



## Prolapse in pregnancy

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### 1. Introduction

Pelvic organ prolapse (POP) is reported to occur in up to 50 % of parous women [1]. Those at most risk are women who have given birth vaginally, experienced menopause, are overweight, have connective tissue disorders or have undergone a hysterectomy [2,3]. The condition occurs when the pelvic organs, either the bladder, uterus and/or rectum, descend into the vaginal canal and may protrude outside the body. This can lead to a vaginal lump or bulge causing discomfort and urinary, bowel or sexual dysfunction, significantly impacting a woman's quality of life [4]. Uterine and cervical prolapse, however, is a rare phenomenon in pregnancy, with an estimated incidence of 1 in 10–15,000 deliveries [5]. A retrospective cohort study found the incidence of gravid uterine prolapse to be 1 in 4209 deliveries (23.8 per 100,000). The additional increased intraabdominal pressure due to the growing uterus and physiological effects of pregnancy with reduced oestrogen and increased relaxin may cause elongation of the cervix, with hypertrophy and relaxation of the pelvic ligaments and muscles [6] possibly further increasing a susceptible woman's risk of prolapse in pregnancy.

The International Urogynaecology Association has defined antepartum prolapse symptoms as a departure from normal sensation, structure or function experienced by the woman about the position of her pelvic organs during pregnancy. It describes the clinical assessment to demonstrate descent of one or more of the anterior vaginal wall, posterior vaginal wall, the uterus (cervix) or the perineum (perineal descent) [7].

### 2. Antenatal Factors

Various antenatal factors have been found to increase the risk of POP in pregnancy. A multivariable analysis of a large pregnant cohort found the following antenatal features to be risk factors for gravid uterine prolapse: age  $\geq 40$  years (adjusted odds ratio (aOR) 3.21; 95 % confidence interval (CI) 2.70–3.81); age 35–39 years (aOR 2.66; 95 % CI 2.37–2.99); Black (aOR 1.48; 95 % CI 1.34–1.63), Asian (aOR 1.45; 95 %

CI 1.28–1.64), and Native American race/ethnicity (aOR 2.17; 95 % CI 1.63–2.88); tobacco use (aOR 1.19; 95 % CI 1.03–1.37); grand multiparity (aOR 1.78; 95 % CI 1.24–2.55); and history of pregnancy losses (aOR 2.20; 95 % CI 1.48–3.26) [8].

### 3. Pregnancy-Associated Factors and Management

The following pregnancy characteristics have been found to have increased association with gravid uterine prolapse: cervical insufficiency (aOR 3.25; 95 % CI 1.94–5.45), preterm labour (aOR 1.53; 95 % CI 1.18–1.97), preterm premature rupture of membranes (aOR 1.40; 95 % CI 1.01–1.94), and chorioamnionitis (aOR 1.64; 95 % CI 1.18–2.28) [8]. Complications in the antepartum period can include discomfort, urinary retention or preterm labour, with some cases of cervical incarceration reported [9].

Prolapse may present for the first time in pregnancy. Assessment primarily represents clinical examination, as well as ability to empty the bladder. There are few guidelines outlining recommended management. Treatment is primarily conservative – reduction of the prolapse, pelvic floor muscle exercises, maintaining a healthy weight, avoiding constipation or heavy lifting [10], silicone pessaries (most commonly ring pessaries) [11] – but in extreme and rare instances laparoscopic surgical intervention has been reported [12,13]. Often the pessaries can be self-managed by the patient and have been found to be safe to use in pregnancy [11]. The described surgical interventions include laparoscopic uterine suspension in early pregnancy, but this is a controversial management approach with potentially high risk of failure [12].

### 4. Intrapartum Factors

Intrapartum complications can include cervical laceration or obstructed labour [11,14]. When compared with a non-prolapse group, intrapartum characteristics most associated with gravid uterine prolapse include preterm delivery at  $<34$  weeks of gestation (69.1 vs 32.0 per 1000; aOR 1.86; 95 % CI 1.34–2.59) and precipitate labour (35.2 vs

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20.1; aOR 1.73; 95 % CI 1.22–2.44). The following post-partum complications are also increased in the prolapse group compared with the non-prolapse group: postpartum haemorrhage (aOR 2.70; 95 % CI 2.20–3.32), uterine atony (aOR 2.10; 95 % CI 1.46–3.03), uterine inversion (aOR 31.97; 95 % CI 16.60–61.58), systemic shock (aOR 4.18; 95 % CI 1.41–12.40), blood transfusion (aOR 2.06; 95 % CI 1.34–3.18), and peripartum hysterectomy (aOR, 3.02; 95 % CI 1.40–6.51) [8].

Mode of delivery is an important issue to address. A nationwide analysis found women with gravid uterine prolapse were less likely to deliver via caesarean section compared with those without gravid uterine prolapse (aOR 0.51; 95 % CI 0.44–0.61) [8]. Factors such as parity, plans for future pregnancies and other obstetric factors are all essential to consider. In addition, counselling women regarding their risk of worsening other pelvic floor dysfunction symptoms such as urinary or faecal incontinence are also areas to explore. A decision analysis model analysed increasing POP risk with increasing vaginal parity and other factors, and found the prevalence of POP to be 20 % after one vaginal delivery and 29 % after four deliveries, with no difference between the groups. This suggests that it is the single vaginal delivery that primarily causes the damage [15]. Also, demonstrated from a systematic review of risk factors in pregnancy, labour and delivery for pelvic organ prolapse, they found that it is the first vaginal delivery that is the risk factor for POP as measured by symptoms of POP (OR 2.65; 95 % CI 1.81–3.88) and clinical findings of POP (OR 4.85; 95 % CI 2.15–10.94) [16]. Viewed purely from the perspective of POP in a parous woman, then it would be reasonable for a woman to complete her family via vaginal deliveries and then undergo definitive surgical treatment for her POP, as caesarean section in a subsequent pregnancy is not evidenced to protect against worsening POP as it is the first vaginal delivery that counts.

## 5. Conclusion

POP in pregnancy is not a common finding or complaint; however, it can have serious consequences, with intrapartum and postpartum sequelae. It is therefore important for clinicians to offer the appropriate management options to women, of which vaginal support pessaries are the most common and accepted.

## Contributors

Annika Taithongchai contributed to drafting manuscript, undertaking the literature review and revising the article critically for important intellectual content.

Dudley Robinson contributed to revising the article critically for important intellectual content.

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## References

- [1] A.L. Olsen, V.J. Smith, J.O. Bergstrom, J.C. Colling, A.L. Clark, Epidemiology of surgically managed pelvic organ prolapse and urinary incontinence, *Obstet. Gynecol.* 89 (1997) 501–506.
- [2] Sascha F.M. Schulten, Marieke J. Claas-Quax, Mirjam Weemhoff, Hugo W. van Eijndhoven, Sanne A. van Leijsen, Tineke F. Vergeldt, Joanna Int'Hout, Kirsten B. Kluivers, Risk factors for primary pelvic organ prolapse and prolapse recurrence: an updated systematic review and meta-analysis, *Am. J. Obstet. Gynecol.* 227 (2) (2022) 192–208.
- [3] T. Aigmueller, A. Dungal, S. Hinterholzer, I. Geiss, P. Riss, An estimation of the frequency of surgery for posthysterectomy vault prolapse, *Int. Urogynecol. J.* 21 (2009) 299–302.
- [4] X. Fritel, N. Varnoux, M. Zins, G. Breart, V. Ringa, Symptomatic pelvic organ prolapse at midlife, quality of life, and risk factors, *Obstet. Gynecol.* 113 (3) (2009 Mar) 609–616.
- [5] I.K. Mufarrij, W.C. Keettel, Prolapse of the uterus associated with pregnancy, *Am. J. Obstet. Gynecol.* 73 (1957) 899–903, [https://doi.org/10.1016/0002-9378\(57\)90404-0](https://doi.org/10.1016/0002-9378(57)90404-0).
- [6] L. Guariglia, B. Carducci, A. Botta, S. Ferrazzani, A. Caruso, Uterine prolapse in pregnancy, *Gynecol. Obstet. Invest.* 60 (2005) 192–194, <https://doi.org/10.1159/000087069>.
- [7] S.K. Doumouchtsis, R. de Tayrac, J. Lee, et al., An international continence society (ICS)/ international Urogynecological association (IUGA) joint report on the terminology for the assessment and management of obstetric pelvic floor disorders, *Int. Urogynecol. J.* 34 (2023) 1–42, <https://doi.org/10.1007/s00192-022-05397-x>.
- [8] R.R. Deshpande, S. Matsuzaki, K.R. Cox, O.B. Foy, R.S. Mandelbaum, J. G. Ouzounian, C.E. Dancz, K. Matsuo, Incidence, characteristics, and maternal outcomes of pregnancy with uterine prolapse, *Am. J. Obstet. Gynecol. MFM* 5 (8) (2023 Aug) 101020.
- [9] X. Yang, T. Feng, A case report of vaginal delivery in the second trimester of severe uterine prolapse complicated with cervical incarceration, *Medicine (Baltimore)* 103 (7) (2024) e37202, <https://doi.org/10.1097/MD.00000000000037202>.
- [10] NICE guideline (NG210), Pelvic Floor Dysfunction: Prevention and Non-surgical Management NG210 Evidence Review Q, 2024 (Accessed 18<sup>th</sup> December 2024).
- [11] P.S. Hill, Uterine prolapse complicating pregnancy. A case report, *J. Reprod. Med.* 29 (1984) 631–633.
- [12] T. Matsumoto, M. Nishi, M. Yokota, M. Ito, Laparoscopic treatment of uterine prolapse during pregnancy, *Obstet. Gynecol.* 93 (1999) 849, [https://doi.org/10.1016/s0029-7844\(98\)00494-3](https://doi.org/10.1016/s0029-7844(98)00494-3).
- [13] M.M. Meydanli, Y. Ustun, O.T. Yalcin, Pelvic organ prolapse complicating third trimester pregnancy. A case report, *Gynecol. Obstet. Invest.* 61 (2005) 133–134, <https://doi.org/10.1159/000090034>.
- [14] P. Tsikouras, A. Dafopoulos, N. Vrachnis, et al., Uterine prolapse in pregnancy: risk factors, complications and management, *J. Matern. Fetal Neonatal Med.* 27 (3) (2014) 297–302, <https://doi.org/10.3109/14767058.2013.807235>.
- [15] L.A. Cadish, J.P. Shepherd, C.E. Bretschneider, Projecting future prolapse outcomes with induction of labor at 39 weeks: a decision analysis, *Int. Urogynecol. J.* 35 (2) (2024 Feb) 311–317.
- [16] L. Cattani, J. Decoene, A.S. Page, N. Weeg, J. Deprest, H.P. Dietz, Pregnancy, labour and delivery as risk factors for pelvic organ prolapse: a systematic review, *Int. Urogynecol. J.* 32 (7) (2021 Jul) 1623–1631.

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