



Case report

Obstetric care after radical abdominal trachelectomy in a patient with stage IB1 cervical cancer: A case report and a review of medical literature



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1. Introduction

The standard recommendation for the treatment of patients with early stage cervical cancer (stage IA2 – IB1) is radical hysterectomy with bilateral pelvic lymphadenectomy (Farthing, 2006; Kay et al., 2006). However, for patients who are keen in preserving fertility, radical trachelectomy has emerged to be an appropriate and effective method of managing early stage cervical cancer without compromising oncological outcomes (Knight et al., 2010; Park et al., 2014). Abdominal Radical Trachelectomy (ART) has emerged as an alternative to Vaginal Radical Trachelectomy as a fertility sparing procedure in young women diagnosed with early stage cervical cancer. The oncological and obstetrical outcome from this procedure appears to be promising. We report the obstetric care of a patient who had a successful pregnancy outcome after ART and review the current literature.

2. Case Presentation

The patient was a 30 years old nulligravid lady when she was diagnosed with Stage IB1 squamous cell carcinoma of the cervix after a cone biopsy in 2011. Magnetic resonance imaging (MRI) showed no extra-cervical disease spread and no lymph node enlargement. She was counseled on the options of radical hysterectomy versus a radical trachelectomy and she opted for the fertility sparing option of ART. About 2.8 cm length of the cervix was removed leaving approximately 1 cm of the endocervix behind. Frozen section of the pelvic lymph nodes and the endocervical margins were negative for malignancy. A cervical cerclage using permanent Ethibond suture was inserted at the level of the internal os during surgery. Final histology revealed no pelvic nodal metastases or any residual malignancy in the trachelectomy specimen.

She was well postoperatively and resumed normal menses 2 months later. She attempted to become pregnant a year later and conceived naturally 16 months after surgery in 2013. Unfortunately she had preterm premature rupture of membranes and miscarried at 17 weeks of

gestation despite progesterone support. The cervical cerclage was removed during evacuation of uterus, allowing the fetus to be aborted vaginally.

She conceived spontaneously again 6 months later in 2014. She underwent close antenatal surveillance every 2 weeks with ultrasound cervical length measurements from 12 weeks onwards. Oral progesterone (Duphaston 10 mg twice daily) were commenced and weekly intramuscular (IM) progesterone (proluton) was administered from 12 weeks of gestation onwards as progesterone support. Her cervical length measured at 1.6–1.8 cm with no evidence of funneling and a cervical cerclage was attempted at 14 weeks of gestation. However, there were technical difficulties and an occlusion of cervix with interrupted prolene suture was performed. The patient was advised for home rest in the third trimester. At 34 weeks of gestation, prophylactic IM dexamethasone was given with a planned caesarean delivery at 37 weeks. However, at 35 + 5 weeks of gestation, she presented with leaking liquor and the sensation of decreased fetal movement. Vaginal examination confirmed that her membranes were ruptured. She was immediately admitted for emergency caesarean section via transverse lower segment uterine incision and removal of cervical cerclage under spinal anesthesia. A healthy male infant weighing 2090 g was delivered with good Apgar scores. Placenta histology showed acute chorioamnionitis and funisitis. Both mother and baby recovered well and were discharged on the 3rd postoperative day. She was well on follow-up, is disease free and planning for another pregnancy soon.

3. Discussion

The optimal obstetric management of patients who have undergone radical abdominal trachelectomies remains a challenge for obstetricians. It requires a multidisciplinary team comprising gynecologic oncologists, maternal fetal specialists, obstetricians and neonatologists. These pregnancies are at high risk of 2nd trimester miscarriage, preterm premature rupture of membranes (PPROM) and preterm birth.

Preterm labor is the most common and important complication of post-radical trachelectomy, with a rate of preterm delivery as high as 25–39% (Jolley and Wing, 2008; Plante, 2008; Cibula et al., 2008; Pareja et al., 2013) and this is likely due to the reduction in mechanical support from a shortened cervix. Preterm delivery following PPRM is also attributable to an ascending infection (Bernardini et al., 2003;

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Shepherd et al., 2006; Shepherd et al., 2001). The routine placement of a cervical cerclage is usually performed during the trachelectomy. However, there is a risk of cervical stenosis and cerclage erosion. In a series of 46 patients, Ma et al. suggest that routine cerclage may not be necessary either before or during pregnancy after vaginal trachelectomy but a larger study is needed to confirm this (Ma et al., 2014).

Early Total Cervical Occlusion (ETCO) has been described as another measure for patients with cervical incompetence but is yet to have proven efficacy in patients with trachelectomy (Knight et al., 2010). In our patient, a cervical cerclage was placed during radical abdominal trachelectomy but was subsequently removed when she experienced a second trimester miscarriage. A cervical cerclage was attempted at 13 weeks of gestation in her second pregnancy but converted to a cervical occlusion due to technical difficulty. Regular ultrasound surveillance of the cervical length every 2 weeks is recommended from the 2nd trimester onwards (Knight et al., 2010).

Our patient underwent ultrasound measurement of cervical length every 2 weeks from 12 weeks gestation to monitor for cervical length shortening and funneling for the duration of her pregnancy. Complete bed rest has been suggested as a measure to reduce miscarriage risk or preterm labor especially in women who had bleeding, pain or signs of cervical shortening, though there is no conclusive evidence (Knight et al., 2010). Our patient stopped work and had home rest from the 3rd trimester onwards.

Ascending vaginal infection may cause chorioamnionitis and Plante's review showed that the rate of second trimester miscarriage is around twice that of the general population (8.6% to 4%), most of which were due to infection and PPROM (Plante, 2008; Plante, 2013). The absence of the protective cervical mucus plug may be an attributing factor for ascending infection (Shepherd et al., 2001). It has been recommended to give prophylactic antibiotics at vulnerable times (16 and 24 weeks) to eradicate vaginal flora or perform bimonthly screening from 16 weeks onwards and treated with antibiotics if needed (Shepherd et al., 2001; Shepherd and Milliken, 2008). Furthermore, others have reported the use of daily vaginal povidone-iodine and insertion of ulinastatin vaginal pessary to prevent infection (Ishioka et al., 2007). However, similar to Knight et al., we do not routinely administer prophylactic antibiotics unless there are interventions performed as well as evidence of infection or signs and symptoms of chorioamnionitis (Knight et al., 2010).

Numerous meta-analyses have concluded that progesterone supplementation is protective against recurrent preterm birth (Sanchez-Ramos et al., 2005; Mackenzie et al., 2006; Dodd et al., 2008; Rode et al., 2009; Piso et al., 2014). Summary of multiple randomized studies indicates that in women with a documented history of prior spontaneous preterm birth, weekly intramuscular injections of 17-alpha-hydroxyprogesterone caproate prophylaxis (Meis et al., 2003; Johnson et al., 1975) and daily supplementation with progesterone vaginal suppositories (da Fonseca et al., 2003) had a significantly reduced risk of recurrent preterm birth at all gestational ages studied. In women with singleton gestations, no prior preterm birth, and short cervical length <20 mm at <24 weeks, vaginal progesterone, either 90 mg gel or 200 mg suppository, is associated with a significant reduction in the risk of preterm birth <34 weeks, preterm birth <37 weeks and an increase in pregnancy prolongation in weeks. It also reduces perinatal morbidity and mortality such as infant birthweight <2500 g, need for assisted ventilation, necrotising enterocolitis, neonatal death and admission to neonatal intensive care unit and can be offered in these cases (Hassan et al., 2011; Fonseca et al., 2007). Our patient was prescribed oral progestogens twice daily and weekly prolonon from 12 weeks of gestation till 34 weeks as she could not tolerate vaginal pessaries.

Intramuscular corticosteroids are administered when a patient presents with threatened preterm labor. Steroids administration has been shown to prevent respiratory distress syndrome if given >24 h and <7 days before delivery (Brownfoot et al., 2013). In this patient,

intramuscular dexamethasone was prophylactically given at 34 weeks of gestation.

Caesarean section timing is also controversial with some authors suggesting as early as 34 weeks to avoid the risk of uterine contractions (Knight et al., 2010), whereas others suggest that it can be performed at 37 weeks (Ma et al., 2014). Uterine contraction onset in these women could have a serious risk of uterine rupture and haemorrhage (Kay et al., 2006). Some authors have suggested that a classical incision in order to prevent lateral extension into the uterine vessels should be performed. However, this may pose a higher risk of intraoperative bleeding. Comparatively, a transverse incision could also predispose to damage to uterine arteries and postpartum haemorrhage (Ishioka et al., 2007). Some authors have shown that a transverse uterine incision is safe in post trachelectomy patients (Ma et al., 2014; Ishioka et al., 2007). We aimed to have a caesarean section at 37 weeks but she suffered a pre-term premature rupture of membranes at 35 + 5 weeks. We performed an emergency caesarean section via a transverse uterine incision without any intra or postoperative complications such as haemorrhage.

4. Conclusion

Obstetric management of pregnancy following radical abdominal trachelectomy is challenging and requires a multidisciplinary approach. In summary, several antenatal measures that may improve the obstetric outcome include cervical cerclage placement during trachelectomy or during the 2nd trimester with a consideration for an ETCO if cerclage is not possible; close ultrasound surveillance of the cervical length every 2 weeks from 12 weeks gestation; progesterone support from 12 weeks to reduce risk of preterm labor; consider prophylactic antibiotics at 16 and 24 weeks gestation to reduce the risk of ascending infection; and a reduction of physical activity during pregnancy. Most centres aim for delivery between 34 and 37 weeks of gestation and although the route of delivery is usually via a classical caesarean section, a low transverse uterine incision has also been shown to be safe.

Conflict of interest statement

The authors declare that they have no competing interests.

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