

Case Report

Spontaneous acute subdural hematoma as a complication of preeclampsia. A case report and literature review

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ABSTRACT

Background: Acute subdural hematoma (ASDH) is a common form of intracranial bleeding that may be fatal. Trauma is a major cause, while a subset of cases may occur spontaneously. The authors of this article present a case of spontaneous ASDH in the context of preeclampsia and review similar cases in the literature to identify the prognosis.

Case Description: A healthy 27-year-old woman presented in her first pregnancy which was complicated with pregnancy-induced hypertension and was sent to a provincial local maternity hospital at 37 weeks of gestation. On day 4 postpartum, the patient complained of severe headache, vomiting and blurred vision. Fundus examination showed papilledema and magnetic resonance imaging showed right acute frontoparietal subdural hematoma. The hematoma was surgically evacuated with decompressive craniotomy. Postoperatively, the patient's symptoms improved.

Conclusion: Spontaneous ASDH is a rare event in the context of preeclampsia; however, it should be considered as one of its possible complications. Research should be directed to emphasize on the possibility of spontaneous ASDH as a cause of neurological deterioration in those cases. A proper diagnosis and early intervention for these cases are crucial for both the mother and the fetus.

Keywords: Subdural hematoma, Preeclampsia, Pregnancy, Prognosis, Spontaneous

INTRODUCTION

Intracranial hemorrhage as a complication of pregnancy is a rare event that has significant morbidity and mortality. Pregnancy-induced hypertension accounts for about 16% of maternal deaths, although the rate is lower in high-income countries.^[18] Hypertension is an essential criteria to diagnose preeclampsia and sometimes, it is associated with proteinuria and different systemic complications.^[4,6,12]

Most cases of intracerebral hemorrhage caused by pregnancy-induced hypertension is caused by a ruptured aneurysm or arteriovenous malformation.^[3] Spontaneous acute subdural hematoma (ASDH) is an uncommon complication of preeclampsia in the absence of haemolysis, elevated liver enzymes, and low-platelet (HELLP) syndrome and it has a bad outcome if not urgently managed.^[21] In this article, we report a case of spontaneous ASDH in a young female as complication of preeclampsia in the absence of HELLP syndrome.

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CASE DESCRIPTION

A healthy 27-year-old woman in her first pregnancy which was complicated with pregnancy-induced hypertension on oral nifedipine was admitted to a provincial local maternity hospital at 37 weeks of gestation. On admission, the patient was fully conscious with the Glasgow Coma Scale (GCS) at 15, eye examination revealed bilateral equal reactive pupils, blood pressure was 180/100 mmHg with 4+ proteinuria, no history of convulsions, the patient denied any headache, visual disturbances, or epigastric pain. The cesarean section was performed uneventfully.

During the early postpartum period, she was apparently well and blood pressure was 130/90 mmHg without any other abnormal clinical signs. Platelet count was 250,000, prothrombin time was 12.5 s, and activated partial thromboplastin time was 30 s. Liver enzymes were not elevated and serum creatinine was also normal. On day 4 postpartum, the patient complained of severe headache (intensity 10/10) referred to the whole cranium not responding to analgesia with repeated vomiting and blurred vision. Blood pressure was 160/95 and laboratories were normal. The examination of the eye showed bilateral papilledema. Urgent magnetic resonance imaging brain was done, which showed a right fronto-parietal ASDH as shown

in Figure 1. GCS was 15 and the pupils were bilaterally equal and reactive. The patient was admitted on the same day in the operating room and the hematoma was evacuated with decompressive craniotomy. The patient showed marked neurological improvement without any motor or sensory deficit.

DISCUSSION

ASDH is the accumulation of acute blood between the dura and the underlying brain. It is considered a common life threatening form of traumatic brain injury. Spontaneous ASDH in pregnancy is uncommon, while it is more commonly caused by trauma or epidural anesthesia in the postpartum period.^[1,20] Other causes unrelated to trauma include coagulopathy, microangiopathy, aneurysmal hemorrhage, arteriovenous malformation, cerebral amyloid angiopathy, acquired immunodeficiency syndrome, and neoplasms.^[21]

An association between preeclampsia and spontaneous ASDH has not been well established in literature. We highlighted the case reports of spontaneous subdural hematoma in literature Table 1. Preeclampsia affects about 5–7% of pregnant women and in some cases, it may progress to HELLP syndrome.^[10] HELLP syndrome happens

Table 1: Case reports of spontaneous ASDH related to preeclampsia.

Age	Pre-operative GCS	Pre-operative clinical presentation	Timing of presentation	Management	Outcome	Associated HELLP syndrome	Other intracranial hemorrhages associated	Reference
36	NM	Slurred speech, and a right sided blown pupil	32 weeks	Right hemisectomy	Died	Yes	No	[19]
31	NM	Headache, photophobia, phonophobia and vomiting. Fundus showed papilledema	33 weeks	No surgery	Died	No	No	[2]
27	15/15	Seizures and signs of meningism	Day-23, postpartum	Burr-hole aspiration	Improved	Yes	No	[13]
25	NM	Aphasia with right hemiparesis grade 4	Two weeks postpartum	Burr-hole aspiration	Improved	No	No	[8]
19	13/15	Refractory headache and right pupillary dilatation unresponsive to light	32 weeks	Decompressive craniotomy	Died	Yes	No	[9]
25	NM	Disturbed conscious level	37 weeks	Decompressive craniotomy	Improved	No	No	[11]
34	15/15	New-onset visual changes in right eye and floaters	7 days postpartum	No surgery	NM	Yes	No	[16]
32	3/15	Headache, vomiting, anisocoric pupils were observed and reactions to light reflex were absent bilaterally	41 weeks	Evacuation and decompressive craniectomy	Improved with residual left sided weakness	Yes	Yes	[21]

ASDH: Acute subdural hematoma, GCS: Glasgow Coma Scale, HELLP: Hemolysis, elevated liver enzymes, and low-platelet, NM: Not mentioned

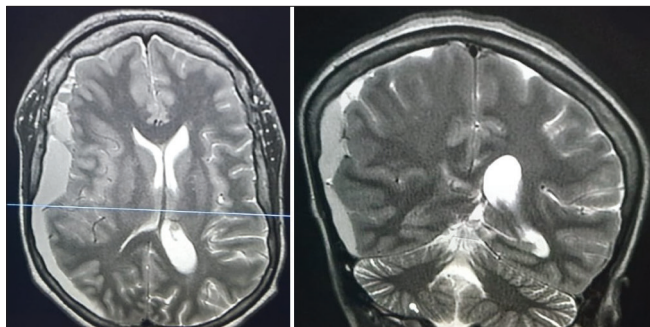


Figure 1: Magnetic resonance imaging showing a right frontoparietal acute subdural hematoma.

in pregnant and postpartum individuals characterized by hemolysis with microangiopathic features, elevated liver enzymes, and a low platelet count.^[7,17,19]

In the acute setting, ASDH management includes either urgent surgical evacuation or conservative management. ASDH more than 10 mm thickness or midline shift more than 5 mm on computed tomography imaging, neurological deterioration, and/or increased intracranial pressure are indications for surgical intervention.^[5] Mortality rate in some studies of ASDH ranges from 16 to more than 60%.^[9] Certain adverse prognostic criteria are associated with a bad outcome such as advanced age, low GCS on admission, high admission ICP value, and associated comorbidities as HELLP syndrome in case of pregnancy-associated ASDH.^[14,15]

CONCLUSION

Spontaneous subdural hematoma is a rare event in the context of preeclampsia; however, it should be considered as one of its possible complications. Research should be directed to emphasize on the possibility of spontaneous ASDH as a cause of neurological deterioration in those cases. Proper diagnosis and early intervention for these cases is crucial for both the mother and the fetus.

Ethical approval

Consent was obtained by the patient in this study. King Khalid General Hospital Research Board approved the IRB of this work.

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Dr. Azab has contributed to drafting and manuscript writing. Dr. Sajid has contributed to manuscript editing and final review.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

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