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Second trimester termination of pregnancy complicated by abnormal placentation

Suruchi Mohan, Sarika Nandanan, Tehmina Riaz, Lavinia Margarit

ABSTRACT

Introduction: The presence of placenta praevia or a morbidly adherent placenta with or without co-existing previous caesarean sections can complicate 2.3% of second trimester terminations of pregnancy. Potential life-threatening haemorrhage can pose significant risks to the patient. Available guidance on second trimester terminations does not distinguish between cases with or without abnormal placentation and/ or previous caesarean deliveries. Case Series: We present our experience with three cases requiring termination of pregnancy for foetal anomalies. The first patient presented with placenta accreta, the second had placenta praevia and the third patient had 3 previous caesarean sections and placenta praevia. They were managed differently and had varying outcomes. A search of the existing literature demonstrated that there is a lack of evidence to suggest the most appropriate method of management of these difficult clinical situations. Conclusion: These isolated cases need to be reported, to constitute a base for collective evidence in the future to inform optimal management.

Keywords: Fetal abnormality, Placenta accreta, Placenta praevia, Placenta percreta, Termination of pregnancy

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INTRODUCTION

Placenta praevia is the condition where the placenta is attached to the lower uterine segment. If the placenta is abnormally attached or penetrating into the myometrium, the terms used are: placenta 'accreta', 'increta' and 'percreta'. Normal placentation is characterised by trophoblast invasion limited to the decidua basalis [1]. In placenta accreta there is direct attachment of the chorionic villi to the myometrium beyond the decidua. When the villi invade deeper into the myometrium the term placenta increta is used, and placenta percreta represents penetration of the villi through the uterine serosa [1].

The presence of a placenta praevia or abnormal placentation can pose a serious management challenge during second trimester terminations of pregnancy. As many as 2.3% of second trimester terminations of pregnancy are associated with defective placentation [1]. These cases are often characterized by torrential haemorrhage and the pressure to retain the uterus in these, often young, patients creates a complicated clinical situation.

For second trimester terminations, medical methods are usually the preferred option. The RCOG recommends a regimen of Mifepristone 200 mg to be given orally, followed 24–48 hours later by Misoprostol 800 micrograms vaginally, then Misoprostol 400 micrograms orally or vaginally, 3-hourly, to a maximum of four further doses. If this treatment is not successful, Mifepristone

can be repeated 3 hours later followed by restarting the Misoprostol twelve hours later [2]. However, there is no distinction within this guidance for the cases complicated by a placenta previa or a morbidly adherent placenta or by previous caesarean deliveries. There are not many studies evaluating the optimal management of these clinical situations.

The following three cases illustrate our experience with second trimester terminations complicated by abnormal placentae. We have also reviewed the relevant existing literature.

CASE SERIES

Case 1

A 28-year-old woman with one previous delivery (by elective caesarean section) underwent a transvaginal ultrasound scan (TVS) at 14 weeks, and the placenta was noted to be covering the cervical os. A repeat scan at 20 weeks showed a possible fetal spinal segmentation defect, abnormal cranial anatomy and anhydramnios. The placenta was again visualised lying across the cervix and with prominent vessels adjacent to it. It was diagnosed as a possible placenta accreta on colour Doppler examination. The woman opted for termination of pregnancy.

A medical termination was initiated and the patient received 200 mg of Mifepristone followed by four doses of 100 mg of Misoprostol four hourly. The lower dose of Misoprostol was used because of the previous caesarean section. The foetus was delivered after the third dose of Misoprostol. The placenta was retained and active bleeding noted. An examination under anaesthetic was performed and a Bakri balloon was inserted followed by uterine artery embolisation which did not control the bleeding. A hysterectomy was then performed. The total blood loss was estimated to be approximately 7000 ml and, in total, 8 units of blood and fresh frozen plasma, platelets and fibrinogen were given. The patient was cared for on the ITU for three days, followed by six days in the ward before being discharged home.

The histopathological examination of the uterus and cervix showed findings consistent with placenta percreta with extensive invasion of cervix seen all around the cervical circumference. The fetus had been delivered through the placenta (Figure 1 and 2).

Figure 1: The uterus after hysterectomy with placenta covering the entire cervix.

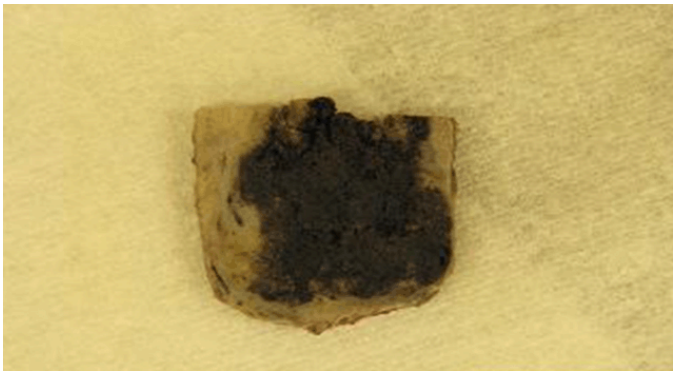

Figure 2: Complete invasion of the placenta into the cervical stroma anteriorly and posteriorly.

Case 2

A 26-year-old woman in her second pregnancy (with one previous caesarean section) was found to have multiple fetal anomalies at the 20 week scan together with a posterior placenta praevia. The TVS and colour Doppler appearance did not suggest an adherent placenta. The woman opted for medical termination of pregnancy and was administered 200mg of oral Mifepristone followed by four doses of 100mg of Misoprostol. This regime of Misoprostol was chosen because of the previous caesarean section. As there was no change in response to this regime, the next day a dose increase was implemented. Four doses of 200 mg Misoprostol were then given four hourly, again, without success. The following day a decision was made to insert an extra amniotic Foley's catheter size 14 for cervical dilatation. Spontaneous rupture of membranes occurred and the catheter was expelled. This was followed by the delivery of the fetus and the placenta. The total estimated blood loss was 800ml. The patient recovered well and no transfusion was necessary.

Case 3

A 36-year-old G6P3+2, who was a Type 2 Diabetic on insulin, with three previous caesarean sections attended for a routine 20 week scan. The fetus had multiple congenital anomalies. Also, a placenta praevia was noted on TVS, with no features that would be suggestive of placenta accreta on a colour Doppler scan. The woman opted for a termination of pregnancy. A feticide was performed at 21+6 weeks gestation as per RCOG recommendations [2]. In view of the previous surgical history, a hysterotomy was organised. Uterine artery embolisation was performed prior to surgery, in the operating theatre. At hysterotomy, the uterine incision was above the placental edge and the fetus was delivered followed by the placenta having been separated manually. There was bleeding from the placental bed. A Bakri balloon was

inserted which effectively controlled the haemorrhage. The estimated blood loss was approximately 1500ml. The patient required blood transfusion and was cared for on the ITU for 6 days before returning to the ward and being discharged home.

DISCUSSION

Placenta praevia is relatively uncommon, but the incidence is increasing because of the rise in the Caesarean section rate. The overall incidence of placenta praevia is reported as being 3.5 to 4.6 per 1000 births [3]. Fitzpatrick et al, (in 2012) studied the incidence and risk factors for placenta accreta/increta/ percreta in the UK and found that the overall incidence was 1.7 per 10,000 maternities. They studied the risk factors and found that the odds of having a morbidly adherent placenta were increased in cases of: previous caesarean delivery (adjusted odds ratio aOR 14.41), other previous uterine surgery (aOR3.40), placenta praevia (aOR 65.02), IVF pregnancy (aOR 32.13) and older maternal age (aOR 1.30) [4].

The initial challenge is the correct diagnosis of the placental position and adherence. At early gestations, ultrasound remains the most useful modality for diagnosing placenta praevia with transvaginal ultrasound having an advantage over trans-abdominal scanning [5].

For the diagnosis of a morbidly adherent placenta, the sonographic features with the best sensitivity rates are intra-placental lacunae and loss of normal retro-placental clear space [6]. An ultrasound including colour Doppler scanning may help diagnose a morbidly adherent placenta, although varying levels of sensitivity and specificity have been reported [7–9]. MRI is another option for diagnosis of an adherent placenta but is not commonly used due to the established safety, known usefulness and lower cost of ultrasound.

In all three of our cases, the diagnosis was established with the use of ultrasound including colour Doppler scanning, and suspicion of a morbidly adherent placenta was noted in cases 1 and 3. These findings were then confirmed at delivery only in case one.

Within the RCOG guidelines on termination of pregnancy [2], there is no differentiation in medication dosage for patients with previous Caesarean sections. Also, these guidelines do not suggest any difference in treatment for cases complicated by an abnormal placenta. For these cases, there are no accepted guidelines for best management. There are case reports where both medical and surgical termination methods have been described as effective by different researchers.

Nakayama et al in 2007 [10] studied 158 second trimester terminations which included 11 cases of placenta praevia (gestational age 12–20 weeks) all of which were successful. There was no difference between parity in these patients, though the authors do not clarify if any of these patients had previous caesarean deliveries. All patients had dilatation of the cervix with Laminaria the subsequent surgical evacuation for 4 cases and prostaglandins for 7 cases. There was no significant difference in the blood loss between the groups. Our second case with placenta praevia was managed successfully with prostaglandins and cervical dilatation without significant blood loss.

The use of mechanical dilatation with a Foley's catheter has been described for the induction of labour at term [11–13]. Our rationale for its use for termination, in this case, was as an alternative option which limited the dose of prostaglandin (which would carry a risk of scar rupture due to a previous caesarean section) and replaced the Luminaria which were not available to us. This approach was successful. We searched the literature and found no reports on the use of a Foley's catheter in the termination of pregnancy complicated by an abnormal placenta. In our experience, extra amniotic mechanical dilatation with the Foley's catheter worked as well as Laminaria as described in the above study.

We elected to use a reduced dosage of prostaglandins in case 2, in view of the presence of a previous Caesarean section. This subsequently lengthened the process and it became necessary to repeat the Misoprostol at a higher dose.

In case 3, a medical approach with prostaglandins was not adopted and a primary surgical approach was taken in the presence of a history of previous three caesarean sections. There is little research evidence on the risk of scar rupture with Misoprostol use for second trimester terminations. One systematic review of studies showed that the risk of scar rupture with previous caesarean sections while using prostaglandins for second trimester terminations is 0.3% [14]. Generally, a previous lower segment caesarean section is not considered a contraindication for the use of prostaglandins for termination but counselling of the patient is necessary regarding the potential risks with use, and the lack of data regarding those risks.

Surgical evacuation of pregnancy in the presence of placenta praevia is another option for termination of pregnancy in these cases. Thomas et al [15, 16] described TOP by surgical evacuation in the second trimester comparing 23 patients with placenta praevia with 108 patients with a normally sited placenta and found no differences in outcomes between the two groups. It is our policy for surgical terminations to be performed up to 12+5 weeks of pregnancy.

Cases have been described where a planned hysterotomy in cases with placenta praevia was adopted as a management approach [17] with success in terms of low haemorrhage rates. Our third case was a planned hysterotomy with a multidisciplinary team approach with anaesthetist, interventional radiologist and intensive care input, in addition to obstetric involvement. A prophylactic uterine artery embolisation was performed. This option was chosen due to a history of three previous cesareans with placenta praevia and therefore a perceived high risk of placenta accreta. This planned approach has

been described by some researchers [18–19]. There have been reports of the use of prophylactic uterine artery embolisation prior to surgical evacuation of the uterus or a hysterectomy but these could not establish a definite benefit with this approach [20]. In this instance, we used pre-operative uterine artery embolisation and the overall blood loss was acceptable, a hysterectomy was avoided and the patient recovered well.

With regard to morbidly adherent placentae, there are reports of increased blood loss for surgical termination in cases of placenta praevia that are complicated by placenta accreta [10, 16]. Our experience echoes this as our first case with placenta praevia and percreta was associated with much more blood loss than the other two where there was only placenta praevia.

The use of prostaglandins for termination in the presence of a placenta praevia has described as noted above [10] however there are very few studies regarding prostaglandin use in the presence of a morbidly adherent placenta. Matsuzaki in 2015 [16] describe a case of placenta praevia with accreta where Gemeprost induction resulted in massive haemorrhage necessitating a caesarean hysterectomy. We had a similar experience with case one.

Cases have been described where there was a failure of terminations with prostaglandins in the presence of a morbidly adherent placenta [20–21]. In our case of placenta praevia with percreta, three doses of prostaglandins did result in the expulsion of the fetus but the placenta did not separate with the prostaglandins administered. The fetus delivered by tearing through the low lying placenta. This raises the question whether there is a physiological basis for using prostaglandins in a morbidly adherent placenta praevia. Olsen et al [1994] proposed that myometrial thinning and lower segment dilatation which is associated with placenta accreta may be a factor contributing to the failure of prostaglandins in these cases [22].

A scheduled hysterotomy is a method of second trimester termination in the presence of placenta accreta which has been described with a good outcome [23]. Other management options in the presence of abnormally adherent placentae have been studied. These include the use of Methotrexate and leaving the placenta in situ. With this approach, the placenta is left in situ and Methotrexate administered. No standard dosing regimen exists; however, case reports suggest three doses of methotrexate (50 mg/m^2) at weekly intervals along with weekly ultrasound scans and βHCG levels [24].

Conservative management by leaving the placenta in situ without additional medication has been described where there is no active bleeding [25, 26]. The UK Obstetric Surveillance system (UKOSS) in October 2013, suggested that adherent portions should be left attached [27]. Trying to separate them can cause severe bleeding (59%v 93%) and increases the need for blood transfusion (57% v 86%).

CONCLUSION

The presence of a placenta praevia or a morbidly adherent placenta can complicate second trimester terminations. There is lack of evidence to suggest the most appropriate method of management. A mechanical cervical dilatation with a balloon catheter can be used successfully to achieve termination of pregnancy in the presence of placenta praevia when prostaglandins failed to induce contractions. This method was not previously described for second trimester terminations. The use of pre-operative embolisation before hysterotomy, as described in the literature, proved to give good results, although more research is needed to investigate the efficacy and need of this approach. The decision for medical termination versus elective hysterotomy in the presence of placenta accreta needs further investigation. These isolated cases need to be reported to constitute a base for collective evidence in the future.

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Authors declare no conflict of interest.

Data Availability
All relevant data are within the paper and its Supporting Information files.

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