

# Rupture of the cervix during pregnancy after cervical pessary insertion for preventing preterm birth

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## Abstract

We present a rare case of a complication after pessary insertion during pregnancy due to short cervix. A woman in the 35th week of gestation was admitted to the Department of Perinatology due to preterm labor. The patient's history revealed cervical pessary insertion during the 29th week of pregnancy due to a cervix of 18 mm in length. Because of threatened preterm labor, the pessary was removed. After pessary removal, a rupture of the cervix was diagnosed. Because of active labor and cervical rupture, a cesarean section was performed and a healthy newborn was delivered. After cesarean section the cervical rupture was sutured. Five days after the operation, the patient underwent surgery again due to a necrotically changed part of the cervix. This part of the cervix was removed. We present this case to emphasize that cervical pessaries can cause serious complications during pregnancy. Clinicians should take this into consideration before qualifying patients for pessary insertion.

**Key words:** incompetent cervix, obstetric complications, premature labor, prematurity – risk assessment and prevention.

## Introduction

Preterm delivery (PTD), defined as delivery before the 37th week of pregnancy, is the leading cause of perinatal morbidity and mortality. Preventing preterm birth is one of the most important targets in current obstetrics care. So far, two preventing strategies among singleton pregnancies with risk factors for PTD have proved to be effective: (i) progesterone; and, in certain circumstances, (ii) cervical cerclage. A third method, which is utilized in the prevention of PTD in singleton pregnancies, is the insertion of a cervical pessary. However, the results of the randomized controlled trials published so far are inconsistent in terms of their effectiveness.<sup>1,2</sup> Goya *et al.* proved that insertion of a pessary in women with a cervical length  $\leq 25$  mm at 18–22 weeks of gestation reduced the risk of spontaneous PTD before 34 weeks of gestation.<sup>1</sup> On the other hand, Hui *et al.* failed

to reveal that the prophylactic use of cervical pessary in women with cervical length  $< 25$  mm at 20–24 weeks of gestation reduces the rate of PTD before 34 weeks of gestation.<sup>2</sup> Recently published studies indicate that routine treatment with cervical pessaries in women with twin pregnancies does not reduce the rate of spontaneous preterm birth.<sup>3,4</sup> However, Liem *et al.* have shown that in a subgroup of women with a twin pregnancy and a cervical length  $< 38$  mm (25th percentile for twin pregnancy) between 16 and 22 weeks of gestation, cervical pessaries reduce poor perinatal outcome and the risk of birth before the 32nd week of pregnancy.<sup>5</sup>

Pessaries were first described in 1959.<sup>6</sup> It has been postulated that pessaries reduce pressure on the internal os of the cervix, preventing the protrusion of fetal membranes.<sup>6</sup> It has also been suggested that pessaries might change the inclination of the cervical canal and compress the cervix. Even with over 50 years' experience

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of using cervical pessaries, the precise effectiveness and mechanism of their action is unknown. Based on a review of the published work, it seems reasonable to offer pessary insertion to women with singleton pregnancy and short cervix, defined as cervical length less than 25 mm on transvaginal ultrasonography, before the 24th week of pregnancy. However, there is still uncertainty up to what gestational age it is medically justifiable to apply this method of treatment. Based on the published work, cervical pessaries are thought to be a safe method with very few complications. In our opinion, due to their ease of insertion and the paucity of reports on their adverse effects, cervical pessaries have recently become relatively widely used in the prevention of PTD. We think that in some cases they are being used without clear medical indication.

In this report, we present for the first time a description of a very rare and serious complication after pessary insertion: rupture of the cervix. Our aim is to inform clinicians about the possibility of severe pessary complications and to reduce the incidence of medically unjustified insertions of pessaries.

## Case Report

A 31-year-old woman in the 35th week of gestation was admitted to the Department of Perinatology due to threatened preterm labor. The patient's history revealed cervical pessary insertion in another perinatal center during the 29th week of pregnancy due to short cervix. The patient explained that at the time of pessary placement, she was asymptomatic and had no uterine contractions. At the time of pessary insertion, the patient's cervix had a length of 18 mm as measured with transvaginal ultrasound. The patient presented results of vaginal and cervical swabs preceding pessary placement, which showed no signs of infection.

The patient was admitted during the 35th week of gestation with regular uterine contractions and consequently the cervical pessary was removed. After pessary removal, a pressure sore of the anterior and posterior labium of the cervix was diagnosed with a 4-cm longitudinal rupture of the anterior labium of the cervix. Due to the beginning of labor and severe cervical rupture, a cesarean section was performed and a male newborn, weighing 2780 g, was delivered in good condition (10 points in Apgar score in the 1st and the 5th minute).

After cesarean section, a cervical pressure sore and rupture was visualized in the speculum (Fig. 1). A decision was made to suture the rupture but not to



**Figure 1** Cervical pressure sore and rupture. Cervical dilatator is inserted through the external os of the cervix to the uterus. Dilatator is visible at the bottom of the rupture.

remove the surrounding, livid part of the cervix in the hope that after pressure removal, it would recover. During 5 days of observation, the cervix did not regain its normal color, moreover a focus of necrosis appeared on its distal part (Fig. 2). For this reason another operation was performed and the necrotic part of the cervix was removed. During check-ups, regular healing of the cervix wound was observed and 2 months after cesarean section, the cervix had healed (Fig. 3). The histopathological examination of the resected part of the cervix revealed hemorrhagic necrosis, and the vaginal swabs obtained after pessary removal showed no signs of infection.

## Discussion

Common complications after pessary insertion include vaginal discharge due to collection of fluid behind the device, which is released incidentally, and feelings of discomfort and pressure pain in the pelvis.<sup>6</sup> Goya *et al.* reported that all women in the pessary group in their study had vaginal discharge.<sup>1</sup> In a study



**Figure 2** Focus of necrosis on the distal part of the cervix.



**Figure 3** Healed cervix 2 months after the first operation.

conducted by Nicolaides, cervical pessaries were associated with vaginal discharge in 42% of patients.<sup>4</sup> Here, for the first time, we present a case of cervical pressure sore and rupture. We believe that this situation occurred due to pressure applied to the cervix by the pessary during the pregnancy, resulting in obstructed blood flow and finally necrosis and rupture. Despite a precise search of the available databases, we did not manage to identify similar reports. However, we have found descriptions of two other rare pessary complications. The first one involved a case in which the pessary was not removed until an advanced stage of labor, resulting in the loss of a small ring of cervical tissue shortly after delivery.<sup>7</sup> In the second case, uterine prolapse through the opening of the pessary took place.<sup>6</sup> There were no signs of incarceration and the pessary was cut, removed and replaced.

These above-mentioned cases indicate that, although very rarely, serious complications after pessary insertion do take place. Therefore, it is extremely important to implement treatment with pessaries according to medical indications. The woman presented in this case had the pessary inserted in the 29th week of gestation. In our opinion, this treatment was unfounded. Around the 30th week of gestation, the cervix normally shortens progressively so cervical length < 25 mm is physiological and not indicative of PTD in asymptomatic women.<sup>8</sup> On the other hand, it is worth remembering that certain clinical situations require pessary removal. Usually it is removed at around the 37th week of gestation.<sup>6</sup> It should also be removed in case of severe uterine contractions, active vaginal bleeding, or severe patient discomfort.<sup>1,6</sup> In case of preterm premature rupture of membranes, the pessary can be left only after exclusion of contractions and chorioamnionitis.<sup>6</sup>

Pessaries are generally well tolerated and 95% of women recommend this intervention to other people.<sup>1</sup> Our case and two other above-mentioned complications present extremely rare exceptions. However, in our opinion, in order to avoid as many complications as possible, physicians should not insert pessaries when the indications are clinically doubtful. They should also choose the best pessary size for the individual woman, which is precisely described by Arabin.<sup>6</sup>

## Disclosure

No author has any potential conflict of interest.

## References

1. Goya M, Pratcorona L, Merced C *et al.* Cervical pessary in pregnant women with a short cervix (PECEP): an open-label randomised controlled trial. *Lancet* 2012; **379**: 1800–1806.
2. Hui SY, Chor CM, Lau TK, Lao TT, Leung TY. Cerclage pessary for preventing preterm birth in women with a singleton pregnancy and a short cervix at 20 to 24 weeks: A randomized controlled trial. *Am J Perinatol* 2013; **30**: 283–288.
3. Liem S, Schuit E, Hegeman M *et al.* Cervical pessaries for prevention of preterm birth in women with a multiple pregnancy (ProTWIN): A multicentre, open-label randomised controlled trial. *Lancet* 2013; **382**: 1341–1349.
4. Nicolaides KH, Syngelaki A, Poon LC *et al.* Cervical pessary placement for prevention of preterm birth in unselected twin pregnancies: A randomized controlled trial. *Am J Obstet Gynecol* 2016; **214**: 3e1–3e9.
5. Liem SM, Schuit E, van Pampus MG *et al.* Cervical pessaries to prevent preterm birth in women with a multiple pregnancy: A per-protocol analysis of a randomized clinical trial. *Acta Obstet Gynecol Scand* 2016; **95**: 444–451.
6. Arabin B, Alfirevic Z. Cervical pessaries for prevention of spontaneous preterm birth: Past, present and future. *Ultrasound Obstet Gynecol* 2013; **42**: 390–399.
7. Arabin B, Halbesma JR, Vork F, Hubener M, van Eyck J. Is treatment with vaginal pessaries an option in patients with a sonographically detected short cervix? *J Perinat Med* 2003; **31**: 122–133.
8. Mella MT, Berghella V. Prediction of preterm birth: Cervical sonography. *Semin Perinatol* 2009; **33**: 317–324.