



Case report

A rare case of obstructed labor due to sever uterine prolapse; a case report and literature review

Elham Askary^a, Shaghayegh Moradi Alamdarloo^{b,*}, Zinat Karimi^b, Anushe Karimzade^c^a Department of Obstetrics and Gynecology, School of Medicine, Infertility Research Center, Shiraz University of Medical Sciences, Shiraz, Iran^b Department of Obstetrics and Gynecology, School of Medicine, Maternal-Fetal Medicine Research Center, Shiraz University of Medical Sciences, Shiraz, Iran^c Department of Obstetrics and Gynecology, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

ARTICLE INFO

Keywords:

Cervical prolapse
Pregnancy
Delivery
Case report

ABSTRACT

Introduction: Uterine prolapse in pregnancy is a rare problem reported in literature and might increase problems such as emergency cesarean section, preterm delivery, and other materno-fetal complications. Prolapse becomes a life-threatening condition for both mother and baby when it creates a labor abstraction.

Presentation of case: Here, a 37 years old lady (BMI = 26, gestational age = 37 weeks), without any obvious risk factors, with sever uterine prolapse (stage IV) and obstructed labor was presented. Congested and incarcerated cervix along with the onset of uterine contractions led to emergency cesarean section, by incision made in fundal part of uterus, because the lower segment was not accessible or visible at all. Apical and lateral vaginal defect in the patient was corrected at cesarean section time.

Conclusion: As a result: with timely action for cesarean delivery, maternal-fetal complications were reduced, however the correction of apical uterovaginal defects during cesarean time is possible and improves the quality of life of women in the reproductive age.

1. Introduction

Uterine prolapse occurs when the uterus slides from its normal position into the vagina due to the reduction in the apical support of the cardinal and uterosacral ligaments. The occurrence of cervicouterine prolapse in pregnancy is a very rare phenomenon. The prevalence of uterine prolapse with any severity during pregnancy has been reported to be one in 10,000 to 15,000 pregnancies [1].

Uterine prolapse is more prevalent in Caucasian women, which can be attributed to their racial and genetic differences, such as differences in pelvic muscles and connective tissue support or different responses to fibrous tissue development following tissue injury. Among other risk factors, mention can be made of age, high BMI, underlying diseases associated with increased intra-abdominal pressure, congenital pelvic floor defects, forceps delivery, young age at first delivery, prolonged second stage of labor, choronic constipation, heavy lifting work, and family history of uterine prolapse [2,3,4].

There are very few reports on the severe types of uterine prolapse at time of delivery. However, this paper reports a patient who referred to Hazrat Zeinab Hospital affiliated to Shiraz University of Medical Sciences with severe cervical incarceration following uterine prolapse

causing obstructed labor. Informed written consent was obtained from the patient for the publication of this case report and accompanying images. All interventions were performed by the first author. This case report has been reported in line with the SCARE 2020 criteria. [5]

2. Case report

The patient was a 37-year-old woman (BMI = 26) who self-presented to the emergency department, at 37 weeks of gestation, due to labor pains and a complaint of a mass protrusion of the vagina. She mentioned that the mass appeared from the vagina during Valsalva maneuver since the eighth week of pregnancy; in the last few days, however, the mass was out of the interoitus even while resting. Constipation was the other symptom that she reported during her last month of pregnancy.

Seven years ago, the patient had an uncomplicated pregnancy with a normal delivery weighing 3150 g. She had no history of underlying diseases, pelvic prolapse, urinary or fecal incontinence, and pelvic trauma, and genetic and family history of pelvic organ prolapse, psychologic problems associated with uterine prolapse during pregnancy.

The patient's vital signs were normal at the time of referral, and the uterine contraction test recorded 4 contractions lasting 35 s over 20 min.

* Corresponding author at: Maternal-Fetal Medicine Research Center, Shiraz University of Medical Sciences, Zand St., P.O.BOX: 7134844119, Shiraz, Iran.

E-mail address: shaghayeghmoradi84@gmail.com (S.M. Alamdarloo).

<https://doi.org/10.1016/j.ijscr.2022.107344>

Received 31 January 2022; Received in revised form 21 June 2022; Accepted 21 June 2022

Available online 1 July 2022

2210-2612/© 2022 Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

A cesarean section was decided because 5 cm of the incarcerated, non-dilated cervix had protruded from the introitus, the swelling and fragility of the bluish cervix (Fig. 1) had increased within ten minutes of observation, and the contractions had started (Fig. 2).

Cesarean section was performed through spinal anesthesia, vertical incision on the skin, and classic incision on the uterus. During surgery, a vertical incision was made in the fundus part of the uterus since the entire lower segment of uterus had prolapsed within the cervix and was inaccessible. The baby was born with Apgar 8 and then 9 and weighed 2830 g. After removing the placenta, the uterus was repaired in two layers. Following the delivery of the baby and the repair of the uterine, the cervical swelling and engorgement were reduced, which made it possible to return the uterus in to the abdominal cavity. Due to grade 3–4 of prolapse and to prevent its recurrence during recovery time, it was decided that the patient underwent modified Gilliams suspension and suspension of uterus from torus uterinus site. [6] This was done to the round ligament and anterior rectus muscle fascia along the broad ligaments retroperitoneally via blunt dissection and mersilene tape insertion owing to its ease, effectiveness, and low complication rate. The abdomen was then closed layer by layer. The cervix was approximately 5 cm higher than the vaginal entrance following the vaginal examination. Patient tolerated all procedure well without any peri-operation or post-operation complications. The patient was followed up three and six months after delivery, and was fortunately in a completely normal condition based on vaginal examination (Fig. 3). The patient reported no signs of prolapse, and her sexual activity and quality of life improved during follow up period. The patient felt very comfortable satisfied with the procedure performed and felt an improvement in pelvic pressure. Table 1 summarizes the grade presentation of POP-Q (pelvic organ prolapse quantification) measurements before and after surgery, as a result. [7]

3. Discussion

This report introduced a case of cervicouterine prolapse which increased with the progression of pregnancy. Ultimately, the patient presented with cervical incarceration, was unable to give birth, and had to have a cesarean section. Through searching the pub med search engine from the year 2010, we found that our case was one of the first patients whose uterine prolapse was repaired during cesarean section.

This study helps our colleagues to have a procedure as a guide in dealing with this rare case that ensures the safety and health of the mother and fetus during delivery, as well as improving the quality of life of the mother after delivery.

Prolapse may occur before or during pregnancy and progress with pregnancy, but most acute onset cases are reported in the third trimester. Prolapse is caused by the damage to the organs supporting the pelvic floor. Here, we probe the previously reported cases and whether



Fig. 2. Increased swelling and fragility of the bluish cervix within ten minutes of observation, due to the onset of contractions.



Fig. 3. Cervical position six months after delivery.



Fig. 1. Incarcerated, non-dilated cervix had protruded from the introitus at the time of patient arrival.

Table 1
Grade presentation of POP-Q measurements before and after operation.

POP-Q			
	Anterior wall (Aa)	Anterior wall (Ba)	Cervix (C)
Before	0	.3	+5
After	0	.3	.5
Genital hiatus(GH) Perineal body (PB) Total vaginal length (TVL)			
Before	5	3	8
After	2.5	3	8
Posterior wall Ap Posterior wall Bp Posterior fornix D			
Before	0	.3	.8
After	0	.3	.8

this condition leads to the premature termination of pregnancy, delivery root, and the concomitant prolapse surgeries. The risk of pelvic floor disorders is independently associated with vaginal delivery but not with parity alone. Cesarean delivery has a protective effect, similar to nulliparity, on the development of pelvic floor disorders when compared with vaginal delivery. [8] Cervical prolapse occurs rarely in the first pregnancy; in most cases, however, prolapse is present before pregnancy, thereby exacerbating pregnancy.

During pregnancy, softening and stretching take place in the pelvic tissue with the increase in the progesterone and cortisol levels. Hyperterophic cervical elongation is another physiological event during pregnancy. Therefore, when prolapse occurs, cervical swelling can cause premature delivery through obstructing the venous and arterial flow and causing tissue anoxia. [9] When the cervix comes out of the interoitos, severe cervix swelling could hinder the cervical dilatation and lead to obstructed labor. [10]

Complications reported after prolapse include increased cessation of labor and cesarean section delivery rate, preterm delivery, the possibility of cervical and uterine rupture, uterine atonia, and augmented infection due to cervical incarceration and/or urinary retention. Early detection of these cases via physical examination, ultrasound and dynamic MRI in early pregnancy can prevent further complications [11,12].

If prolapse is diagnosed in the early stages, insertion of a proper pessary type and prolonged bed rest can be effective strategies. Removing the pessary is not recommended until delivery time.

However, if absolutely necessary, surgery can be performed during pregnancy and does not have to be delayed until the postpartum period. [13]

The delivery method at the time of prolapse depends on its severity. Although vaginal delivery has been proposed in such cases, induction of labor with oxytocin and misoprostol as well as uterine fundal pressure during labor are not recommended. Instrumental delivery may cause uterine rupture. Cesarean section, on the other hand, is recommended in cases with previously repaired prolapse due to the high probability of shoulder dystocia within the normal delivery. [14–16]

C-section is the safest method of delivery for patients with edematous, thick, engorge, and incarcerated cervix. In some patients, prolapse disappears following delivery [17].

Cesarean section and hysterectomy can be a good alternatives for people who do not plan to have another pregnancy [11].

Due to the low prevalence of this disease, whether intervention in pregnancies complicated with uterine prolapse could lead to a better outcome is not confirmed in randomized clinical trials. Nonetheless, some case reports and case series with pessary or laparoscopic correction of prolapse in the first half of pregnancy presented lower cesarean section rates and longer continuation of pregnancy [14,18].

Of note, cervical leiomyoma may occlude the cervix in the same way and cause severe vaginal bleeding by manipulation, a rare complication that should be considered for differential diagnosis in cases where a protruding vaginal mass is detected during pregnancy.

In 2019, BeYildis et al. reported three cases of uterine prolapse during the first half of pregnancy. They had laparoscopic sacrocervicopexy in the second trimester, with two of them having cesarean delivery and one having vaginal delivery with shoulder dystocia. They all gave birth at 39 weeks of gestation [14]. Based on the literature review on cervical prolapse in third trimester of pregnancy (Table 2), two of the cases used a pessary which was emphasized to be helpful for prolonged pregnancy time as it prevents the progression of prolapse. [19–23].

Without any intervention, most of the cases were delivered by cesarean section before 37 weeks of gestation. After pessary or laparoscopic sacrocervicopexy, three cases had normal vaginal delivery at 39 weeks of gestation, but all of them had shoulder dystocia [14,19].

Among these six cases, only one was nulliparous in terms of the risk factor for prolapse and the rest were multiparous, with one case having a 13 cm cervical myoma which caused uterine prolapse. Unlike our case,

Table 2

Literature review on cervical prolapse in third trimester of pregnancy.

Study	Maternal age	Gravida (G), para (P), previous C/S	GA at diagnosis/delivery	Management
Barik 2020 [23]	33 y/o	gravida 4, para 3, live 3 previous deliveries were vaginal	35	Edematous cervix 1 month prior to hospital course and 13 cm cervical myoma in ultrasound examination lead to cesarean section.
Elci 2019 [20]	38 y/o	Gravida 5, para 4, live 4 with vaginal delivery	34	The first one had emergency cesarean section on 34 weeks of gestation due to vaginal bleeding
	27 y/o	Nulliparous	28	The second on has ring pessary 28–37 weeks and had elective cesarean section
Zeng 2018 [19]	27 y/o	Gravida 3 para 2 dead 1 live 1 Previous vaginal delivery	8	The patient emphasized at vaginal delivery and stayed at home till 39 but finally had an emergency cesarean section.
	33 y/o	Gravida2, para 1, live 1 Previous vaginal delivery	15	She used ring pessary 15–30 weeks and then removed due to increasing the size of cervical prolapse, she delivered vaginally in 39 weeks of gestation.
Hassine 2015 [21]	33y/o	Gravida 2, para 2, live2	12	12 weeks of gestation till 37 tolerated the prolapse and then had vaginal delivery, after termination used ring pessary, 6 months after she was well.

almost all cases (Table 2) were diagnosed prior to delivery and all (except one) had an elective delivery.

In addition to the use of pessaries or conservative management, some studies have presented a surgical approach to correcting the prolapse after cesarean. In this report, the surgeon suspended the round ligament attached to the fascia of the rectus abdominis of the abdomen beside the Gilliams surgery to correct the apical defects. In another report, the surgeon used the fascia of rectus muscle for this support [22]. Hysterectomy can be an option, in women who have a thick, edematous, irreducible cervix into the vagina during the cesarean section time is an inevitable choice and in patient who have completed their family. [24,25]

Management of these conditions should be done individually according to the gestational age, severity of cervical prolapse condition (POP_Q), duration of prolapse and, also patient preferences.

4. Conclusion

It is highly recommended that uterine prolapse be detected in the early pregnancy state and conservative methods be used in high-risk patients. It might also be helpful to utilize pessary as a device for controlling the prolapse progression in pregnancy and repositioning the uterus after delivery. Timely action for cesarean delivery reduces maternal and fetal complications in these patients, making it possible to correct apical defects during delivery. Following delivery, the patient is

advised to keep a balanced weight and reduce her workload to prevent further prolapse.

Provenance and peer review

Not commissioned, externally peer reviewed.

Statement of ethics

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

Funding sources

No funding was received from any governmental or nongovernmental sources.

Guarantor

Second author (E.A) accepts full responsibility for the work and/or the conduct of the study, had access to the data, and controlled the decision to publish.

CRedit authorship contribution statement

S.M: study design, manuscript writing, literature review. E.A: literature review and manuscript writing, manuscript reviewing and editing,. K-C: manuscript writing and editing.

Declaration of competing interest

The authors have no conflicts of interest to declare.

References

- [1] D. De Vita, S. Giordano, Two successful natural pregnancies in a patient with severe uterine prolapse: a case report, *J. Med. Case Rep.* 5 (1) (2011) 1–3.
- [2] R.C. Bump, Racial comparisons and contrasts in urinary incontinence and pelvic organ prolapse, *ObstetGynecol* 81 (1993) 421–425.
- [3] S.L. Hendrix, A. Clark, I. Nygaard, et al., Pelvic organ prolapse in the Women's Health Initiative: gravity and gravidity, *Am. J. Obstet. Gynecol.* 186 (2002) 1160–1166.
- [4] F. Chiaffarino, L. Chatenoud, M. Dindelli, et al., Reproductive factors, family history, occupation and risk of urogenital prolapse, *Eur. J. Obstet. Gynecol. Reprod. Biol.* 82 (1999) 63–67.
- [5] R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, for the SCARE Group, The SCARE 2020 Guideline: updating consensus surgical CAsE REport (SCARE) guidelines, *Int. J. Surg.* (84) (2020) 226–230.
- [6] K. Kai, Y. Kai, M. Nishida, K. Nasu, S. Iwanaga, H. Narahara, Modified Gilliam-Doleris hysteropexy for juvenile uterovaginal prolapse, *Clin. Exp. Obstet. Gynecol.* 45 (1) (2018) 109–111.
- [7] C. Persu, C.R. Chapple, V. Cauni, S. Gutue, P. Geavlete, Pelvic organ prolapse quantification system (POP-Q) - a new era in pelvic prolapse staging, *J. Med. Life.* 4 (1) (2011) 75–81.
- [8] E.S. Lukacz, J.M. Lawrence, R. Contreras, et al., Parity, mode of delivery, and pelvic floor disorders, *Obstet. Gynecol.* 107 (2006) 1253–1260.
- [9] aetane J, Labriola BF., Prolapse of the uterus complicating pregnancy and labor; review and report of two cases, *Obstet. Gynecol.* 8 (1956) 278–283.
- [10] P.S. Hill, Uterine prolapse complicating pregnancy. A case report, *J. Reprod. Med.* 29 (1984) 631–633.
- [11] E.H. Sze, G.B. Sherard III, J.M. Dolezal, Pregnancy, labor, delivery, and pelvic organ prolapse, *Obstet. Gynecol.* 100 (2002) 981–986.
- [12] P. Tsikouras, A. Dafopoulos, N. Vrachnis, Z. Iliodromiti, S. Bouchlariotou, P. Pinidis, et al., Uterine prolapse in pregnancy: risk factors, complications and management, *J. Matern. Fetal Neonatal Med.* 27 (3) (2014) 297–302.
- [13] H.P. Dietz, A.B. Steensma, Which women are most affected by delivery-related changes in pelvic organ mobility? *Eur. J. Obstet. Gynecol. Reprod. Biol.* 111 (2003) 15–18.
- [14] P.A. Moalli, S. Jones Ivy, L.A. Meyn, H.M. Zyczynski, Risk factors associated with pelvic floor disorders in women undergoing surgical repair, *Obstet. Gynecol.* 101 (2003) 869–874.
- [15] M.S. Yildiz, E. Ekmekci, A laparoscopic procedure for the treatment of uterine prolapse during pregnancy: a case series, *Eur. J. Obstet. Gynecol. Reprod. Biol.* 242 (2019) 33–35.
- [16] E. Pott-Grinstein, J.R. Newcomer, Gynecologists' patterns of prescribing pessaries, *J. Reprod. Med.* 46 (2001) 205–208.
- [17] J. Tukur, A.O. Omale, H. Abdullahi, Z. Datti, Uterine prolapse following fundal pressure in the first stage of labour: a case report, *Ann. Afr. Med.* 6 (2007) 194–196.
- [18] E.E. Büyükbayrak, G. Yilmazer, A.G. Özyapı, B. Kars, A.Y.K. Karşıdağ, C. Turan, Successful management of uterine prolapse during pregnancy with vaginal pessary: a case report, *J. Turkish German Gynecol. Assoc.* 11 (2) (2010) 105.
- [19] N. Mohamed-Suphan, R.K.W. Ng, Uterine prolapse complicating pregnancy and labor: a case report and literature review, *Int. Urogynecol. J.* 23 (5) (2012) 647–650.
- [20] C. Zeng, F. Yang, C. Wu, J. Zhu, X. Guan, J. Liu, Uterine prolapse in pregnancy: two cases report and literature review, *Case Rep. Obstet. Gynecol.* 2018 (2018).
- [21] E. Elci, G. Elci, S. Sayan, Presentation of two cases with uterine prolapse occurring in pregnancy, *J. Obstet. Gynaecol.* 40 (4) (2020) 571–572.
- [22] M.A.B.H. Hassine, H. Siala, Uterine prolapse in pregnancy, *Pan African Med. J.* 22 (1) (2015).
- [23] R. Karataylı, K. Gezginç, A.H. Kantarcı, A. Acar, Successful treatment of uterine prolapse by abdominal hysteropexy performed during cesarean section, *Arch. Gynecol. Obstet.* 287 (2) (2013) 319–322.
- [24] A. Barik, A. Ray, A rare case of pregnancy complicated by uterine prolapse and cervical fibroid, *Cureus* 12 (7) (2020).
- [25] R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, A. Kerwan, SCARE Group, The SCARE 2020 guideline: updating consensus Surgical CAsE REport (SCARE) guidelines, *Int. J. Surg.* S1743–9191 (20) (2020) 30771–30778.