

An Unusual Case of Primary Complete Colporrhexis after an Operative Vaginal Delivery

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Summary

Primary colporrhexis is rare and refers to a vaginal vault tear not associated with cervical, uterine or lower segment extension, while secondary colporrhexis is a vaginal vault tear associated with a rupture that has originated in the uterus or cervix.¹ The clinical manifestations of colporrhexis may be similar to uterine rupture as they can present with abdominal pain, heavy vaginal bleeding or hypovolaemic shock, thus making an accurate diagnosis initially difficult. A thorough and careful internal examination with a high index of suspicion is crucial to establish the diagnosis. Unrecognized colporrhexis post vaginal delivery can lead to a delay in treatment and this can be catastrophic. Therefore, we would like to increase the awareness amongst clinicians of colporrhexis as a differential diagnosis of postpartum haemorrhage, as rapid surgical attention is vital for good maternal outcome. In this report, we present an unusual case of a primary colporrhexis post-operative vaginal delivery and its subsequent management.

History

A 28-year-old gravida 2 parity 1 lady (1 previous vaginal delivery) was admitted for term induction of labor at 40+1 weeks of gestation. She had no past surgical history. She underwent an induction of labor with Cervidil (dinoprostone 10mg) and progressed to full dilatation within 15 hours. She had a 2 hour 30 minutes second stage, with a low-outlet rotational vacuum-assisted vaginal delivery performed for prolonged second stage, non-reassuring fetal cardiocotograph and fetal occipito-posterior malposition. A female fetus was born with Apgar scores of 8 and 9, weighing 3645g. A right mediolateral episiotomy was done at crowning of the fetal head to facilitate delivery. Routine episiotomy repair was done subsequently with good hemostasis achieved. Vaginal examination and digital rectal examination done after the episiotomy repair noted no further vaginal tears and minimal per vaginal bleeding. Postnatally, the patient was monitored in the labor ward for routine observation.

2 hours post-delivery, the patient complained of sudden onset of lower abdominal pain and was noted to be hypotensive and tachycardic (blood pressure of 80/40mmHg, heart rate 120bpm) with heavy per vaginal bleeding. On examination, her abdomen was soft but tender over lower abdomen and her uterine fundus was palpable at the level of the umbilicus. Her uterus otherwise felt firm and contracted. On speculum examination, copious fresh per vaginal bleeding was noted. She was thought to have postpartum hemorrhage initially and commenced on intravenous fluids for resuscitation and given uterotonics. However, despite multiple modalities of uterotonics given, she continued to bleed heavily per vaginally. A bedside ultrasound was done subsequently which showed a contracted uterus with large amount of hemoperitoneum. A careful digital vaginal examination noted a tear in the posterior fornix of the vagina with direct communication of the vaginal cavity into the abdominal cavity. She was swiftly brought into the operating theatre thereafter for a diagnostic laparotomy. Intraoperatively, she was commenced on massive transfusion protocol. On entry into the abdomen, 1.5 litres of hemoperitoneum was noted. After evacuation of the blood clots, a 10cm oblique laceration was seen in the posterior vaginal wall extending to the left pelvic side wall with no involvement of the uterus or cervix (Figure 1 and 2). The anterior vaginal wall, bladder and cervix were intact and the uterus remained well contracted. Both fallopian tubes and ovaries were unremarkable. The posterior vaginal wall vent was repaired with interrupted vicryl 1-0 mattress sutures with good hemostasis achieved at the end (Figure 3). A repeat vaginal examination done post repair of the defect confirmed an intact vaginal wall. Post operatively, the patient had an uneventful convalescence and was discharged from hospital 5 days later. She was reviewed 4 weeks postnatally and remains well.

Discussion

Colporrhexis post vaginal delivery is an unusual complication which can occur spontaneously or secondary to trauma. The etiology of spontaneous primary colporrhexis remains unclear but have been postulated to be due to the excessive stretching of the lower uterine segment with the development of a physiological retraction ring that is gradually drawn up as the uterus becomes retracted upwards with uterine contractions.¹ Contributory factors include transverse fetal position, extreme pendulous abdomen, fetal hydrocephalus, large baby, previous vaginal vault scars, displacements of a gravid uterus disrupting the axis of the uterus, precipitous labor, or prolapse of the uterus or vaginal walls. Most contributory factors are more commonly seen in a multiparous lady, and this is further supported by the observation that most spontaneous primary colporrhexis occurred in multiparous patients, with only one reported in a primigravida noted in the literature.^{1,2,3} Generally, most cases of primary colporrhexis are traumatic in nature and are secondary to attempts at delivery by instrumental means or fundal pressure.² Excessive pressure on the fetal axis may cause necrosis and rupture of the vaginal vault and even extension of cervical tear or lower uterine segment tear.⁴ In our case, our patient was a multiparous lady with a BMI of 30 with no prior history of any surgery or vaginal vault injury. Some factors that could have predisposed her to a primary colporrhexis includes multiparity, pendulous abdomen with subsequent displacement of the uterine axis, and the use of instrument delivery. It is however of note that the instrumental delivery was a straightforward low-outlet vacuum extraction by a trained accoucheur.

The clinical manifestations of colporrhexis post vaginal delivery are similar to those of uterine rupture or postpartum hemorrhage as they can present with constant abdominal pain, heavy vaginal bleeding or hypovolaemic shock, thus making an accurate diagnosis initially difficult.² On abdominal palpation, it can present with abdominal tenderness out of proportion of expected. The amount of per vaginal bleeding is variable as it depends on the site of laceration and the involvement of the uterine vessels. Digital vaginal examination can reveal the defect in the vaginal vault and a speculum examination can visualize the vaginal vault defect or even prolapsed intraabdominal contents in severe cases.¹ In our case, a bedside scan was also done which noted hemoperitoneum which further supported the diagnosis of colporrhexis in conjunction with the physical examination findings. Interestingly, the abdominal examination also noted the uterus to be contracted but with the fundus palpable at the umbilicus which could be due to the avulsion of the posterior vaginal vault from the cervix resulting in the retraction of the uterus upwards. This clinical finding was not previously mentioned in the literature and could be a significant clinical finding to support the diagnosis of colporrhexis post vaginal delivery. Less commonly, an extension of the laceration from vaginal vault can result in injury to the bladder and subsequent hematuria.¹ Intraabdominal contents can also prolapse out of the vaginal wall defect resulting in omental or bowel injury. Darsari et al reported a case of a spontaneous colporrhexis post spontaneous vaginal delivery with a distal ileum mesenteric tear noted during the exploratory laparotomy. The patient subsequently required a resection and reanastomosis of the small bowel.⁴ As such, colporrhexis if left undiagnosed or untreated can have severe consequences, including peritonitis and even death.¹

Due to its rarity, there is no standardized management for colporrhexis post vaginal delivery. Two approaches to the repair of colporrhexis have been described – either via vaginally or laparotomy.¹ Generally, management is dependent on the patient's hemodynamic status and the extent of vaginal wall defect. Resuscitation for the treatment of shock and hemorrhage should be initiated immediately to ensure hemodynamic stability. Once the diagnosis of colporrhexis is made, a quick recourse to the operating theatre for the repair of vaginal defect is essential. Maran et al reports a case of primary colporrhexis with omental prolapse through the defect after a spontaneous vaginal delivery. The patient was subsequently brought to the operating theatre and the defect repaired vaginally under anaesthesia.⁵ In their case, the patient remained hemodynamically stable throughout and thus they were able to avoid a laparotomy. In contrast, our patient was hemodynamically unstable with large amount of hemoperitoneum and heavy per vaginal bleeding, thus an exploratory laparotomy approach was indicated and the repair of the vaginal wall defect done abdominally.

Long term management of these patients remain unclear. It is not clear if they should be allowed for a normal vaginal delivery in the next pregnancy or if a caesarean section is indicated based on a history of colporrhexis post vaginal delivery. A review of literature is nonconclusive with few number of cases reported. There are reports of successful vaginal delivery post a previous colporrhexis, however cases reported are small.¹ On the flip side, Kalomenkin et al reported a case of 2 consecutive colporrhexis in 2 subsequent pregnancies in patient who had colporrhexis in her first pregnancy.¹ As such, the mode of delivery after a primary colporrhexis is still debatable and more studies need to be done before formal recommendations can be made.

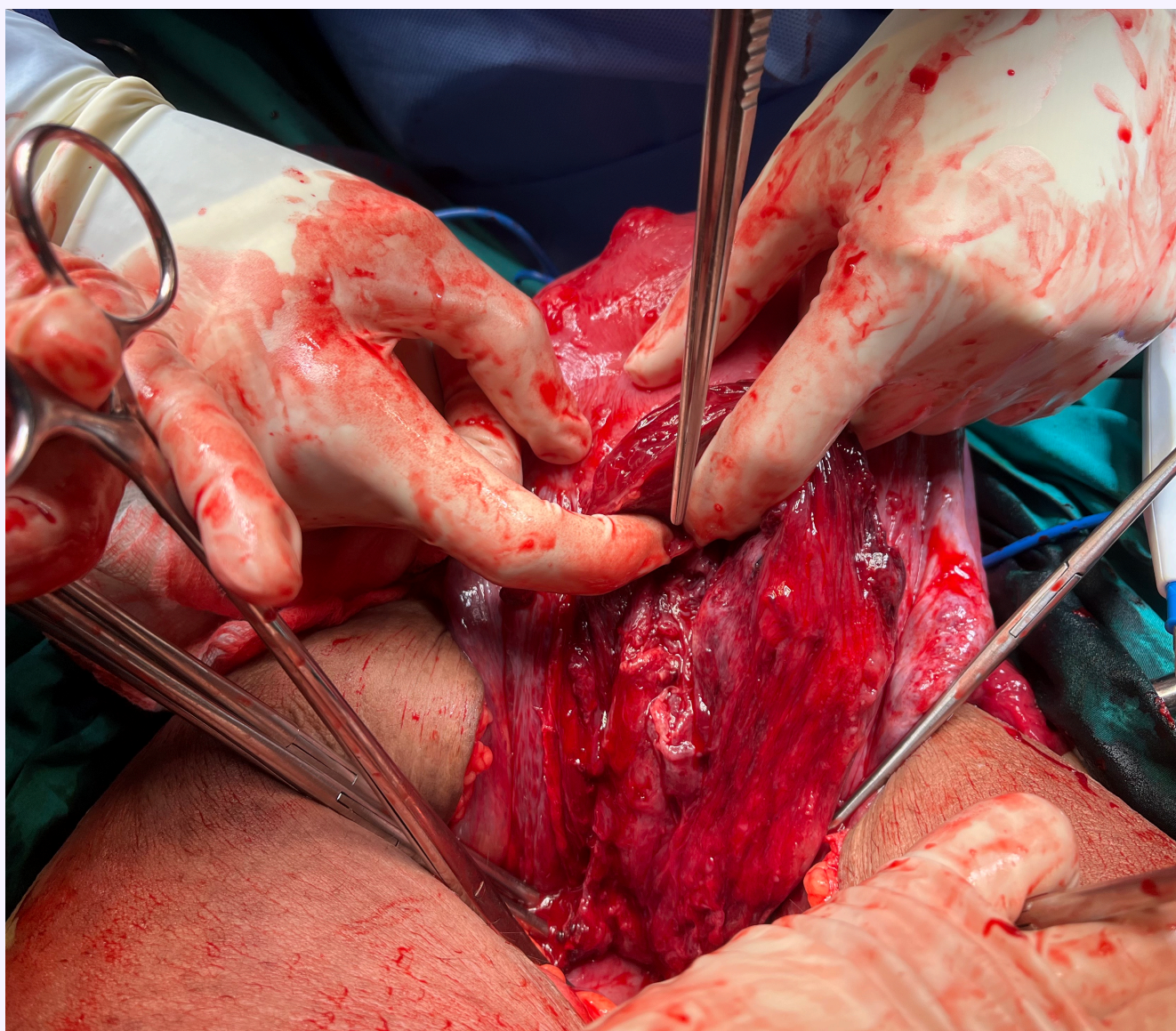


Figure 1 shows an anteverted uterus with a 10cm oblique laceration was noted in the posterior vaginal wall extending to the left pelvic side wall with no involvement of the uterus or cervix. A forceps is placed between the finger to demonstrate the intact cervix above the posterior fornix laceration.

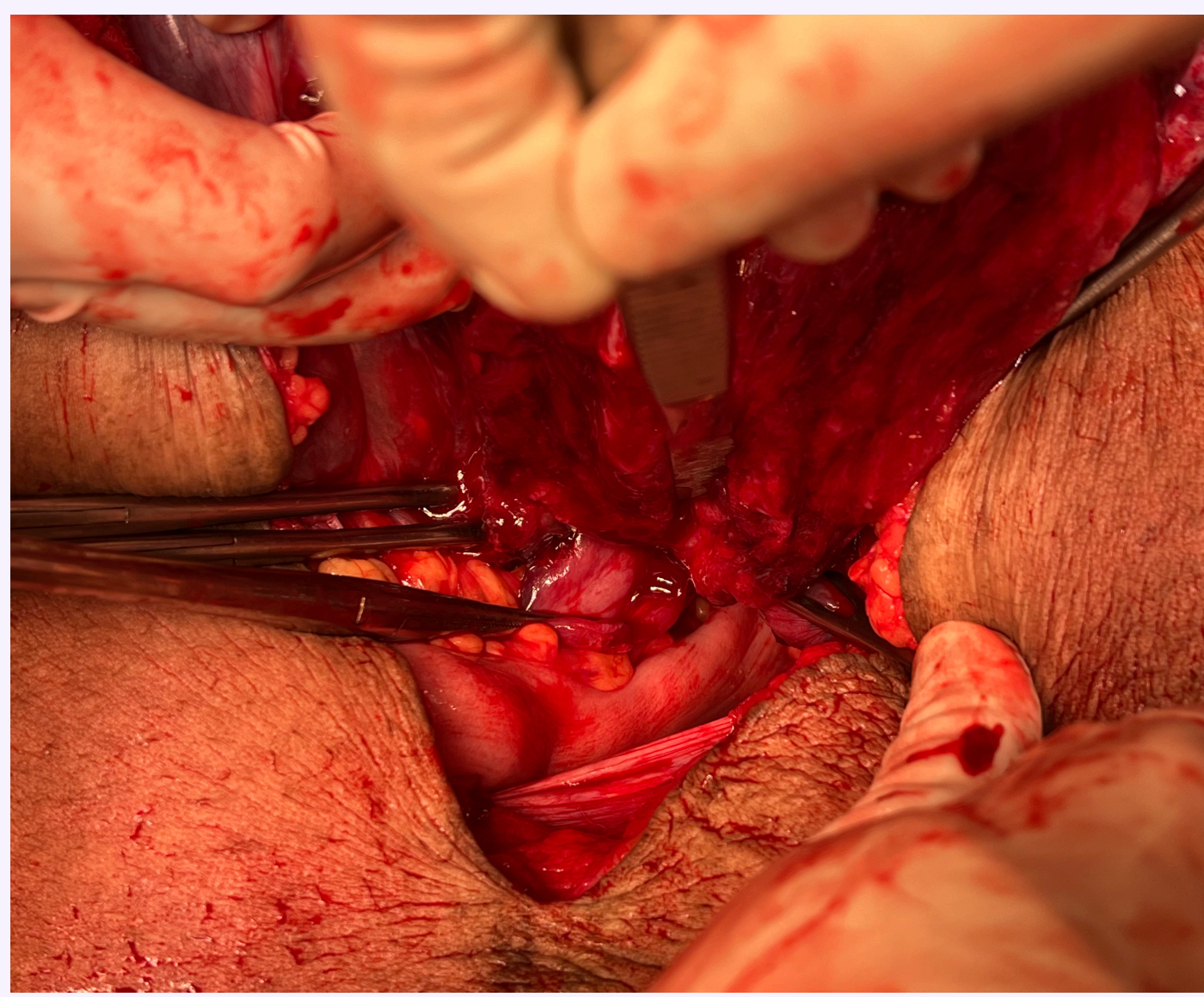


Figure 2 shows a top down view of the pouch of Douglas, with an exposed vaginal canal, consistent with a primary complete colporrhexis. A forceps is placed to indicate the vaginal canal.

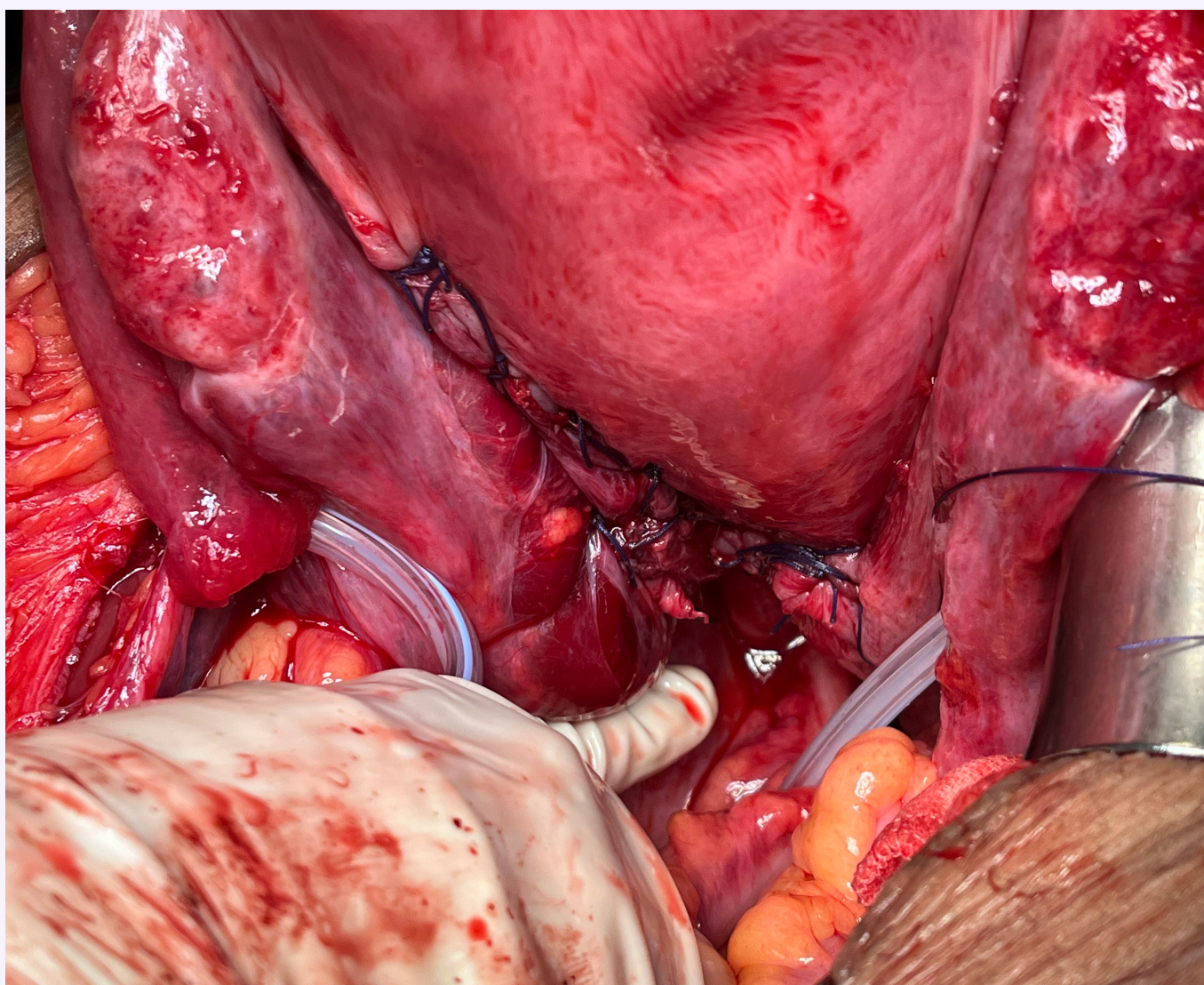


Figure 3 shows the repaired posterior wall colporrhexis.

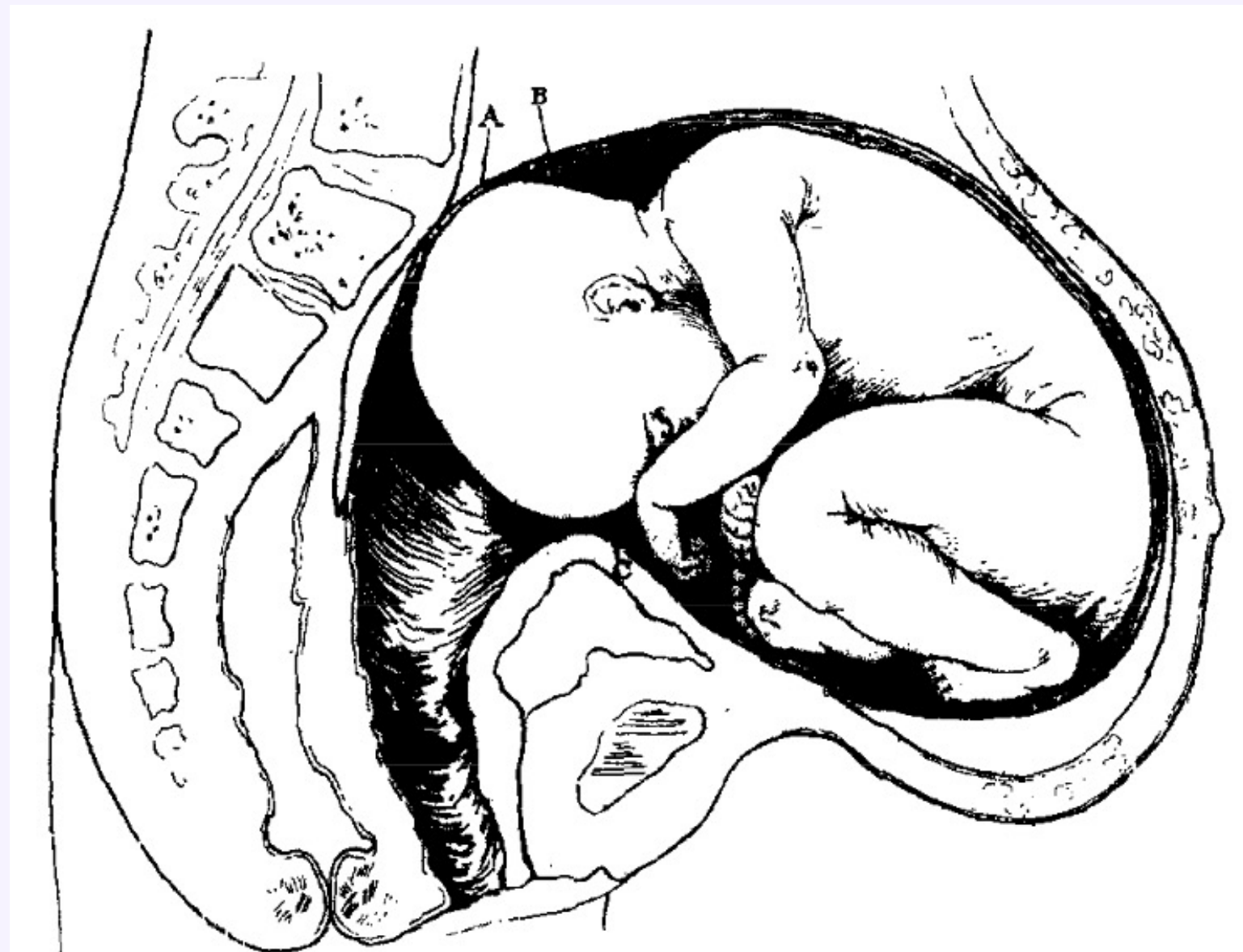


Figure 4 demonstrates the forward and downward displacement of the fundus due to a pendulous abdomen. Cervix is noted to be drawn above the fetal head. A - point of rupture. B- posterior lip of the cervix. C - anterior lip of cervix³

Takeaway Points

- Primary colporrhexis is defined as a vaginal vault tear not associated with cervical, uterine or lower segment extension
- Spontaneous primary colporrhexis are rare and can be multifactorial – excessive stretching of the lower uterine segment with the development of a physiological retraction ring, extreme pendulous abdomen, displacements of a gravid uterus disrupting the axis of the uterus, precipitous labour, prolapse of the uterus or vaginal walls, previous injury to the vaginal vault, etc
- Most cases of primary colporrhexis are traumatic in nature and are secondary to attempts at delivery by instrumental means or fundal pressure
- Clinical presentation of hypovolemic shock with heavy vaginal bleeding and abdominal pain postnatally can be confused with the more common diagnosis of PPH or uterine rupture initially
- A careful physical examination coupled with a bedside scan can assist with the diagnosis of colporrhexis
- Early initiation of resuscitation is important for the treatment of shock
- Once diagnosed with colporrhexis, a quick recourse to operating theatre for repair of colporrhexis is essential
- Two approaches to the repair of colporrhexis have been described – either via vaginally or laparotomy. Generally, management is dependent on the patient's hemodynamic status and the extent of vaginal wall defect
- The recommended mode of delivery for future pregnancies after a primary colporrhexis is still debatable and more studies need to be done before formal recommendations can be made
- Primary colporrhexis is a rare complication of vaginal delivery and awareness of this condition allows for early diagnosis and facilitates prompt initiation of treatment.

References

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