# Massive pre-placental and subchorionic haematoma

Loi K, Tan K T

#### ABSTRACT

We report an unusual case of massive preplacental and subchorionic haematoma occurring in a 26-year-old woman who presented with antepartum haemorrhage at 24 weeks gestation. Ultrasonography showed a subchorionic haematoma in the lower posterior uterine wall measuring 5.0 cm in largest diameter. There was also a separate irregular multiloculated structure measuring 4.3 cm in largest diameter on the surface of the placenta, due to a pre-placental haematoma. The subchorionic haematoma diminished in size over time, while the pre-placental haematoma continued to grow, measuring 9.0 cm at 28 weeks, and 9.3 cm at 32 weeks. At 32 weeks, the patient presented with premature rupture of membranes and four days later, an emergency caesarean section was performed when the patient had another episode of severe antepartum haemorrhage. Both mother and child recovered well. The current literature on such haematomas is reviewed.

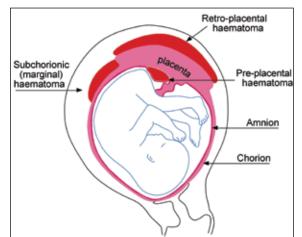
Keywords: antepartum haemorrhage, placenta diseases, pre-placental haematoma, pregnancy complications, subchorionic haematoma, ultrasonography

Singapore Med J 2006; 47(12):1084-1086

#### INTRODUCTION

Placental haematomas are blood clots that arise from the placenta. Depending on their location, they may be classified as retro-placental, subchorionic or preplacental (Fig. 1). With retro-placental haematomas, there is detachment of the placenta from the uterine wall. Subchorionic haematomas, on the other hand, lie beneath the chorionic layer. Such haematomas are thought to be related to bleeding from vessels at the margin of the placenta. This can sometimes result in the appearance of a haematoma at the periphery of the placenta, hence the term "marginal" haematomas. More uncommon are clots termed as pre-placental haematomas<sup>(1)</sup>. Such haematomas are also known as "sub-amniotic" haematomas as they are usually contained within the amnion<sup>(2)</sup>.

Among a variety of factors, depending on the size and site of the placental haematoma, there may be adverse effects on normal placental function resulting in foetal hypoxia and growth restriction. Massive placental haematomas, in particular, may have potential catastrophic consequences. While subchorionic haematomas are increasingly recognised with the widespread use of prenatal ultrasonography (US)<sup>(3)</sup>, there is no data in the literature regarding pre-placental haematomas. We present an unusual case with both a massive pre-placental and a subchorionic haematoma.



**Fig. I** Diagram shows the classification of placental haematomas according to location.

### CASE REPORT

A 26-year-old Chinese woman was first seen at six weeks gestation. This was her first pregnancy. She had no significant past medical history and was a non-smoker. First trimester screening with nuchal translucency, free beta hCG and PAPP-A showed a low risk for trisomy 21. Screening US at 20 weeks showed no foetal Division of Obstetrics and Gynaecology KK Women's and Children's Hospital 100 Bukit Timah Road Singapore 229899

Loi K, BMBCh, MA, MRCOG Registrar

Department of General Obstetrics and Gynaecology

Tan K T, MBBS, MMed, MRACOG Senior Consultant and Head

Correspondence to: Dr Kelly Loi Tel: (65) 6293 4044 Fax: (65) 6298 6343 Email: kelly\_loi@ hotmail.com anomaly with a placenta that was located on the upper uterine segment. The patient presented with her first episode of antepartum haemorrhage (APH) at 24 weeks gestation. There was associated contraction pains. Her vital signs were stable and the cervix appeared closed. Foetal heart monitoring was satisfactory. Vaginal culture grew Group B streptococcus. She was treated with intravenous salbutamol for tocolysis and given a course of intramuscular (IM) dexamethasone, as well as antibiotics.

The bleeding resolved but she was readmitted at 25 weeks with recurrent APH and contractions. US then showed a subchorionic haematoma (Fig. 2) in the lower posterior uterine wall measuring 5.0 cm in largest diameter. There was also a separate irregular multiloculated structure measuring 4.3 cm in largest diameter on the surface of the placenta, attributed to a pre-placental haematoma (Fig. 3), with the cord inserting into the centre of the structure. Colour Doppler US showed no blood flow within both lesions. Amniotic volume was normal and there were no hydropic features noted in the foetus, which showed normal growth parameters and normal Doppler flow. She was managed conservatively with oral adalat for tocolysis as well as twice-weekly IM 17 alpha-hydroxyprogesterone caproate.



**Fig. 2** US image taken at 25 weeks gestation shows a subchorionic haematoma (5.0 cm in largest diameter) in the lower posterior uterine wall [MASS: subchorionic haematoma; FP: foetal parts].



**Fig. 3** US image shows a pre-placental haematoma (4.3 cm in largest diameter) seen on the surface of the placenta at 25 weeks gestation [MASS: pre-placental haematoma; FP: foetal parts; PL: placenta].

At 26 weeks, the subchorionic haematoma was noted to be 6.5 cm in largest diameter while the pre-placental haematoma also measured 6.5 cm in largest diameter. While the subchorionic haematoma diminished in size over time, the pre-placental haematoma continued to grow, measuring 9.0 cm at 28 weeks, and 9.3 cm at 32 weeks (Fig. 4). During this time, her haemoglobin level remained stable at around 10.0 g/dL. Her platelet count and clotting profile were normal. Kleihauer Betke test was negative as was her thrombophilia screen.



**Fig. 4** US image shows the pre-placental haematoma has grown to a size of 9.3 cm in largest diameter at 32 weeks gestation [MASS: pre-placental haematoma; PL: Placenta].

She was discharged and managed on an outpatient basis between 27 and 32 weeks.

At 32 weeks, the patient presented with premature rupture of membranes which was confirmed on speculum and amnicator test. Foetal heart monitoring was reassuring. However, four days later, a crash lower segment caesarean section was performed when the patient had another episode of severe APH. A male infant weighing 1,730 g was delivered with Apgar scores of four and eight at one and five minutes, respectively.

Examination of the placenta revealed a large clot covering a large percentage of the placenta. There was also an intervillous haematoma and fibrinous deposits just beneath the chorionic plate with adjacent compressive effects. The patient had an uneventful postoperative course. The infant was also discharged well after an uneventful 21-day hospital stay.

## DISCUSSION

The clinical picture resulting from the placental haematomas is extremely variable, with several factors probably coming into play including the site and size of haematoma, gestational age, chronicity of bleeding and underlying disease process. While retroplacental haematomas are thought to result from bleeding from the spiral arteries of the placenta, subchorionic haematomas are thought to arise from bleeding from veins at the margin of the placenta. Pre-placental haematomas, on the other hand, have been associated with bleeding from foetal vessels at the placental surface. resulting possibly in grave consequences on the foetus<sup>(1,2)</sup>.

Based on grey scale US, it was previously thought that haematomas on the foetal side of the placenta could not be distinguished from chorioangiomas<sup>(4)</sup>. With the additional use of colour Doppler US however, the abundant blood flow that would be seen with chorioangiomas would be absent within a haematoma. This distinction was helpful in our case as well as cases recently reported by others(3). The incidence of subchorionic echolucencies is thought to be about 4% to 48%<sup>(5)</sup>. The largest series describing subchorionic haematomas involving the examination of 19,000 placentas concluded that the incidence of massive subchorionic thrombohaematomas was 1 in 2,000 pregnancies<sup>(6)</sup>. Pre-placental haematomas are much less common. While the literature on subchorionic haematomas is limited, information on pre-placental haematomas is even more scarce, with no reviews available.

The aetiology of such haematomas is uncertain. Some authors have reported an association with thrombophilia and the presence of autoantibodies such as anti-cardiolipin and lupus anticoagulant<sup>(7)</sup> but this association was not evident in our case. As subchorionic haematomas are thought to be related to low pressure venous bleeding, fewer sequaelae are thought to occur in comparison with the arterial bleeding of retroplacental haematomas as well as the foetal bleeding of pre-placental haematomas. As such, the impact of size and location of the subchorionic haematomas on rates of foetal loss and birthweight are unclear(8,9). High foetal loss rates of 25% to 50% have been described in some studies  $^{\!\!(3,10)}\!\!.$ In the largest review to-date of 129 pregnancies with US-detected subchorionic echolucencies measuring 1.9 cm to 13.3 cm in maximum dimension<sup>(11)</sup>, high rates (19%) of premature delivery were found, particularly in cases complicated by antepartum bleeding (27% versus 7%). This is in agreement with another retrospective study, which found that persistent subchorionic haematoma with clinical symptoms, such as vaginal bleeding and/ or uterine contractions, are likely to result in abortion or premature labour<sup>(12)</sup>. The significance of other factors on the risk of preterm delivery, such as area of subchorionic echolucency, gestational age at detection, maternal age and parity, remain uncertain.

The optimal clinical management of such patients is unclear. What is clear is that when such massive placental haematomas are diagnosed, careful surveillance is needed. Some authors have suggested that where there is Doppler US evidence of impairment of foetal circulation, an immediate caesarean section should be performed<sup>(13)</sup>. In our case, foetal status remained reassuring throughout the antenatal course, and early delivery was eventually needed for maternal indications. Other factors, which may have contributed to a good outcome, include bed rest, timely administration of corticosteroids and judicious use of tocolysis. In addition, the patient also received IM 17 alpha-hydroxyprogesterone caproate (proluton), a natural metabolite of progesterone. There have been no previous reports on the use of IM 17 alpha-hydroxyprogesterone caproate in patients with placental haematomas although it has been shown to be effective in preventing recurrent preterm delivery. The progesterone may help to maintain uterine quiescence and may also have beneficial effects on the foetus, reducing the likelihood of certain complications such as necrotising enterocolitis and intraventricular haemorrhage<sup>(14)</sup>.

In conclusion, we have presented an unusual case of massive pre-placental and subchorionic haematoma. Such pregnancies are at high risk of foetal loss and premature delivery, especially if associated with antepartum haemorrhage. In this patient, a good outcome was achieved with careful surveillance, bed rest, use of corticosteroids, tocolysis and IM 17 alpha-hydroxyprogesterone caproate.

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