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Coping with placenta praevia and accreta in a DGH setting and words of caution

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Summary

The incidence of placenta praevia and accreta has been increasing with rising caesarean section rates. We highlight the increasing incidence of severe post-partum haemorrhage due to placenta accreta. Four cases occurred within 3 years (2002–2004) in a small District General Hospital (DGH) with a delivery rate of 1,800 per year. All of the cases had previous caesarean sections and three had an associated anterior low-lying placenta. These patients were diagnosed to have placenta accreta in the third stage of labour, as the placenta was completely adherent and was difficult to remove. However, two of them had a provisional diagnosis made of placenta accreta and prophylactic measures had been taken in the form of counselling and consent for possible hysterectomy. Patients were counselled regarding this condition, and the possible need for hysterectomy was discussed. Two of them had to be managed by post-partum hysterectomy and the other two were treated conservatively. The purpose of writing these case reports is to warn others of the need for vigilance, particularly in keeping their primary caesarean section rates down and being prepared for long-term complications.

Introduction

Each year, around the world, tens of thousands of women die from post-partum haemorrhage (PPH). The prevention and management of PPH are fundamental aspects of maternity care. Clinicians should identify any risk factors, take steps to prevent PPH and learn and employ as many of the management techniques as possible when it occurs (Schuurmans and MacKinnon 2000). Placenta accreta is a condition that individual obstetricians may encounter only rarely in their lifetime, as the reported incidence varies from 1:540 to 1:93,000 births (Van Thiel *et al.* 1972; Althabe and Althabe 1963). Irving and Heartig (1937) recognized that undue adhesion or infiltration of the myometrium by trophoblast and the absence of decidua was the basis of diagnosis. The term placenta accreta applies when the placenta grows together with the uterus beyond an area known as Nitabuch's layer, the shield that usually limits the penetration of the placenta from growing into the uterus (Coates *et al.* 1999). When adhesion is extensive, histological study is not necessary for the diagnosis. Cases in which adhesions are only partial or focal, can present difficulty even to the pathologist. Placenta accreta covers all conditions in which placenta adheres to (placenta accreta vera), invades (placenta increta), or even penetrates the myometrium (placenta percreta) (Morison 1978). The distinction between complete, partial or even focal placenta accreta is more difficult, especially following attempts at removal at caesarean section as neither the obstetrician's recollection nor the pathologist's study of the specimen may allow for a precise assessment.

Placenta praevia and accreta are associated with caesarean section and thus with increasing rates of caesarean section, the incidence of placenta praevia and accreta should be expected to increase considerably (Lachman *et al.* 2000). The leading indication for caesarean hysterectomy in the USA is placenta accreta (Catanzarite 1996).

Material and methods

We report four cases of placenta accreta (two requiring post-partum hysterectomy and two recovered with conservative measures and blood transfusion) that occurred within 3 years (2002–2004) in a small District General Hospital with a delivery rate of 1,800 per year. The purpose of writing the case reports is to warn others of the need for vigilance, particularly in keeping their primary caesarean section rates down and being prepared for these long-term complications.

Case report 1

Mrs NP, 30 years old, G4 P3 presented at 7 weeks with vaginal bleeding, which persisted intermittently for 10 weeks. She had three previous caesarean sections. At 24 weeks, she was found to have a low-lying placenta covering the cervical os. She was admitted on four occasions between 31 weeks and 37 weeks with bleeding. She gave informed consent for a hysterectomy if required for uncontrolled bleeding at elective lower segment caesarean section, which was carried out at 38 weeks. Four units of blood were cross-matched. During caesarean section, the lower segment was found to be very thin and close to the bladder. The baby was lying transversely and delivered by the breech after incising the placenta. It was difficult to control bleeding. The placenta was delivered piecemeal with difficulty, due to morbid adhesions. Although the

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upper segment contracted well, the lower segment continued to bleed profusely. Therefore a subtotal hysterectomy was carried out. As much cervix was removed as possible. A urologist was available to check the anatomy to avoid injury to the bladder and ureters. Estimated blood loss was 4 litres. The patient's haemoglobin (Hb) dropped to 5.8 g/dl and internationaltio (INR) rose to 10.9 as she developed DIC (disseminated intravascular coagulopathy). She was transfused with a further 8 units of blood, 2 units of fresh frozen plasma (FFP) and 10 units of cryoprecipitate. She was transferred to the intensive therapy unit (ITU) initially, until her condition became stable. She made a good recovery and was discharged home 10 days later. Her Hb at discharge was 10.3 and she needed psychiatric assessment for depression following her admission to the ITU. The histology report confirmed superficial infiltration of the myometrium and cervical stroma by trophoblast. The cervix also featured numerous chorionic villi. The features were consistent with placenta increta at the site of implantation.

Case report 2

Mrs PT was aged 38 years, G6 P4+1. She had three previous caesareans. She was taking Prothiaden 75 mg daily. She presented with spotting at 10 weeks. She bled intermittently and was seen in the antenatal clinic frequently. An ultrasound scan confirmed an anterior low-lying placenta covering the cervical os at 36 weeks. She was booked for elective caesarean at 37 weeks. This was difficult due to previous scars. A male baby weighing 2,380 g, in good condition was delivered through the placenta. The placenta was adherent and removed piecemeal. The placental bed was sutured in an attempt to control continuous bleeding and the uterus was closed once the bleeding settled. She continued to bleed per vaginam postoperatively. Re-exploration was carried out followed by total hysterectomy. A urological surgeon sutured the bladder damage that occurred during the procedure. Total blood loss was more than 5 litres. Twelve units of blood, 29 units of FFP and cryoprecipitate were transfused. She made a good recovery and was discharged home after 9 days. Histology included the upper endocervix and showed the placenta was probably attached close to the serous layer and the uterine wall was extremely thin (placenta percreta). Residual placental tissue was still present and perforating the whole thickness of uterine wall. Elsewhere, there was marked decidual change affecting the lower uterine cavity consistent with placenta accreta.

Case report 3

Mrs AG was aged 34 years, G3 P2 and she had two previous caesareans. She presented as an emergency with bleeding PV at 19 weeks of pregnancy. The scan report suggested anterior low-lying placenta and bleeding subsequently settled. The patient presented again at 20 weeks with spontaneous rupture of membranes. On scan, no liquor was seen. Labour was augmented after the poor prognosis was discussed with the patient. She had a normal vaginal delivery but the placenta was retained. She was taken to theatre for manual removal of placenta under general anaesthetic. The placenta was removed piecemeal followed by massive haemorrhage of approximately 3 litres. Placental tissue was felt on the anterior wall, which was difficult to remove. The operation was complicated by profuse ooze and blood loss. She had continuous bimanual compression with four doses of Hemabate (250 μg/ml), Ergometrine (0.5 mg/ml intramuscularly) and Syntocinon (5 units/ml intravenously) with eventual control of blood loss. Four units of blood were transfused. Scan after the procedure suggested retained products of conception close to the uterine wall. A provisional diagnosis of placenta accreta was made on the basis of the previous caesarean scar, low-lying anterior placenta, incomplete removal of placenta and scan findings. Postoperative recovery was uneventful. She was given prophylactic antibiotics, Augmentin 375 mg t.d.s. for 15 days, and discharged home after 7 days with a follow-up appointment in 4 weeks. She was informed of prolonged vaginal discharge.

Case report 4

Mrs KW, aged 35 years, G2 P1. She had one previous emergency lower segment caesarean section (LSCS) for fetal distress in 2001. In her current pregnancy, she was found to have trisomy 21. She was noted to have anterior low-lying placenta. After full counselling, she opted for termination of pregnancy at 17 weeks. Following the delivery, third stage was incomplete. She had intermittent brisk haemorrhage and was transfused 3 units of blood as her Hb was 7.8 g. She went to theatre for evacuation of the uterus. It was very difficult to evacuate as placental tissue was attached to anterior uterine wall. Therefore it was decided to leave the remaining placental tissue *in situ*, as she was not bleeding actively. She was discharged on Augmentin 375 mg t.d.s. for 10 days and asked to return if there was any further bleeding.

She was admitted before her next follow-up appointment 4 weeks later, with heavy bleeding per vaginam. A pregnancy test was still positive and transvaginal sonography (TVS) revealed an endometrial thickness of 42.8 mm. Mixed echoes were suggestive of retained products of conception (RPOC). She underwent repeat Evaluation of Retained Product of Conception (ERPC). This was found to be very difficult, as placental tissue was still adherent to the anterior uterine wall. A scan confirmed the presence of placental tissue. As the bleeding was minimal, the procedure was stopped and she was started on a repeat course of antibiotics with a further follow-up appointment in 4 weeks.

Discussion

The caesarean section rate has increased worldwide over the last decade, especially in Western countries. This development calls for awareness of the long-term maternal morbidity and obstetric future of women with a prior caesarean birth. Emphasis should be given to the diagnosis of placenta accreta antenatally, especially when there are additional risk factors. These are increasing maternal age and parity (Breen *et al.* 1977), multiple pregnancy, anterior placenta praevia with one or more caesarean sections or previous uterine trauma, or placenta praevia and unexplained elevation of AFP (Kupta 1993).

The risk of placenta praevia is 0.25% with an unscarred uterus and 1.22% with one or more previous caesarean section (Thorkild *et al.* 1989). The risk of accreta is 2% in

women with placenta praevia who are less than 35 years of age with no previous uterine surgery, but increases to 39% for those with praevia who are over 35 years and have one or more caesarean sections (Lachman *et al.* 2000). Of patients with accreta or percreta, approximately 66% had a previous caesarean section and 75% had placenta praevia (Coates *et al.* 1999). The risk of placenta accreta in praevia correlates with the number of caesareans: 5% with no previous caesarean section, 25% if one caesarean section, 50% if two or more and as high as 67% if four or more (Catanzarite *et al.* 1996; Clark *et al.* 1985).

In the case of placenta accreta, there is a primary deficiency of endometrial stroma capable of forming decidua at the site of implantation. This occurs more readily with the low implantation of a placenta praevia. Such a deficiency might also be a consequence of repeated pregnancy (Morison 1978). Invasion of the inner-third of myometrium by trophoblast is physiological, though the mechanisms limiting it are poorly understood. At delivery, the placenta separates at the decidual plane with an abrupt cessation of intraplacental flow as the myometrium contracts (Kupta 1993; Krakls and Baschat 2000). It is helpful to diagnose a morbid placental adherence (placenta increta, accreta and percreta) in the antenatal period, since careful counselling and planning in advance of delivery may achieve a safer outcome. Placenta praevia with invasion of urinary bladder has a maternal mortality up to 6–9.5% and a fetal mortality of 19–24% (Thorkild *et al.* 1989; Price *et al.* 1991). Patients presenting with placenta praevia and a scarred uterus have a 16% risk of undergoing caesarean hysterectomy (due to placenta accreta and severe PPH) compared with 3.6% in patients with placenta praevia and an unscarred uterus (Washecka and Behling 2002).

Ante-partum diagnosis is possible in 50% of the cases (Price *et al.* 1991), which provides the opportunity to counsel the patient in advance, plan management and consider interventional radiology as an elective procedure. Ultrasound and magnetic resonance imaging are useful tools in making the diagnosis of accreta (Thorp *et al.* 1992). Assurance of the depth of placental invasion is not always possible with sonography and the accuracy of magnetic resonance imaging is unclear. If the sonographic report is indicative of accreta at 20 weeks gestation, it will not resolve but instead possibly develop as the pregnancy progresses. Conversely, if the sonographic report shows no evidence of accreta, this does not guarantee its absence. Ultrasound scan criteria of diagnosis are: absence of the normally visible retroplacental sonolucent space, presence of unusually large dilated vessels (extending from placenta through the myometrium) (Finberg and Williams 1992; Rosemond and Kepple 1992), thinning or disruption of the linear hyperechoic boundary representing the uterine serosa and its interface with the posterior wall of the bladder, focal nodular projections beyond the expected plane of the bladder. Neither ultrasound, nor magnetic resonance imaging (MRI) predicts the degree of bladder invasion found at surgery. Ultrasound colour Doppler probably remains the gold standard in the diagnosis.

We tried to look for placenta accreta with ultrasound in the above cases but due to limited experience could not make the diagnosis confidently. However, on clinical grounds we had informed the patients of the possible diagnosis and management and prepared for massive PPH.

The treatment options that conserve fertility include:

1. Classical section above the insertion of placenta. Where bladder is involved conservative management with placenta left *in situ* is then recommended.
2. Internal iliac embolization or balloon catheterization (can be retained for 24-h postoperatively).
3. Postoperative uterine artery embolisation (placenta can be retained and complete autolysis may be expected in 8–weeks).

Where a delivery is known to carry a higher risk of major bleeding, the following steps are essential:

- Ante-partum anaemia should be checked and corrected in the antenatal period
- At least four units of blood should be cross-matched and should be immediately available
- All elective or emergency surgery should be performed by a consultant
- Any anaesthetic should be given by a consultant
- Adequate intravenous access (two large bore cannulae) should be in place before surgery starts
- A central venous pressure line should be in place, either pre-operatively or whenever it is apparent that bleeding is excessive
- Consideration of interventional radiology treatment in place of hysterectomy immediately after delivery
- If bleeding is excessive, the obstetrician should consider either embolization of the uterine arteries by an intervetional radiologist or further surgical procedures, such as internal iliac ligation, hysterectomy, B-Lynch suture or Billings suture. Any obstetrician who does not feel competent to perform any of the above should immediately call a colleague to assist or, if necessary, a vascular surgeon
- Surgical management plans for intractable PPH might include laparotomy with ligation of uterine vessels or internal iliac arteries, or hysterectomy. Planning an elective procedure with an informed and organized multidisciplinary team is obviously preferable, although not always possible.

Although hysterectomy is reserved for the worst cases of PPH, unfortunately it does not guarantee control of blood loss in severe PPH. Bleeding may persist from pelvic surfaces due to decreased coagulation combined with trauma from prolonged manipulation. These sites may be difficult or impossible to isolate and coagulate or suture. Bleeding vessels may retract deeply into the pelvic retroperitoneal space.

- Use of intra abdominal/transvaginal pressure pack should be considered
- The advice of a consultant haematologist should be sought to assist in the management of massive transfusion (cryoprecipitate, fresh frozen plasma and platelets).

As the incidence of caesarean sections continue to rise worldwide, the problem of placenta praevia/accreta is likely to become more common. Obstetricians should be ready to face the late consequences of today's decision for caesarean section (Chao-Lun Chung *et al.* 1997). A thorough search should be made for the diagnosis of this condition

antenatally, particularly where there are risk factors (especially previous section or placenta praevia). Attempts to remove a morbidly adherent placenta can in itself cause uncontrolled haemorrhage. Emergency hysterectomy, which is a risky procedure, might be the only option in many cases. Delays in decision making can result in maternal death.

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