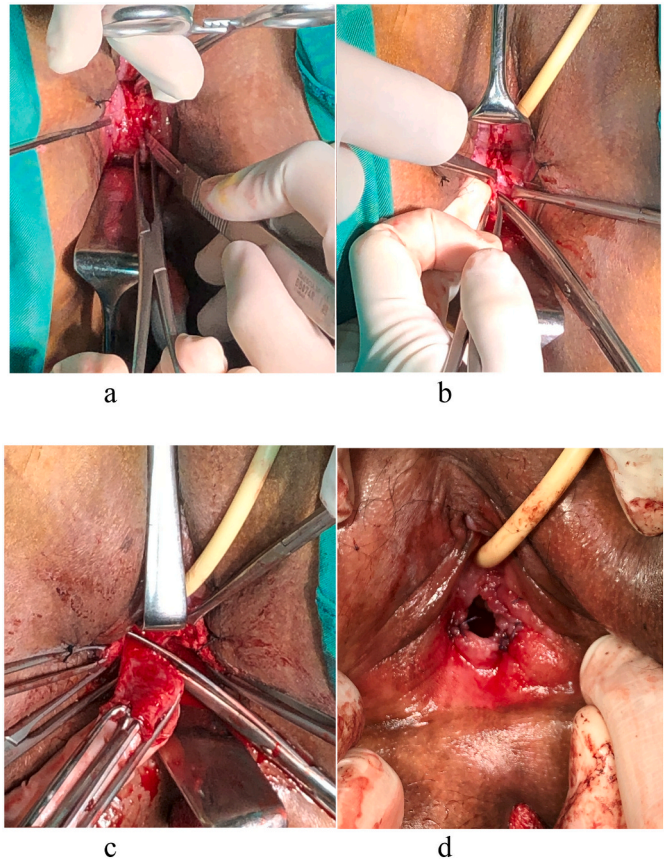

Fig. 3. (3a) Midline incision at vaginal septum mucosa. (3b) Dissection of distal vaginal septum mucosa from septum structure creating lateral flaps. (3c) Excision of septum structure. (3d) Hymenorraphy.

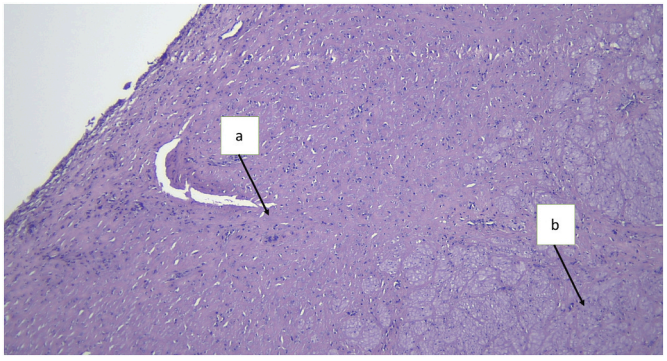

Fig. 4. Microscopic view: Arrow (a) Fibrotic tissue; (b) Smooth muscle.

Ethical approval

Not requires.

Informed consent

"Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-chief of this journal on request".

Fig. 5. Physical view two month after procedure.

Author contribution

Fernandi Moegni MD: concept, operator, data analysis, revising, final approval.

Suhair Quzwain MD: data collection, data analysis, drafting, writing the paper.

Primariadewi Rustamadji MD: histopathology analysis.

Guarantor

Fernandi Moegni MD.
Suhair Quzwain MD.
Primariadewi Rustamadji MD.

Declaration of competing interest

None declared.

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