Conservative approach to the management of morbidly adherent placentae

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Abstract

Objective To determine the effect of conservative management of morbidly adherent placentae on maternal morbidity and mortality and to review management options

Methods All case notes of patients with placenta accreta and percreta between June 2008 and August 2010 were studied retrospectively.

Results eight placentae percretae and 4 placentae accretae were identified out of a total of 11,358 deliveries. All 12 patients underwent caesarean section. Placentae percretae were intentionally left in situ. Interventional radiology was used in these cases. There was one emergency hysterectomy for massive obstetric haemorrhage, one case of disseminated intravascular coagulation, one case of early sepsis and 3 cases of delayed sepsis. Average blood loss was 2490 ml with the mean volume transfused being 1425 ml. The mean hospital stay was 7 days and 2 patients were admitted to intensive care. One patient was readmitted with sepsis complicated by a utero-cutaneous fistula (complete placenta praevia). Another patient required re-embolisation 5 months post delivery for persistent haemorrhage. No ureteric or bladder injuries occurred.

Conclusions Conservative management of placenta percreta is an alternative to caesarean hysterectomy. It is associated with lower maternal morbidity rates. However, monitoring for sepsis and secondary postpartum haemorrhage is essential. Rare complications such as utero-cutanus fistulae may occur.

Introduction

A morbidly adherent placenta occurs when a defect in the decidua basalis allows invasion of the placenta into the myometrium. Placenta accreta and increta account for 90 percent of morbidly adherent placentae. Placenta percreta accounts for 10% of morbidly adherent placentae, where there is penetration through the entire myometrium and uterine serosa with possible invasion into other organs like the rectum, bladder and rarely, the broad ligament. Risk factors include previous (especially repeated) caesarean delivery or other uterine surgery, advanced maternal age and placenta praevia.

Morbidly adherent placentae is associated with a maternal mortality rate of 7% and perioperative morbidity associated with massive blood transfusions, infection, urinary tract damage and fistula formation [1]. There has been an increased incidence from 1 in 2000 to 1 in 533 deliveries [2]. With no 'definitive' treatment, current practice ranges from radical measures such as elective caesarean hysterectomy with or without bowel or bladder resection to conservative measures such as compression sutures, myometrial excision ('Triple X' procedure) and leaving the placenta in situ. Additional adjuvant treatment modalities such as uterine or internal iliac artery occlusion are described and are used with varying success in minimising perioperative blood loss with some authors doubting their value in reducing caesarean hysterectomy rates [3]. However, a reduction in hysterectomy rates with conservative management alone without the use of interventional radiology has also been reported [4].

Methods

Cases of placenta accreta and percreta were identified at St George's Hospital, London, UK between June 2008 and August 2010. We used the ICD-9 codes for placenta accreta/percreta and placenta praevia in association with treatment codes for interventional radiology.

The diagnosis of morbidly adherent placenta was suspected on finding an anterior placenta praevia with previous caesarean section on routine scanning. This suspicion was confirmed by scanning with colour Doppler or MRI and on finding evidence of placental invasion at the time of surgery. Ultrasound features included irregularly shaped placental lacunae within the placenta, thinning of the myometrium overlying the placenta, loss of the retroplacental "sonolucent line", protrusion of the placenta into the bladder, increased vascularity of the uterine serosa-bladder interface and turbulent blood flow through the lacunae on Doppler ultrasound [5]. Findings at caesarean section included a thin, bulging lower segment with visible placental cotyledons through the intact serosa with extension into the bladder in some cases.

Trans-abdominal ultrasound was carried out to delineate the upper border of the placenta and the uterus was incised away from the placental site. Oxytocin was withheld if possible to avoid placental separation. If bleeding persisted despite inflating these uterine artery balloons, the interventional radiology team performed uterine artery embolisation post caesarean section. If haemostasis was achieved, the balloons were deflated 2 hours after surgery. The patient was then observed for a further 6 hours and if no further bleeding occurred, the balloon catheters were removed.

Patients were counselled regarding the possibility of ongoing vaginal bleeding throughout the resorption of the placenta as well as sepsis. It was stressed that resorption may take up to 6 months [6,7].

Outcome measures included early or delayed re-intervention with surgical or unplanned interventional radiological procedures occurring before (early) or after (delayed) 7 days post delivery. Early morbidity was defined as the occurrence of a postpartum haemorrhage >3000 ml, sepsis with a temperature >38ºC and DIC (disseminated intravascular coagulation) in the first 7 days post delivery. Late morbidity was defined as sepsis or pyrexia >38ºC, secondary postpartum haemorrhage requiring medical review and significant abdominal pain.

Results

From June 2008 to August 2010, 11,358 deliveries occurred at St George's Hospital. Eight (labelled as A-H) patients satisfied our diagnostic criteria for placenta percreta. At delivery 4 (labelled as 1-4) patients were diagnosed with placenta accreta.

Intrapartum events are summarised in Table 1. Among the patients with placenta percreta there was one emergency hysterectomy. This patient had a massive PPH (postpartum haemorrhage) of 12 litres and went into DIC. She was given 26 units of packed red cells, 14 units of FFP (fresh frozen plasma), 5 pools of platelets and cryoprecipitate. The estimated blood loss in all other cases was less than 3000 ml. In 3 cases the placenta percreta was left in situ completely.

The mean blood loss was 2490 ml (range 300 ml-12000 ml). Three cases required prostaglandin F_2 alpha, *'haemobate'* two cases required an intrauterine balloon insertion and only two patients were transferred to the intensive care unit. The mean volume of blood transfused was 1425 ml (range 0 -11700 ml). There was one case of early sepsis with temperatures >38ºC, but this was caused by a chest infection.

Table 1. Preventative and primary haemostatic measures

Name	Type of uterine incision	Syntocinon, 5 units 40	Syntocinon, infusion units	% of placenta removed	Estimated blood loss in ml	Blood transfusion in ml	DIC
1	LSCS	Yes	Yes	Unspecified	2000	0	No
2	LSCS	Yes	Yes	Unspecified	1800	0	No
3	LSCS	Yes	Yes	Unspecified	2300	900	No
4	LSCS	Yes	Yes	Complete	1500	0	No
A	High lower segment transverse	Yes	Yes	60%	2500	1350	No
B	High lower segment transverse	Yes	Yes	75%	1000	0	No
C	High classical, fundal	No	No	0%	300	0	No
D	Classical incision	Yes	Yes	0%	800	0	No
E	LSCS	Yes	Yes	Unspecified	12000	11700	Yes
F	LSCS	Yes	Yes	Partially, Unspecified	2000	1350	No
G	Classical incision	Yes	Yes	0%	1000	0	No
H	LSCS (abrupted on table)	Yes	Yes	Partially, Unspecified	2700	1800	No

DIC – disseminated intravascular coagulation, LSCS – lower segment caesarean section

Table 2. Late morbidity

BHCG Day 1 in IU/l	BHCG discharge in IU/l	Scan follow up	Readmission	Complications
Not done	Not done	Not done	No	None known
Not done	Not done	Not done	No	None known
Not done	Not done	Not done	No	None known
Not done	Not done	Not done	No	None known
		3 months		
Not done	Not done	RPOC 6×7.4 CM	No	None known
12669	889	Not done	No	None known
				Sepsis, utero-cutaneous
			Yes, recurrent	
85065	9402	Yes	Sepsis	Fistula
		10 weeks		Delayed mild
7435.2	6084	RPOC <5 cm	No	Sepsis
Not done	6.2	Not done	No	Hysterectomy
309.8	90.8	Not done	No	None known
				Embolisation
				4 months
Not done	Not done	Yes	Yes, bleeding	Postpartum
Not done	402.5	Not done	No	None known

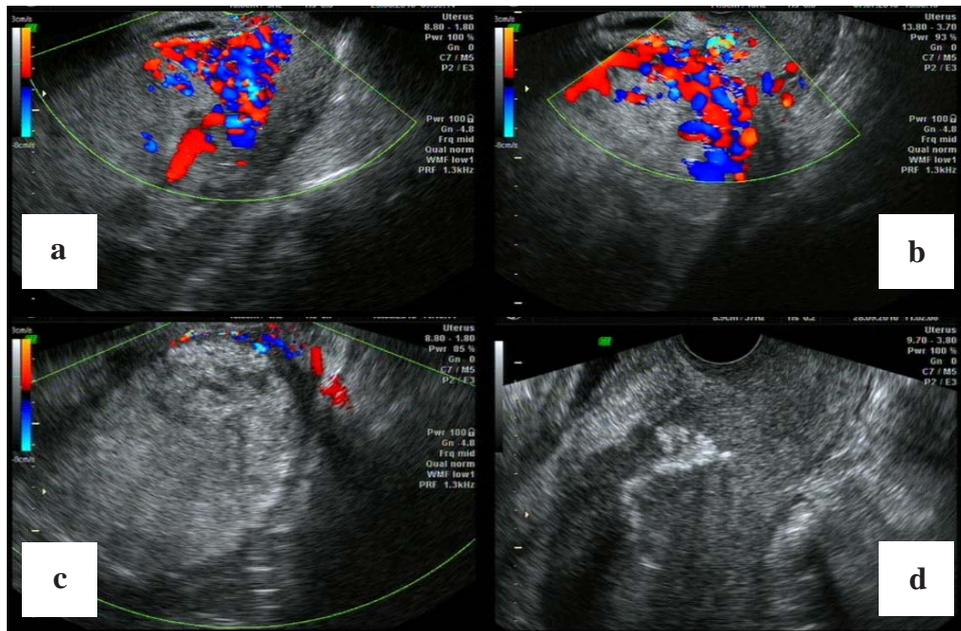BHCG – Beta-HCG, RPOC – retained products of conception

Figure 1 a-d. **Placental resolution in case D.**
a. 2 weeks after delivery **b.** 4 weeks post-delivery
c. 10 weeks post-delivery **d.** 16 weeks post-delivery

Late postpartum events are summarised in Table 2. One patient was readmitted with sepsis and developed a utero-cutaneous fistula. This healed following conservative management 5 months post delivery. In all patients with retained placenta scans were used to demonstrate the placental resolution and serial beta-HCG estimations were carried out. Figure 1 demonstrates the placental resolution in case D.

Neonatal outcome was good in all cases. 5 patients had a scheduled pre-term delivery in view of antenatal risk factors. Only 3 infants had to be admitted to our neonatal unit in view of prematurity or other neonatal problems.

Discussion

The morbidity and blood loss in our cohort of women was in keeping with other publications which have described various management approaches [8,9,10]. In our cohort, only one patient needed a hysterectomy. A higher caesarean hysterectomy rate presumably would lead to a higher morbidity and mortality, since systematic reviews of emergency hysterectomies for varying reasons describe a maternal morbidity rate of 56% and a maternal mortality rate of 3% [11].

Two of our 12 cases had early morbidity (massive haemorrhage with DIC and hysterectomy in one case and sepsis in another). Four of our 12 cases developed late morbidity, three patients with sepsis and one patient with persistent vaginal bleeding for which a re-embolisation had to be performed. The mean hospital stay was 7 days.

Three of our patients (C, D, G) had their placentae left in situ completely with significantly less intra-operative blood loss (300 ml-1000 ml) as compared to patients in whom attempts were made to remove the placenta. Leaving the placenta in situ reduces intra- and immediate post-operative complications but may increase late complications such as haemorrhage or sepsis. Elective caesarean hysterectomy may reduce maternal sepsis [8]. However, risk of sepsis has to be balanced against the effects of a caesarean hysterectomy on fertility and the high risk of ureteric injury [8]. In our cohort, there were no cases of ureteric or bladder injury. Conservative management potentially preserves fertility. Pregnancies after conservative management of placenta accreta have been observed in various studies with normal pregnancy and normal vaginal delivery [13-15]. Although reported complications of balloon occlusions and subsequent embolisation include failure of the procedure to control bleeding especially relating to extensive collateral circulation, thromboembolism and ischaemic injuries of lower extremities and other pelvic organs (e.g. ovaries), none of the patients in our series developed these complications.

Our series confirms that conservative management of placenta percreta where the placenta percreta is left in situ in association with the use of interventional radiology is an alternative to caesarean hysterectomy. However, such 'intentional retention of placenta' is not without risks and monitoring for delayed sepsis and secondary postpartum haemorrhage is essential. Rare complications include a 'utero-cutaneous fistula' especially when the placenta completely covers the cervix and thus prevents the drainage of uterine contents.

Acknowledgements

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