

Term delivery through Partial Annular Cervical Tear in a Multigravida with history of Genital Prolapse: A Case Report

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Abstract:

Injury to the cervix is one of the common complications of pregnancy and delivery, but partial annular tear of the cervix is a rare entity, let alone vaginal delivery through it.

A 32-year-old second gravida presented to a tertiary care hospital in Haryana, India in early labour. Her intrapartum course was uneventful. Following delivery of the baby and after-births, a third degree prolapse of the cervix was noted along with partial annular cervical tear of about 10cm involving the posterior cervical lip and 2cm away from the external os. There was mild bleeding from the edges of the tear and it was repaired with intermittent simple suture using 2-0 chromic catgut. On further probing, the patient denied any cervical trauma or surgery in the past but she gave history of something coming down per vaginum on straining for the last two years. She had not taken any treatment for the management of prolapse. She was given prophylactic oral antibiotics for 5 days and was advised Kegel's exercise during the postpartum period. On discharge, she was stable, the cervical repair appeared healthy and was asked to follow-up after 6 weeks.

This case highlights the possibility of cervical tear in patients having genital prolapse during delivery, first such being reported.

Keywords: cervical tear, partial annular tear, annular tear, cervical avulsion, genital prolapse, pregnancy, case report

Abbreviations

APGAR: Appearance, Pulse, Grimace, Activity, Respiration

FHS: Fetal heart sound

IOL: Induction of labour

LSCS: Lower segment caesarean section

PPH: Postpartum hemorrhage

PV: per vaginum

Introduction

The incidence of intrapartum cervical injury varies between 25-90% as reported by different studies.¹⁻⁴ Clinically significant cervical tears like annular, partial annular also known as bucket handle tears and cervical avulsion tear are rather rare, occurring in only 0.2-1.7% cases.⁴⁻⁷ First described by Scott in the year 1821, annular tears have decreased in incidence in modern obstetric practice due to increased rate of caesarean and tendency to lower duration of labour.⁸⁻¹⁰ Cervical injury is common especially after instrumental deliveries, cervical cerclage, induction of

labour, prolonged or precipitate labour.^{4,11,12} This case is a rare occasion of partial annular tear of cervix with history of genital prolapse, first such being reported.

Case Report

A 32-year-old unbooked woman, was admitted in the labour room of Pt. B. D. Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana, in spontaneous labour at 38 weeks 5 days gestation with the complaint of pain for the last 3 hours. She was second gravida and had received four antenatal care visits at her local Anganwadi centre. Her previous pregnancy ended with spontaneous vaginal delivery of a healthy female fetus weighing 2.8 kg three years ago at term. She did not report any complication in her first pregnancy. Her past medical, surgical and psychosocial history were unremarkable. Her antenatal blood parameters were within normal limits other than the presence of mild anaemia for which she took one iron tablet twice daily and her level I and II ultrasound reports were normal. Third trimester ultrasound report was not available.

At initial assessment, her vitals were pulse- 84/minute, blood pressure- 118/76 mmHg. She had mild pallor and normal systemic examination. On

per abdominal examination, uterine height was term size, presentation cephalic, head 4/5 palpable and fetal heart was regular, 140 beats per minute, auscultated in the left spino-umbilical line, with mild, occasional uterine contractions. On per vaginal examination, she was 1cm dilated, cervix mid-position, uneffaced, membranes intact, vertex at -3 and pelvis was adequate.

The patient was monitored with hourly vitals, intermittent FHS auscultation and manual observation of uterine contractions. A complete blood count showed Hb- 9g%, TLC- 6000/cumm, PMN- 70%, lymphocytes-27%, monocytes-3%, platelet count- 1.5lakh/cumm. Her BT, CT, PT, INR, RFT were within normal limits.

After four hours she was 3 cm dilated, 50% effaced and was having two contractions in 10 minutes each lasting for 15-20 seconds. Subsequently, 1hour 40minutes later, she had spontaneous rupture of membranes. A PV examination revealed os to be 6cm dilated, 70-80% effaced, membranes absent, liquor clear, vertex at -1. She progressed well and was fully dilated after 2 hours. She started bearing down and delivered a male baby weighing 3.2kg after 20 minutes. The 1 minute and 5 minute APGAR score of the newborn were 8 and 9 respectively. She was given Injection oxytocin 10 IU for active management of third stage of labour. The placenta was delivered after 5 minutes weighing 500g.

It was then noted that the cervix was lying 4cm outside the introitus but there was a large U- shaped posterior cervical tear of about 10cm in length and 2cm away from the external os, through which the baby had been delivered as shown in Figure 1. The external os was intact as shown in Figure 2. Further exploration showed that the internal os was intact, 1cm dilated and the vaginal vault with bilateral fornices were preserved. No other perineal or vaginal trauma was observed.

The patient then revealed a history of occasional feeling of something coming down per vaginum for the last two years on straining while defecation, but she had ignored it and had not consulted the doctor. She also had a long history of constipation and did not complain of any difficulty during intercourse or micturition, vaginal bleeding and vaginal discharge previous to pregnancy.

The cervical tissue appeared viable and the tear was repaired using interrupted chromic catgut 2-0 sutures. The cervical canal patency was checked digitally following repair. There was no further bleeding from the tear site or the cervical os. The approximate blood loss was about 400mL.

The patient was advised to use Sitz bath for 15 minutes twice daily with local betadine application and perineal exercise. On postoperative day 2, she was discharged with stable vitals and no active bleeding PV. She was recommended to avoid straining or lifting heavy weight and to include plenty of fluids and high fiber in her diet to prevent constipation. She was advised to follow-up in the OPD after six weeks and was counselled about the risk of spontaneous abortion, cervical incompetence and preterm delivery in future pregnancies.

Discussion

The actual incidence of cervical lacerations is not known since they remain unnoticed in most cases, unlike vaginal and perineal injuries which are readily visible. They are detected only during exploration of the cervix in cases with PPH, or traumatic and operative vaginal deliveries.⁶

Potential risk factors for cervical injury during vaginal delivery are operative delivery- both vacuum and forceps, nulliparity, gestational or pre-gestational diabetesshoulder dystocia, , induction of labour, use of oxytocin, precipitate labour, prolonged labour, prior dilatation and evacuation, conisation and cervical cerclage, as well as baby weight >3.5kg have been stated in different literature.^{4-7,9-12}

Hypertonic uterine contractions with the use of oxytocin and prostaglandins, and premature bearing down impairs cervical blood circulation due to compression between the presenting part and the resistant cervix, causing oedema, necrosis and laceration.¹³ Cervical fibrosis with impaired blood supply due to previous interventions or injury may lead to increased resilience and failure of the external os to dilate during labour as well as altered distribution of pressure over either the anterior or posterior cervix.¹³⁻¹⁶ Neri et al suggested that repeated pelvic examination with fingers might create a hole in the oedematous posterior cervical lip (button-hole tear) which may extend laterally due to shearing force of the fetal head.¹⁷ Similarly, prolonged labour with cervical effacement impairs cervical blood circulation leading to avulsion.¹³ In cases with cervical cerclage, the foreign body reaction and scar tissue formed due to the cervical stitch makes it more susceptible to injury.⁶ In this case, it is probable that the downward displacement of the cervix due to prolapse may have caused anterior displacement of the cervix during uterine contraction, leading to excessive pressure (shearing and compressive) and subsequent necrosis of the posterior lip of cervix.

NO	NAME	YEAR	DIAGNOSIS	RISK FACTOR	NATURE OF TEAR	DILATION OF CERVIX	OUTCOME
1	Oyelese et al ¹⁸	2001	G2A1 at 38 weeks	IOL with 25µg Misoprostol*4 doses 3 hourly	Midline tear on posterior lip extending upto cul de sac	Fully dilated	3 kg baby delivered vaginally
2	Uchil et al ¹⁹	2006	G2A1 at 38 weeks	None	Posterior tear 2.5cm away from os extending to posterior fornix	5 cm	Baby delivered through tear
3	Gurung et al ²⁰	2008	G1 at 41 weeks	IOL with PGE2, precipitate labour	Posterior bucket handle tear	1.5 cm	3.5 kg baby delivered vaginally through the tear
4	Chan et al ²¹	2012	G5P1L1A3 at 41 weeks	H/o LEEP for CIN2 1year ago, 3 doses of PGE2 24hours apart	4cm tear at 3 O'clock position	0.5 cm	4.06 kg baby delivered vaginally through the tear
5	Djokovic et al ²²	2015	G2A1 at 41 weeks	H/o D&C for 6week abortion 13years ago, IOL with PGE2 gel→ 50µg Misoprostol	Posterior bucket handle tear from 4 O'clock to 9 O'clock position	Closed	3.3 kg baby delivered through the tear
6	Amruta B et al ¹⁰	2018	G1 at 39 weeks	None	4-5cm posterior bucket handle tear from 4 O'clock to 8 O'clock; position 2cm proximal to os	3-4 cm	3.3 kg baby delivered by emergency LSCS
7	Kohli B et al ¹⁶	2020	G2P1L1 at term	None	4-5cm posterior annular tear from 4 O'clock to 8 O'clock position	Tip of finger	3kg baby delivered vaginally through the tear
8	Mayne L et al ²³	2021	G1 at 41 weeks	IOL with PGE2 pessary(10mg) →ARM→ Syntocin infusion	2cm thick cervical tissue detached from 9 O'clock position anticlockwise to 1 O'clock position	Full dilatation	3.5 kg baby delivered vaginally through the tear
9	Hill MG et al ²³	2021	G1 at 41+4 weeks	IOL with PGE2 gel→ Oxytocin infusion with prolonged active phase	Anterior cervical tear from 4 O'clock to 8 O'clock and intact posteriorly, another left sided uterine tear extending upwards till the utero-ovarian artery and also involving the vagina	Full dilatation	3.65 kg baby delivered by LSCS
10	Fessehaye A et al ¹⁴	2022	G3P2L2 at term	IOL with high dose oxytocin regimen	Near complete detachment of cervix 1cm away from cervicovaginal junction	3 cm	2.9 kg baby delivered
11	Hill AN et al ¹⁵	2023	G1 at 41+6 weeks	Neville Barnes forceps delivery	Patulous cervix with a 4cm longitudinal buttonhole tear of anterior cervix at 12 O'clock position	Tip of finger	3.48 kg baby delivered vaginally with Neville Barnes forceps
12	Present case	2023	G2P1L1 at 38+5 weeks	Genital prolapse	U-shaped posterior cervical tear of 10cm in length and 2cm away from the internal os	1 cm	3.2 kg baby delivered through the tear

Different authors have reported cases of cervical avulsion with different risk factors as shown in Table 1.

In the present case, in contrast to the previously reported studies, no significant medical history or surgical intervention of the cervix was noted in the past. The patient gave a unique history of genital prolapse which might have been the risk factor in this case, since it is known that cervical descent may cause cervical dystocia during labour leading to unbalanced pressure over the posterior lip of cervix. Although baby weight >3.5kg is considered a risk factor, in this case the neonate weighed 3.2kg and was delivered through the tear.

Vaginal delivery through these cervical defects can lead to extensive lacerations and may involve the vaginal fornix, bladder or lower uterine segment.¹⁶ Thus, it is best to deliver the patient by emergency caesarean section if there is early detection of tear before delivery to prevent further damage to the genital organs and its long-term sequelae.^{13,16} This patient would have probably needed an emergency Caesarean section, if the tear had been identified before delivery of the baby. Injury to the cervix is one of the causes of traumatic post-partum haemorrhage, and thus, it must be identified and repaired as soon as possible to prevent severe maternal morbidity.^{4,15}

There is no standardized suturing technique for cervical tear repair especially due to the rarity of such cases. Lacerations extending into the lower uterine segment should be managed after laparotomy, while small <2cm tears with

minimal bleeding may be managed expectantly. It is necessary to repair larger tears to prevent PPH. During puerperium, the uterus contracts leading to altered suture tension and easement of swelling. Judicious choice of suture material should be done to ensure that it has enough strength to endure altered tension as well as not cut through the cervix. Here, absorbable chromic catgut 2-0 suture was used. Different authors have mentioned varying suturing technique namely, simple interrupted, figure-of-8 interrupted, running continuous or mattress sutures. While repairing, patency of the os must be ensured by using a swab-on-stick or sigmoidoscope.¹⁵

Some studies suggested that cervical injuries may cause cervical incompetence, spontaneous miscarriage and preterm birth in next pregnancy or cervical stenosis due to fibrosis may lead to cervical dystocia and recurrent cervical laceration,^{7,9,10,17} while other studies demonstrated no major effect on subsequent pregnancies.^{6,24}

Future pregnancies following cervical lacerations should be monitored by serial cervical length estimation by ultrasound with provision of cervical cerclage to prevent preterm labour and an elective caesarean may be indicated to prevent similar repeat injury to the cervix. This patient would need correction of uterine descent preferably by sling surgery (to preserve

fertility) after 3 months and an elective caesarean section during subsequent pregnancy.

Conclusion

Presently, cervical laceration is rare but a serious complication of pregnancy. Previously reported cases suggest the need to be alert in cases with history of cervical trauma, induction of labour, precipitate or prolonged labour and operative vaginal delivery.

Our case highlights the possibility of large cervical tears in patients with genital prolapse. These injuries can cause traumatic PPH and thus should be identified and repaired immediately. Patient should be counselled regarding possible complications that might arise in future pregnancies. Serial prenatal transvaginal ultrasound for cervical length scanning with consideration of cervical cerclage and an elective caesarean section may be advised for future pregnancy to reduce the risk of preterm labour and recurrent cervical tear.

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Author contribution:

Dr. Oindrila Roy conceptualized and wrote the draft.

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