

Laparoscopic management of high transverse vaginal septae: a case report

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Abstract Transverse vaginal septae are a rare cause of haematocolpos secondary to obstructed menstruation. Low transverse vaginal septae are usually resected vaginally, however, medium/high septae are often more complex requiring a laparotomy. Two adolescent girls presented with obstructed menstruation due to high transverse vaginal septae. We describe the laparoscopic technique for the management of high transverse vaginal septae as an alternative to the traditional approach of abdomino-perineal resection via laparotomy. A laparoscopic approach enabled resection of the transverse septae in both cases with the restoration of normal menstruation. Laparoscopic resection of high transverse vaginal septae is a feasible alternative to laparotomy.

Keywords Transverse vaginal septum · Vaginal agenesis · Vaginal aplasia · Müllerian anomalies · Laparoscopic surgery

Introduction

Transverse vaginal septae are a rare cause of haematocolpos secondary to obstructed menstruation. They result from a failure of canalization of the vaginal plate, where the urogenital sinus meets the müllerian duct. Treatment necessitates surgical resection of the septum and anastomosis of the proximal and distal vagina [1, 2]. The location and depth of transverse vaginal septae can be variable but they are traditionally classified as low (within 3 cm of the vaginal introitus) or mid/high septae (more than 3 cm from the introitus). Low vaginal septae can usually be safely resected with a vaginal approach. However mid- and high vaginal septae cannot be

blindly resected by a vaginal approach without a risk of trauma to surrounding structures. Treatment is traditionally via an abdomino-perineal approach requiring laparotomy. We present a novel approach to management of high transverse septae using a laparoscopic approach.

Case 1

An 11-year-old girl presented with primary amenorrhoea and abdominal pain secondary to obstructed menstruation. She had undergone an unsuccessful surgical exploration of the perineum for a presumed imperforate hymen at another unit prior to referral. Magnetic resonance imaging (MRI) confirmed a haematocolpos measuring 16×8×7.2 cm with a 1-cm-thick transverse vaginal septum terminating 3.6 cm above the level of the perineum.

Case 2

A 14-year-old girl presented with primary amenorrhoea and pelvic pain consistent with obstructed menstruation. She had undergone a vaginal drainage of haematocolpos under perineal ultrasound and laparoscopic guidance at another unit prior to referral. She developed further menstrual obstruction following this procedure and was referred for definitive surgery. Vaginal examination revealed a 5-cm blind ending vagina. Pelvic MRI confirmed a large haematocolpos, a right-sided haematosalpinx and a high 2-cm-thick transverse vaginal septum sited just below the external cervical os.

Surgery

Both girls were admitted for laparoscopic resection of transverse vaginal septum. A single dose of intravenous antibiotic

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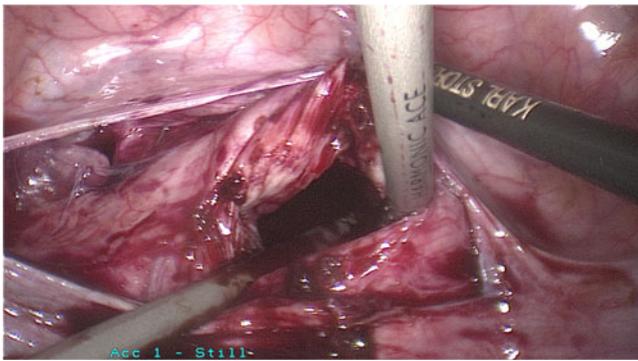


Fig. 1 Opening the proximal vagina

(co-amoxiclav) was given at induction of anaesthesia. The patient was cleaned and draped in lithotomy in a supine position with the hips at a 30° angle. A size 12 Foley catheter (Bard, Covington, GA) was inserted with 10 ml water in the balloon. A Verres needle (Ethicon, Cincinnati, OH) was inserted to create a pneumoperitoneum. In both cases, Palmer's point entry in the left upper quadrant was performed, due to the abdominal mass extending up to the umbilicus. Following a normal saline test confirming the correct position of the needle in the abdominal cavity, gas was insufflated to a pressure of 20 mmHg. A size 5 port was then inserted in the left upper quadrant and the laparoscope used to examine the abdominal contents. An 11-mm port was then placed in the umbilical region under direct vision to allow a larger scope for the operative procedure. The patient was then placed in a head-down tilt and all secondary ports placed under direct vision. Both cases had an umbilical 11-mm port for the laparoscope and three operative ports: two 5-mm lateral ports and a 5-mm suprapubic port. The Palmer's point 5-mm port was the left-sided operative port. The intra-operative pressure was then maintained at 15 mm Hg.

The utero-vesical peritoneum was opened and the bladder reflected down. The anterior aspect of the distended obstructed proximal vagina was then identified and opened transversely using the harmonic scalpel (Ethicon) (Fig. 1). The haematocolpos was drained to reveal a good capacity

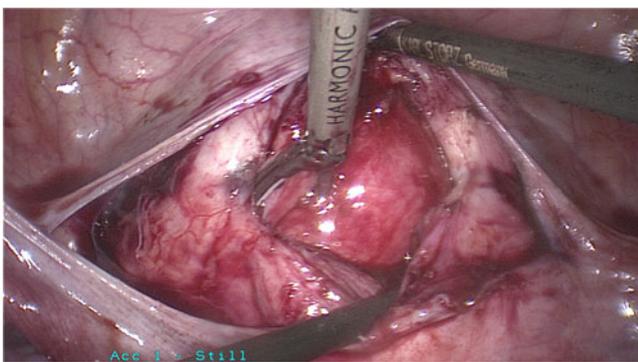


Fig. 2 Opening the septum

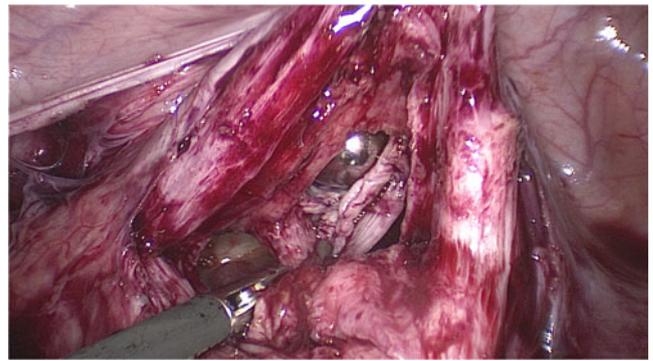


Fig. 3 Resection of septum with Hegar dilator inserted from below

distended proximal vagina. Two stay sutures were placed through the anterior vaginal wall just distal to the suture line and back through the suprapubic port to allow good access into the proximal vagina.

The transverse vaginal septum was then incised using the harmonic scalpel (Fig. 2). The incision was enlarged from below until a size 10 Hegar dilator could be passed through from the distal vagina (Fig. 3). The entire vaginal septum was then excised laparoscopically using the harmonic scalpel. A McCartney tube (Lina Medical, Glostrup, Denmark) was placed in the proximal vagina to maintain the pneumoperitoneum (Fig. 4).

In case 1, the anastomosis was in the mid-vagina and so the proximal and distal vaginas were anastomosed using interrupted 2–0 polydioxanone suture (Ethicon) from the vaginal approach. In Case 2, the anastomosis was higher in the vagina and the two edges were opposed laparoscopically. The anterior vaginal defect was closed with 2–0V-Loc (Covidien, Mansfield, MA).

The gas and ports were removed under direct vision. The rectus sheath of the 11 mm port was closed using 1/0 vicryl (Ethicon) and the skin sutured with 3–0 monocryl (Ethicon). A vaginal pack was inserted, and the Foley catheter left in situ.

Estimated blood loss was minimal for both cases and there were no intra-operative complications. Both catheters and vaginal packs were removed on the first post-operative day and the

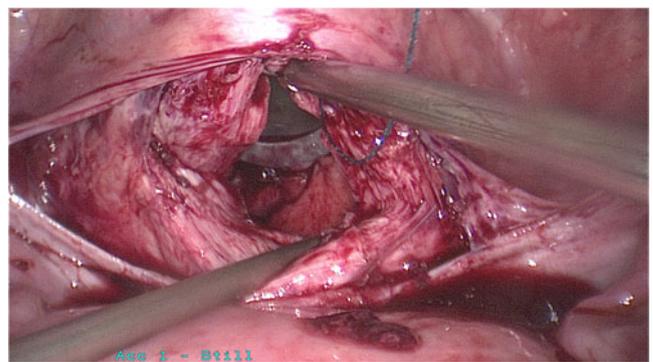


Fig. 4 Septum resected, McCartney tube inserted from below

patients discharged home. Both have been reviewed in the outpatients 3 months following surgery. There were no post-operative complications and both have started menstruation.

Discussion

This is the first report in the literature of laparoscopic surgery as an alternative to laparotomy for the treatment of transverse vaginal septae. There is very little in the literature regarding the optimum surgical management of complex transverse vaginal septae and no available short- or long-term outcome data for comparison. However, we have demonstrated that this novel technique is both safe and effective. The laparoscopic approach allowed excellent visualisation of the septum and facilitated careful resection. In both cases, the septum was successfully resected, recovery was speedy and normal menstruation was restored.

Transverse vaginal septae are rare müllerian anomalies. The exact incidence is unknown but has been reported as being between 1:2,100 and 1:72,000 [3]. In 2010–2011, there were only 12 documented cases of resection of transverse vaginal septum in England [4], although this figure may be an underestimation due to coding difficulties. Transverse vaginal septae can be located in the lower, middle or upper third of the vagina. There is no standardised classification of septae but low vaginal septae are usually regarded as those within 3 cm of the vaginal introitus [5]. Mid- and high septae are further than 3 cm from the introitus and high septae may lie just below the cervical external os. The thickness of the septum is also variable but a thick septum is one which measures 1 cm or more in diameter.

Successful surgical management requires complete excision of the septum with re-anastomosis of the proximal and distal vaginas. It is imperative that the entire septum is resected so to prevent re-obstruction or stenosis whilst at the same time ensuring that the vagina is not shortened. Vaginal resection alone is reserved for low septae where the proximal vagina can easily be accessed without the risk of trauma to surrounding structures. When the septae are high in the vagina, surgical management is more complex and requires a combined abdomino-perineal approach performed via laparotomy. This is a major procedure with all the attendant risks as well as an extended hospital stay and recovery period.

Laparoscopic surgery is well documented as an effective safe technique for the management of complex müllerian

anomalies, including hemi-hysterectomy for obstructed uterine horns [6], uterovaginal anastomosis in cervical agenesis [7], and laparoscopic vaginal reconstruction in vaginal agenesis [8]. The benefits of laparoscopic surgery when compared to open surgery include reduction in bleeding and infection rates, shorter hospital stay and quicker post-operative recovery. These are particularly relevant in adolescent patients where minimal disruption to education is desirable.

This complex surgery should only be performed in highly specialised centres with expertise in both management of complex müllerian anomalies and advanced minimal access surgery. An accurate description of the vagina and septum using MRI which includes the lengths of the proximal and distal vaginas and thickness of the septum is also essential in pre-operative planning. This case report, however, shows that laparoscopic resection is a safe and effective surgical option when performed in a specialist unit. It should be considered in selected patients following a thorough evaluation with detailed imaging.

Conflict of interest All of the authors contributed to the design and writing of the manuscript. None of the authors have a conflict of interest. There are no financial disclosures.

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