

An Unusual Cause of Postpartum Maternal Collapse

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Objective

Our case highlights the rare but life-threatening complication of spontaneous vessel rupture occurring after a vaginal delivery. This also highlights the importance of prompt recognition and immediate intervention to ensure optimum outcomes.

Case Report

We report the case of a 46 year old in her third pregnancy of dichorionic diamniotic twins, conceived via In Vitro Reproduction. In accordance with UK guidance low dose aspirin was prescribed from booking and low molecular weight heparin from 28 weeks gestation. Screening demonstrated gestational diabetes which was diet controlled. She was noted to develop gestational thrombocytopenia, with platelet counts of 85-95g/l leading up to delivery.

The patient was admitted at 33+5 weeks gestation with contractions. A fetal fibronectin was performed with a result of >500ng/ml, and a QUIPP score was calculated suggesting a 25% risk of delivery within 1 week. The patient was admitted and treated with nifedipine for tocolysis whilst corticosteroids for fetal lung maturation were administered. Contractions continued intermittently until at 34 weeks and 6 days she reported spontaneous rupture of membranes, and her cervix was found to be 3cm dilated. Progress in labour was rapid and led to spontaneous vertex deliveries of both twins with an inter-twin delivery interval of 7 minutes. After birth lochia was heavy necessitating the use of additional uterotonics. The patient was drowsy but rousable and reported abdominal pain for which she received simple analgesia.

Around 2.5 hours after delivery the patient became unresponsive. There was no active vaginal bleeding but she was markedly tender on abdominal palpation. Blood pressure was initially low and despite fluid resuscitation correcting this her consciousness level remained reduced. A medical emergency call was placed due to the uncertain cause of the collapse. Initial investigations included a bedside ultrasound confirming a well contracted, empty uterus, as well as an arterial blood gas showing a low haemoglobin of 70g/l with a raised lactate of 4.4mmol/l. A radial-radial delay was also recognised. Differential diagnoses considered included a cerebral event, a ruptured aortic aneurysm and an intra-abdominal bleed. A blood transfusion was commenced and a decision was rapidly made for Computerised Tomography (CT) of her head, chest (with aortic angiogram) and abdo-pelvis. The imaging revealed active haemorrhaging in the left pelvis with moderate haemoperitoneum and bilateral pleural effusions.

The patient underwent emergency laparotomy. Haemoperitoneum was evacuated and active bleeding identified from the left uterine venous plexus. Suture ligation achieved haemostasis. The estimated blood loss was 4.4l and she received additional blood products. In recovery the patient was persistently hypertensive without proteinuria. She was treated for pre-eclampsia but her blood pressure rapidly normalised. On the first post-operative day the patient developed unilateral weakness and altered sensation. She underwent repeat imaging and was reviewed by neurology and stroke physicians. No clear cause was identified and the symptoms slowly resolved. Both her thrombocytopenia and pleural effusions also spontaneously resolved. The patient made a steady recovery to discharge and has remained well.

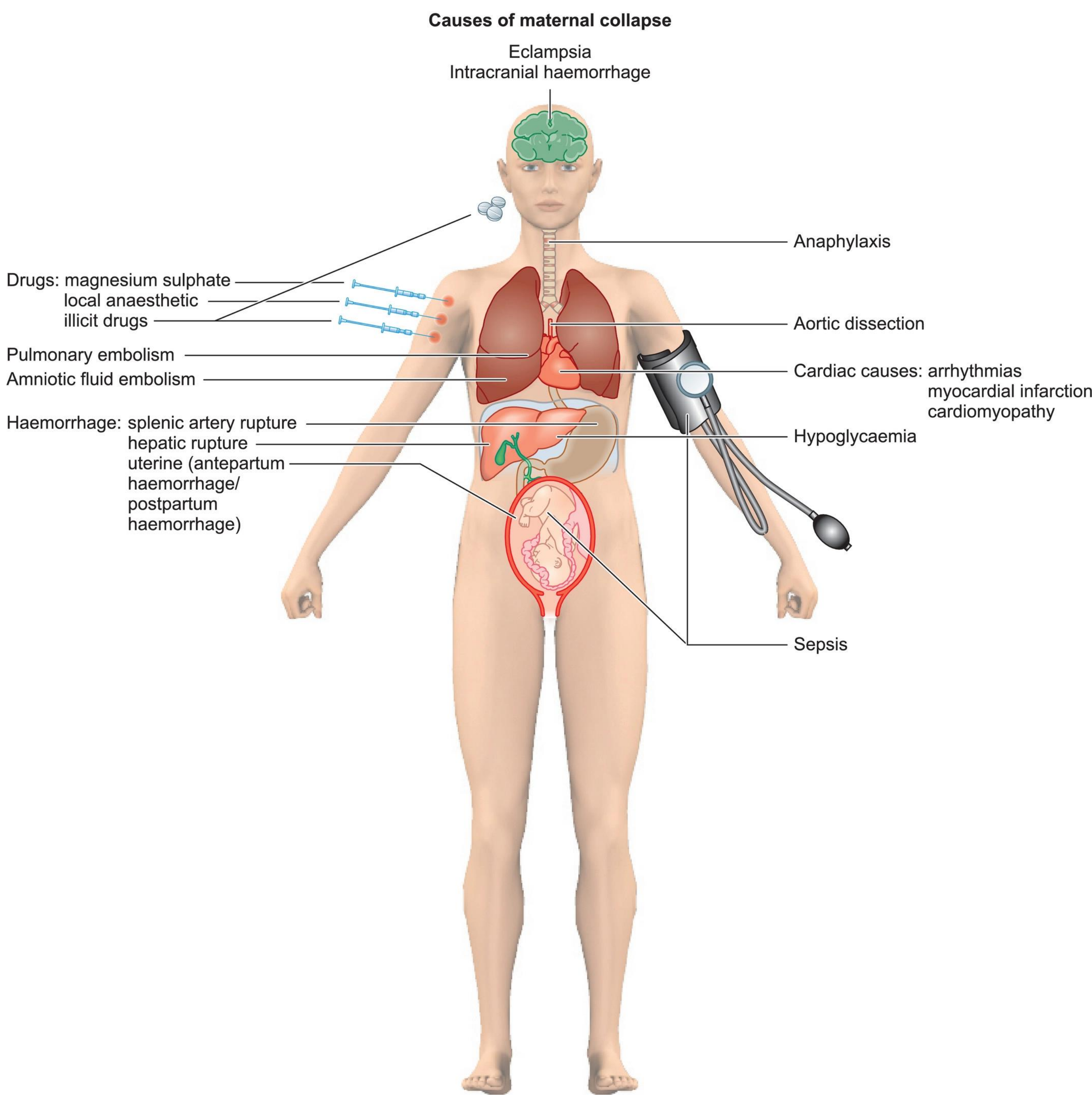


Figure 1: Causes of Maternal Collapse¹

Discussion

- Our patient had multiple risk factors for pregnancy related morbidity. Initial assessment of the maternal collapse appropriately considered a wide variety of differential diagnoses (see Figure 1). Use of emergency pathways allowed rapid identification of the intra-abdominal haemorrhage.
- Symptoms of vessel rupture are vague and non-specific. In our case abdominal pain and fatigue in the immediate postpartum period was dismissed as normal. In common with other reported cases, diagnosis was made after a drop in consciousness level associated with haemodynamic instability.²
- CT with contrast is the modality of choice to identify intra-abdominal bleeding³ (Wada et al) due to its relative speed and availability, and its use is justified in the emergency situation even prior to delivery. The use of MR is limited by difficult access and the fact that gadolinium contrast is avoided in pregnancy. Ultrasound is limited and significantly operator dependent in its ability to identify intra-abdominal bleeding until a major haemorrhage has occurred.
- Spontaneous rupture of utero-ovarian vessels related to pregnancy is rare, with less than 100 cases reported.² Prevalence is estimated to be approximately 1/10,000 with a mortality rate of up to 30%.⁴ Around 60% of cases seem to occur in the immediate peripartum period,⁵ and it is hypothesised the pathogenesis included increased blood flow to the uterus during late pregnancy and increased venous pressure due to uterine contractions.⁴
- In the majority of published cases haemostasis was achieved at exploratory laparotomy, with suture ligation being the first choice technique and some reports of emergency hysterectomy to arrest bleeding. Some cases have been managed through embolization techniques.²

Conclusion

Spontaneous utero-ovarian vessel rupture is a rare cause of maternal morbidity and mortality, with less than 100 reported cases. As with other causes of major haemorrhage, rapid resuscitation and prompt diagnosis and management are essential to achieve a good outcome. We recommend effective pathways of care to ensure in the circumstances of unexpected maternal collapse emergency care can be provided with the support of other medical specialties.

References

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