Case Report

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Massive Preplacental Hematoma Associated with an Uneventful Pregnancy Outcome: A Case Report

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Abstract

We report an uncommon case of massive pre-placental hematoma occurring in a 26-year-old woman who came for a regular antenatal checkup around 21 weeks of gestation. Ultrasonography showed a haematoma in the preplacental region of posteriorly located placenta, measuring 3.7 cm in largest diameter. Pre-placental haematoma continued to grow, measuring 8.0 cm at 30 weeks, and 11 cm at 36 weeks. At 37 weeks, the patient presented with rupture of membranes and an emergency caesarean section was performed. Both mother and child recovered well. The current literature on such haematomas is reviewed.

Keywords: Preplacental Hematoma Associated, Pregnancy Outcome.

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Introduction

Placental abruption is one of the worrisome causes of vaginal bleeding in the later part of pregnancy because it contributes to peri natal mortality (15-25%). The incidence is approx 0.5% of pregnancies.[1]

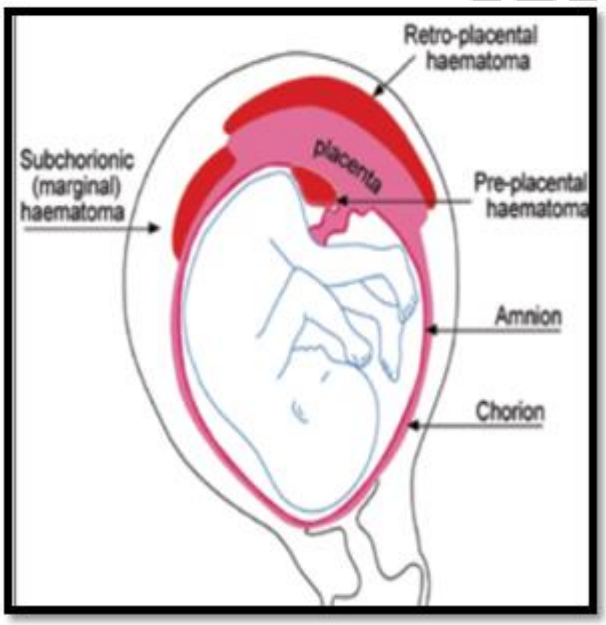

Figure 1 Diagram shows the classification of placental haematomas according to location.

Intrauterine hematomas are generally divided into three types according to their location: Sub chorionic (between the myometrium and the placental membranes and/or at the margin of the placenta, 81%), retro placental (between the placenta and the myometrium, 16%), and pre placental (between the placenta and the amniotic fluid/placental membranes, 4%).[2]

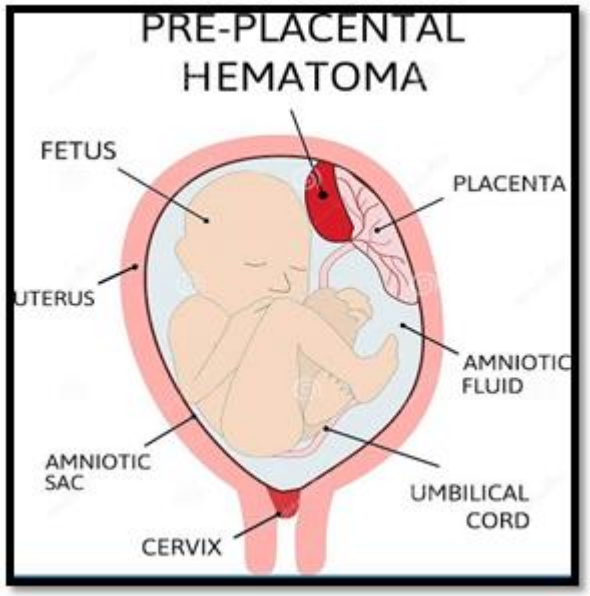

Figure 2 Diagram shows pre-placental haematoma.

Pre placental hematoma is a rare condition likely caused by bleeding from fetal vessels and located on the fetal surface of placenta.[3]

As there is widespread availability of sonography along with it being cost effective, it is the primary imaging modality for evaluation of the placenta. Other imaging modalities like Computed tomography (CT) and MRI have their own advantages and disadvantages. CT, however, plays a limited role as it has limited tissue characterization and the risk of radiation to the fetus outweighs it's benefit whereas Magnetic resonance (MR) imaging adds diagnostic value when there is requirement of further characterization.[4,5]

Case Report

Written informed consent was taken from the parents of the fetus.

A 26 yr old female of gestational age around 21 weeks came for routine fetal anomaly scan. This was her first pregnancy. She had no significant past medical history and was a non-smoker.

The anomaly scan showed a single live intrauterine fetus corresponding to gestational age 21 weeks 0 days, showed no fetal anomaly with a placenta that was located on the upper uterine segment- fundoposterior in location meas. 2.8cms with central cord insertion. A well circumscribed echogenic mass meas. 3.6x3.7cms was observed in the pre placental region. Doppler interrogation revealed absence of internal blood flow. Fetal heart monitoring was satisfactory.

Follow-up scans were performed at 30 and 36 weeks of gestation which revealed interval growth in the size of the hematoma, largest dimension meas. 8cms at 30 and 11.3cms at 36 weeks of gestation, and heterogeneous echogenicity showing fluid-fluid levels. Amniotic volume was normal and there were no hydropic features noted in the fetus, which showed normal growth parameters and normal Doppler flow. During this time, her hemoglobin level remained stable at around 9.6 g/dL. Her platelet count and clotting profile were normal.

On MRI scan, T1,T2 and DWI images of maternal abdomen and pelvis were acquired at 36 weeks of gestation.T1 weighted image demonstrates a large well-defined pre placental collection with fluid-fluid level. The dependent area of the fluid demonstrates isointense signal intensity whereas the non-dependent area demonstrates hyper intense signal intensity. On T2 and DWI, the dependent area shows hypo intense signal intensity which is suggestive of acute hemorrhage and non-dependent area shows hyper intense signal intensity which is suggestive of subacute hematoma respectively.

At 37 weeks, the patient presented with premature rupture of membranes which was confirmed on speculum examination. Fetal heart monitoring was reassuring. An emergency lower segment caesarean section was performed.

Post-delivery findings,

Infant weighing 2850 g was delivered with normal Apgar score. The mother and the baby were healthy without any significant risks and complications.

A large hematoma consistent with the imaging findings was seen on the anterior surface of the placenta.

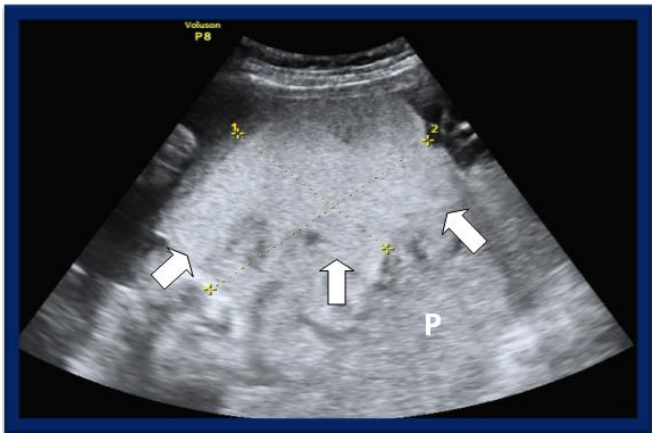

Figure 3: A sonongram made at 30 weeks of gestation shows a hyperechoic hematoma(arrows) in a pre-placental location [Infront of Placenta(P)].

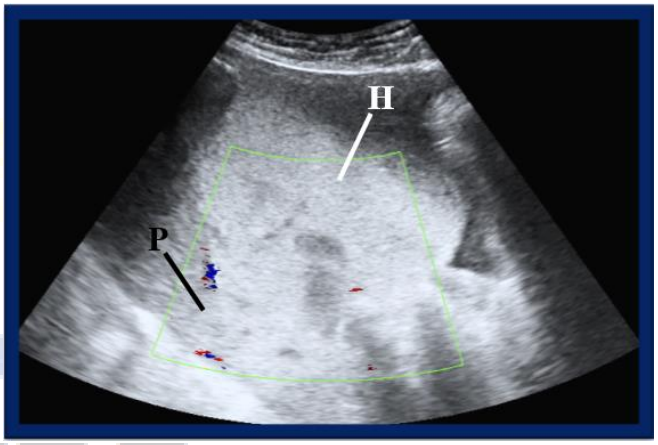

Figure 4: Colour Doppler image of placenta(P) and pre placental hematoma(H) at 30 weeks of gestation shows no significant vascularity within the hematoma.

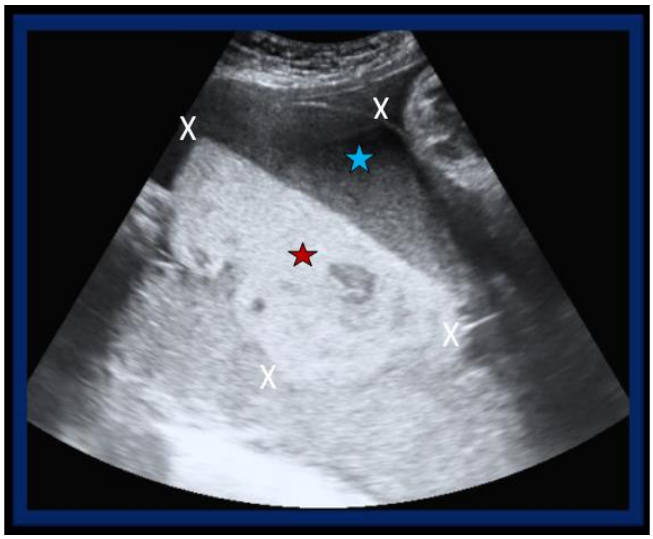

Figure 5: Transabdominal sonogram at 36 weeks of gestation shows heterogenous pre placental hematoma with fluid fluid level(calipers), Anechoic part (blue star) represents chronic and hyperechoic part (red star) represents acute hemorrohage.

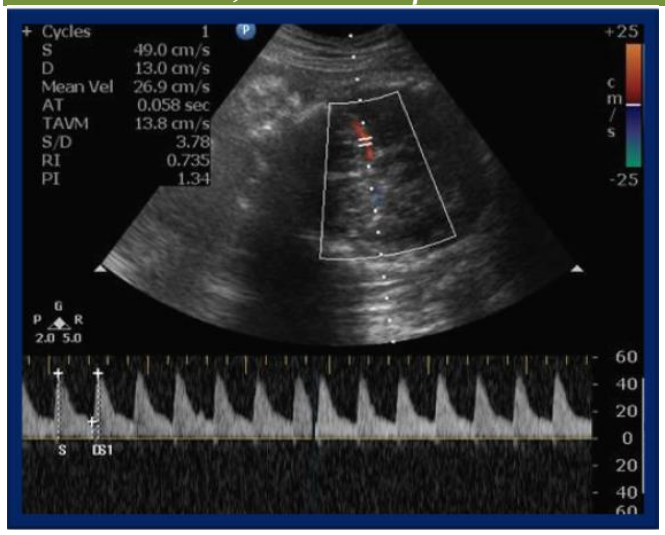

Figure 6: Colour Doppler image of Middle cerebral artery-demonstrates typical waveform showing high impedence circulation with continous forward flow.

Figure 7: Colour Doppler image of Umbilical artery-demonstrates typical waveform showing low impedence circulation with continous forward flow.

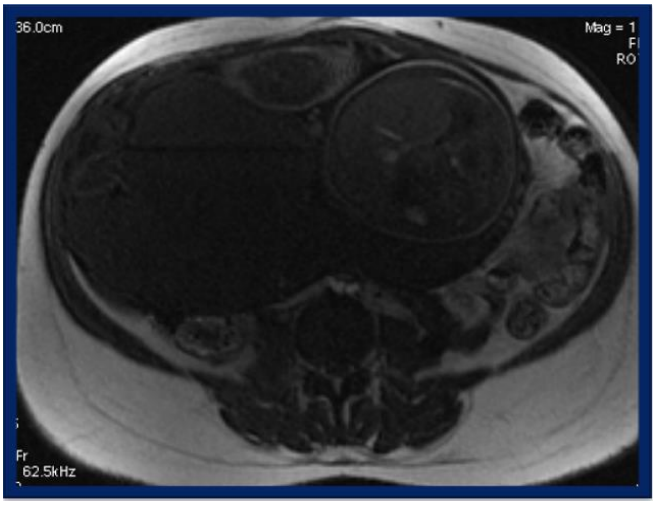

Figure 8: Axial T1 weighted image demonstrates a well defined complex fluid collection with fluid-fluid levels on the surface of placenta(P)

Figure 9: Preplacental hematoma at 36 weeks of gestation. Coronal T2 weighted imaging demonstrates a large well defined high signal intensity pre-placental collection.

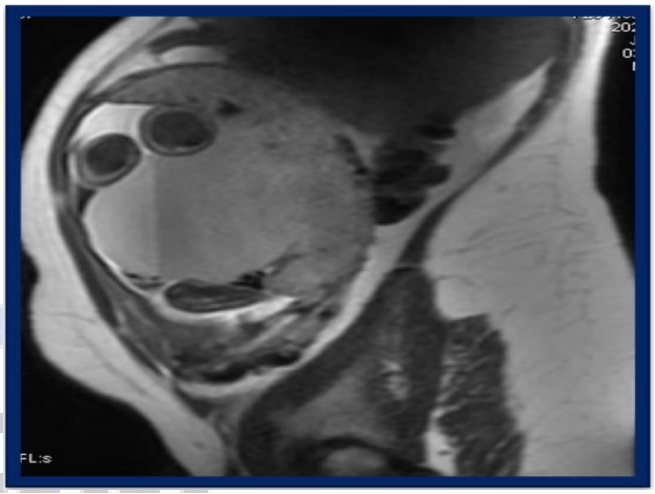

Figure 10: Saggital T2 weighted image demonstrates a large well defined pre-placental hematoma(callipers)showing fluid-fluid levels. Placenta(P) is homogeneous in signal intensity, normal in thickness with an intact myometrium.

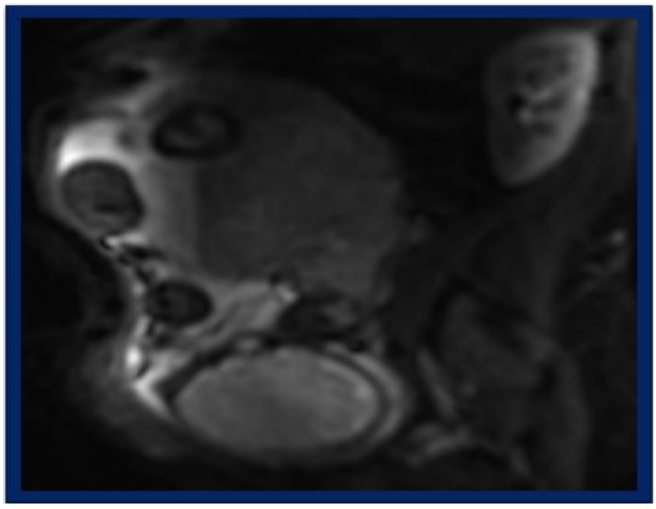

Figure 11: Preplacental hematoma at 36 weeks of gestation. Saggital Diffusion weighted image showing Preplacental hematoma with dependent isointense signal intensity(acute) and non-dependent hyperintense signal intensity(subacute).

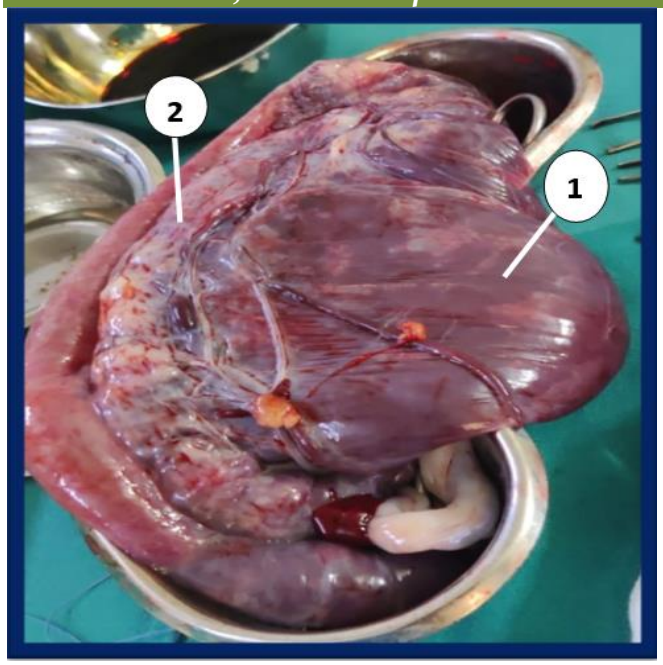

Figure 12: Image of gross placental specimen after delivery showing a large hematoma (1) on the surface of placenta (2).

Discussion

The term placental abruption is used to refer to partial or complete detachment of the placenta from the underlying myometrium before the expected delivery time.[1] Placental abruption is more common after 16 weeks of gestation (highest incidence 24th-26th weeks) after which PA incidence drops with advancing gestational age.[6,7,8]

Placental abruption complicates 0.4–1% of pregnancies.[9,10] The risk factors are smoking, thrombophilia, multiparity, premature rupture of membranes (PROM), prior history of placental abruption, chronic and gestational hypertension in vitro fertilization (IVF), alcohol consumption, and drug use(cocaine).[1] It is associated with maternal, fetal, and neonatal increased morbidity and mortality. Various complications are seen due to abruption which can be categorized separately into maternal and fetal complications. Maternal complications are risk of hysterectomy, Disseminated intravascular coagulopathy, and uncontrolled blood loss. Fetal complications include non-reassuring fetal heart rate, intrauterine growth restriction and fetal demise. Neonatal complications are premature delivery and death of the neonate.[11,12]

Intrauterine hematomas are generally divided into four types according to their locations: Subchorionic-between the myometrium and the placental membranes and/or at the margin of the placenta, Retro placental-between the placenta and the myometrium, Preplacental -between the placenta and the amniotic fluid/placental membranes and Intraplacental- bleeding in the intervillous space of the placenta.[13,14]

The clinical picture resulting from the placental hematomas is extremely variable, with several factors probably coming into play including the site and size of hematoma, gestational age, chronicity of bleeding and underlying disease process.[15,16]

Ultrasound is the initial modality for placental assessment despite its low sensitivity. At US, placental hematomas appear as well-circumscribed masses with echogenicity that varies according to chronicity. They are hypoechoic in the acute phase, heterogeneously echogenic in the subacute phase, and anechoic in the chronic phase. Doppler interrogation reveals absence of internal blood flow; this finding allows differentiation of hematomas from other placental masses. Ultrasound also confirms the presence of abruption and assesses the extent of subchorionic or retro placental hematoma.[2,16] Preplacental or sub amniotic hematoma may be associated with mass effect on the placental cord insertion which consequently result in ischemia and abnormal umbilical cord Doppler signal with increased risk of fetal demise.[15]

MRI is at par to ultrasound as it provides high soft tissue contrast resolution but has lower spatial resolution when compared to ultrasound.[17] The normal placenta on MRI when evaluated in second trimester has relatively homogeneous high T2 and low T1 signal intensity. As the gestational age advances the placenta becomes slightly lobulated and heterogeneous in signal intensity.[18]

MRI can accurately depict placental-related hemorrhage with a reported high sensitivity 95–100% and high specificity of 100%.[11]

MRI allows easy differentiation of hematomas from other causes of ante partum hemorrhage such as placenta previa, vasa previa and bleeding from vulva, vagina or cervix and based on signal characteristics of hemoglobin on T1 and T2 thus determining the age of blood products. Typically, acute hematomas are hypointense on T2WI and hyperintense on T1WI. Diffusion-weighted images (DWI) showing restricted diffusion and susceptibility artifact on T1-gradient echo images are helpful for hematoma detection.[19,20]

Conclusion

In conclusion, we have presented an uncommon case of massive pre-placental hematoma. Such pregnancies are at high risk of fetal loss and premature delivery, especially if associated with antepartum haemorrhage. Placenta has a crucial role throughout the fetal development, therefore systematic evaluation during routine prenatal ultrasound should be performed to exclude pathological conditions. MRI imaging is useful for further evaluation when increased tissue characterization is of value. The radiologist should be familiar with normal anatomy and various pathological conditions of placenta for alerting referring clinicians for prompt and appropriate management.

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