



PARTIAL LONGITUDINAL VAGINAL SEPTUM WITH A PELVIC MASS IN LABOUR: A CASE REPORT AND A SHORT REVIEW OF LITERATURE

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ABSTRACT

Introduction Mullerian anomalies arise because of aberrant embryogenesis and a longitudinal vaginal septum (LVS) is a failure of resorption of the distal Mullerian canal. **Material and methods** A 26-year-old pregnant lady with full-term gestation presented to our rural hospital in labour. Her physical examination was normal except for a partial longitudinal vaginal septum that she had in the proximal vagina distinct from the cervix extending from the 12 O clock position of the anterior vaginal wall to 6 O clock of the posterior vaginal wall along with a bulge felt in the posterior fornix. An emergency lower segment caesarean section was performed for possible fetal distress and a right ovarian mass was encountered which was removed along with the resection of the partial longitudinal vaginal septum. Her postoperative period was uneventful and the histopathology report of the ovarian mass turned out as a mature cystic teratoma. **Conclusion** A partial longitudinal vaginal septum can be easily resected during labour if it hasn't been diagnosed before. This is one of the first cases reported where a partial LVS along with an ovarian mass was reported and managed successfully by resection.

KEYWORDS :

INTRODUCTION:

Congenital anomalies of the vagina, cervix, and uterus (Müllerian anomalies) arise from abnormal embryogenesis. The longitudinal vaginal septum (LVS) is formed due to a lack of resorption of the lower part of the Müllerian canals during embryogenesis. It is defined as complete or partial depending on whether it extends from the cervix to the introitus throughout the length of the vagina or does not reach the introitus respectively. It can further be a high partial LVS that goes from the cervix and does not reach the introitus or a medium partial LVS which is somewhere in the middle part of the vagina and a low partial that arises from the hymen and does not reach the cervix (1). A new proposed classification by Ludwin et al (2) described LVS as symmetric or asymmetric depending on its attachments to the vaginal wall midline or more toward one particular side; furthermore, the septum can be merged to the cervix or associated with a stenosed or a persistent hymen.

Most of the women with LVS do not experience any symptoms, though some women may complain of pain during sexual intercourse, not being able to insert a tampon easily, bleeding despite tampon use and rarely a prolonged second stage of labour because of an obstructing LVS.

However, an Isolated vaginal septum is not frequently seen, it may coexist with a uterine, renal or anorectal anomaly (3). Ultrasound of the kidneys and the pelvis can rule out major Mullerian anomalies whereas 3D ultrasound can help to delineate finer details. However, an MRI remains a gold standard for the diagnosis of Mullerian anomalies (4).

We present a primigravida with a partial longitudinal vaginal septum with a pelvic mass diagnosed during labour, she underwent an LSCS with transection of the LVS along with salpingo-oophorectomy for an incidental ovarian mass that turned out to be a dermoid cyst.

MATERIAL AND METHODS:

XYZ, a 26-year-old primigravida was admitted at a rural hospital in Uttarakhand state at full-term gestation with labour pains for the past five hours. Her previous medical and surgical history was unremarkable and her pregnancy had been smooth, though she hadn't had many visits to the hospital. She wasn't able to get a pregnancy ultrasound because she belonged to far away village and had difficulty commuting to the hospital because of the lack of a motorised road. On physical examination patient was found to be in good general condition, afebrile, well-hydrated, conscious and oriented to time, place and person; with no pallor/ icterus/ lymphadenopathy/ edema. Her blood pressure was 124/74 mmHg, her pulse was 80 beats per minute, normal respiratory rate was. Her abdominal examination showed her fundal height corresponding to her full-term gestation, longitudinal lie and cephalic in presentation with a regular fetal heart rate of 146 beats per minute, with regular uterine contractions of thirty seconds lasting for at least ten seconds within ten minutes. A per speculum examination showed an elastic band-like structure about 2 to 3 cm in diameter and approximately 6-7 cm in length extending from the 12 O clock position of the anterior vaginal wall to 6 O clock of the posterior vaginal wall in the proximal vagina distinct from the cervix (figure 1).

A vaginal examination confirmed the band-like structures and showed her cervix as 4-5cm dilated with presenting part as vertex and membranes intact. However, a bulge was felt on the posterior fornix as a mass in the pouch of Douglas, cystic in consistency. The patient had no ultrasound done in the past and the possibility of getting one currently was difficult as the ultrasound room was quite far away from the labour room and the patient was in active labour. An hour later, a spontaneous rupture of membranes occurred with the cervix as 6-7cm dilated and amniotic fluid was found to be meconium stained, subsequently NST showed pathological fetal bradycardia

with a fetal heart rate dropping to 90-100 beats per minute. The patient was counselled about possible fetal distress and she consented to an immediate lower-segment caesarean section. An emergency lower segment caesarian section was performed and a female baby of 2200 grams was delivered with Apgar scores of 7 and 8 at the first minute and after 5 minutes respectively. After closing the uterine incision in two layers, a right-sided ovarian mass of 11 x 6 x 6 cm was encountered which was lying in the pouch of Douglas, it had a cystic to semi-solid consistency, a smooth surface with an intact capsule. During the surgery, the patient and her relatives were informed about the ovarian mass and an option for salpingo-oophorectomy or re-operation later was given; as we did not have any pre-operative ultrasound to tell us about the nature of the mass. Because the patient belonged to a far-flung village, they consented to a right salpingo-oophorectomy, which was performed in the same sitting with both the right ovarian mass and tube sent for histopathology. The contralateral ovary and fallopian tube were normal and the abdomen was closed after confirming homeostasis. Thereafter, the patient was laid in a lithotomy position for the resection of the partial longitudinal vaginal septum. Artery clamps were applied on either side of the midline of the septum and the septum was cut in the middle, both the cut edges were transfixed with vicryl no 1 sutures. Hemostasis was checked and betadine vaginal douching was done and the patient was shifted to the recovery room.

Her postoperative period was uneventful and she was discharged on postoperative day five and followed up on day 10 with healing stumps on the anterior and posterior vaginal walls (figure 2). An abdominal ultrasound in the follow-up period did not show any renal anomalies; however, her histopathology report showed the ovarian mass as a mature cystic teratoma. Follow-up after three months didn't show any new onset dyspareunia or any other complaint.

DISCUSSION:

The female reproductive tract is principally derived from the Müllerian ducts which fuse in the midline during the 8 weeks and a temporary septum separates the two which later disappears in the 9 weeks; however, the extent of disappearance or the retention of this septum lays the foundation to the congenital uterovaginal malformations seen later (5), with an incidence of about 7-8% in the general population (6). The origin of the vagina has been considered from the Müllerian ducts, Wolffian ducts and the urogenital sinus in combination or just individually (6). It was found that canalization defects in about 3% of women with infertility to about 13% of women with miscarriage have uterine defects (7).

Symptomatology of LVS:

Most of the time LVS do not present with any symptoms, Paniel et al (8) in their study of 110 cases described a chance discovery of LVS in 60% of patients and symptomatic in 40% of cases. Haddad et al (1) in their 202 case series reported as 56% of women had no symptoms similar to our case, while in most of the cases, women present with dyspareunia, dysmenorrhea, difficulty inserting a tampon or recurrent vaginal infections (9). A partial LVS located in the proximal vagina can be attributed to the absence of any symptoms in our case. However, in a study of 22 women with associated LVS by Grynberg et al (10) over 13 patients had a symptomatic LVS. In one of the earliest case series of 83 patients by Heinonen et al (11), LVS caused labour dystocia in 16, ruptured septum in 3 and a prolapse of the septum in 2 patients.

Associations of LVS:

Haddad et al (1) found an association of uterine anomalies in about 99% of patients with a complete or partial high septum and in the case of partial medium or low LVS it was 30.3%. LVS was commonly associated with a complete septate or

didelphys and sometimes a partial septate uterus (1). A duplication of the renal collecting system along with a duplication of the uterus, cervix and LVS has been reported by Sharara et al (12). Innis et al (13) described LVS as part of hand-foot-genital syndrome which is an autosomal dominant disorder. Therefore a diagnosis of an LVS should trigger a look for other uterovaginal anomalies particularly if it is an apical septum (1). An isolated LVS by itself is not associated with any obstetrical problems unless it is associated with uterine anomalies; Haddad et al (1) had 12.8% of women with LVS with infertility and about 4.4% had a miscarriage in a case series of 202 patients.

Methods of diagnosis:

Diagnosis of an isolated LVS can sometimes be difficult (14) if a patient has had no complaints in the past and it was incidentally diagnosed in labour like in our case. The diagnosis was solely made by a physical examination in labour as the patient had never had any prenatal examination or ultrasound. Diagnosis can be easily made by a physical examination if the septum is low down in the vagina and visible, as similarly reported by Neto et al (15). However, 2-D ultrasonography, 3-D ultrasonography and magnetic resonance imaging (MRI) form the principal tools for diagnosing longitudinal vaginal septum and finding out any associated uterine, renal or anorectal anomalies.

Method of treatment:

Traditional method

The majority of the longitudinal vaginal septum has been previously excised using the traditional method of application of clamps close to the midline and cutting in the midline with the help of scissors or a scalpel. Both the remaining ends of the septum were suture ligated and checked for hemostasis. Some advocate complete resection of the septum to avoid excessive tissue at the base of the septum however, resorption of tissue would lead to a formation of a defect in the vaginal wall which would eventually decrease vaginal calibre on approximation Skinner et al (3). Complete resection was not done in our case as the need was not felt, rather the septum was cut in the midline after applying a clamp on either side and the cut edges were suture ligated by delayed absorbable sutures (2-0 vicryl). This traditional method is effective but care has to be taken to avoid any injury to the bladder or bowel (16); Haddad et al (1) reported 1 case of bladder injury leading to ureteral complications in their case series of 202 patients. It was proposed that the LVS is mainly composed of fibrous tissue and if the incision is kept in the midline there is less chance of bleeding (17).

Newer methods

Newer methods have been proposed for the resection of the longitudinal vaginal septum. A study by Montevocchi et al (18) was one of the earliest studies to use a resectoscope during a hysteroscopic resection of LVS; here magnification allowed for better visualization of the septum, along with the pressure created by the fluid distending the vaginal cavity thinned out the septal tissue and created a bloodless plane during cauterization of the septum and without any need for any suturing of the cut ends. Grynberg et al (10) used electrosurgery to cut the LVS in 22 women with an associated complete uterine septum and both cut edges of the vagina were sutured by 2-0 polyglactin in a continuous locking manner. Mazzon et al (17) performed a hysteroscopic resection of the LVS which was similar to the uterine septum resection technique in 30 women. Chu et al (16) used a GIA and Endo GIA stapler for the resection of an LVS on a 14-year-old girl with uterus didelphys; here cutting and homeostasis occurred simultaneously without any thermal spread to the nearby tissue and epithelialization occurred over the staples in the process of healing. Sardo et al (9) incised a high partial LVS using a Bipolar electrode during an office hysteroscopy in

a virgin girl, thus performing it successfully without the need for any anaesthesia; here a 4mm office hysteroscope was used rendering the diagnosis and treatment in a single sitting. Chatzipapa et al (19) used laparoscopic 33cm long bipolar cutting forceps to resect LVS in 2 young girls who also had uterine didelphys. A ligasure device was used by MILICUA et al (20) on a 16year-old girl with a non-obstructive longitudinal vaginal septum, uterine didelphys and a complex cloacal anomaly; here the girl had an LVS about 2 cm above the introitus and after resecting the septum, bilateral vaginal wall edges were sutured with vicryl in an interrupted manner and postoperatively a vaginal mould was used by the patient because she had associated vaginal stenosis. A ligasure small jaw instrument was used to gain entry in the narrow vaginal space and it serves as an advantage to the traditional methods in this regard along with a thermal spread of 1-4mm tissue depth, which prevents damage to the nearby bladder and bowel.

Intrapartum management of a partial LVS

Intrapartum partial LVS transection and ligation were done before the presenting part of the baby distended the band-like septum and then resection was completed after the baby was delivered (14). LVS was diagnosed in our patient during labour and a cesarean section was performed for an obstetric indication along with its resection. The reason for resection of the LVS in our case even if the patient did not have any complaints in the past were anticipated problems in a future pregnancy. A cesarean section is not indicated for an isolated LVS; however, a thick LVS may cause vaginal dystocia or a vaginal laceration and warrants a resection during labour (1). A search in Pubmed with "vaginal septum" AND "ovarian mass", and "ovarian cyst" yielded one article by Lin et al (21) which reported a dermoid ovarian cyst with LVS along with a squamous cell carcinoma of urachus in a 62-year-old lady. So we believe that this is an uncommon case of LVS with an ovarian mass, even though it was found intraoperatively and a salpingo-oophorectomy was also performed in the same sitting because the patient couldn't follow up and consented to get it removed. Rural hills in North India face one of the most under-resourced health systems in the country; many pregnant women come to for the first time to the hospital during labour without being able to have any investigations throughout their entire pregnancy.

This grim situation is accounted to the practical problems of commuting to the hospital such as lack of fully motorized roads, poverty and lack of awareness about essential obstetric care. An effort to provide her with a wholesome treatment was done in this case and the histopathology luckily revealed a benign aetiology to her ovarian mass. Mature cystic teratomas of the ovary are benign tumours, generally asymptomatic and arise from the germ cells (22). Many times they are incidentally diagnosed during an ultrasound which unfortunately wasn't done in our case and hence it was found during a cesarean section.

Timeline of the evolution of the treatment of LVS

	Author, Year	Mode of resection of LGV
1.	Heinone et al (11), 1982	Excision/ incision
2.	Paniel et al (8), 1985	Division or removal of the septum
3.	Haddad et al (1), 1997	Section of the septum
4.	Montevecchi et al (18), 2004	Resectoscope
5.	Sardo et al (9), 2007	Bipolar electrode during an office hysteroscopy
6.	Nitsure et al (21), 2009	Transection and ligation by traditional method during labour
7.	Grynberg et al (10), 2012	Incised by electrosurgery

8.	Nito et al (21), 2014	Transection and ligation by traditional method during labour
9.	Milicua et al (20), 2015	Ligasure device (electrothermal bipolar vessel sealing) to transect the septum
10.	Chatzipapas Et al (19), 2016	Laparoscopic 33-cm long bipolar cutting forceps to cut the septum
11.	Mazzon et al (17), 2019	A hysteroscopic technique using vaginal septum as uterine septum (VaSUS)
12.	Chu et al (16), 2020	Transected using a GIA8 an endo GIA stapler device.
13.	Ludwin A et al (2), 2020	Resectoscope was used during vaginoscopy in patients with an intact hymen or vaginal stenosis
14.	Haverland et al (23), 2020	Electrocautery
15.	Barick et al (14), 2021	Transection and ligation by traditional method during labour

CONCLUSION:

An Isolated LVS is a rare entity that can be for the first time be diagnosed during labour if it has been asymptomatic in the past. Women with a partial LVS can successfully undergo vaginal deliveries and an intrapartum resection can be safely performed. Various approaches have been described for the resection of LVS, ranging from the traditional method to electrosurgical procedures with good results. Ours is one of the first reported cases where a partial LVS was resected during a cesarean section along with an ovarian mass with successful results.

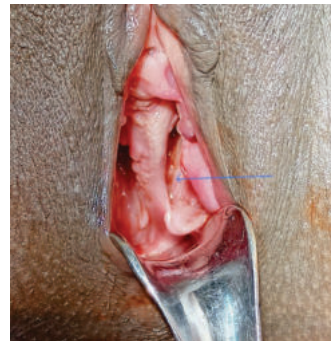


Figure 1. (Pre-operative view of the partial longitudinal vaginal septum pointed by the blue arrow)



Figure 2. (Post-operative day 10, the healing posterior stump is shown by the blue arrow)

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