Case Report

Point-of-care ultrasonography of the orbit for detection of retinal detachment in a patient with hemolysis, elevated liver enzymes, and low platelet count syndrome

Gentle Sunder Shrestha, Shayuja Rajbhandari[1], Shashwat Dhungel[2], Nutan Sharma[3], Nimesh Poudel[3], Dhiraj N. Manandhar[4]

Abstract

Retinal detachment is a rare, but well-known cause of visual impairment in patients with hemolysis, elevated liver enzymes, and low platelet count (HELLP) syndrome. With supportive care, patients usually improve, with complete recovery of vision. Bedside ultrasonography of the orbit can be helpful for early detection of retinal detachment in these patients. Here, we present a case of HELLP syndrome presenting with severe visual symptoms. Retinal detachment was detected with point-of-care ocular sonography, which was confirmed with ophthalmoscopic examination. The patient was reassured of the favorable prognosis. Early initiation of aggressive supportive care was followed by progressive improvement of vision, which correlated with sonographic evidence of resolution of detachment. Her vision recovered completely in 2 weeks.

Keywords: Hemolysis, elevated liver enzymes, and low platelet count syndrome, point-of-care ultrasonography, retinal detachment

Access this article online

Website: www.ijccm.org

DOI: 10.4103/0972-5229.190364

Quick Response Code:

Introduction

HELLP syndrome represents a severe form of preeclampsia, presenting with hemolysis, elevated liver enzymes, and low platelet count. The syndrome represents 10%–15% of patients with preeclampisa and eclampsia.[1] Visual symptoms can be present in up to 25% of patients with preeclampsia, usually in the form of decreased visual acuity. Retinal detachment is a rare, but the well-document cause of visual loss in patients with preeclampsia and eclampsia. It is observed in < 1% of patients with preeclampsia, specially in the patients with severe hypertension.[2,3] In women with preeclampsia and eclampsia, coexistence of HELLP syndrome increases the risk of retinal detachment seven folds. Retinal detachment usually resolves completely with the supportive care, indicating a favorable prognosis.[4]

Point-of-care ocular ultrasonography allows for bedside detection of ocular pathologies such as retinal detachment, globe rupture, lens dislocation, and vitreous hemorrhage.[5] Here, we report a case or retinal detachment in a patient with HELLP syndrome, which was detected at the bedside by an intensivist, using ocular ultrasonography. It was confirmed with fundoscopy

From:
Department of Anaesthesiology, Institute of Medicine, Tribhuvan University Teaching Hospital, [2]Department of Ophthalmology, Tilganga Institute of Ophthalmology, [3]Department of Obstetrics and Gynaecology, Alka Hospital Pvt. Ltd., [4]Department of Nephrology, Nepal Medical College and Teaching Hospital, Kathmandu, [1]Department of Critical Care Medicine, Alka Hospital Pvt. Ltd., Ekantakuna, Lalitpur, Nepal

Correspondence:
Dr. Gentle Sunder Shrestha, Department of Anaesthesiology, Institute of Medicine, Tribhuvan University Teaching Hospital, Maharajgunj, Kathmandu, Nepal. E-mail: gentlesunder@hotmail.com

How to cite this article: Shrestha GS, Rajbhandari S, Dhungel S, Sharma N, Poudel N, Manandhar DN. Point-of-care ultrasonography of the orbit for detection of retinal detachment in a patient with hemolysis, elevated liver enzymes, and low platelet count syndrome. Indian J Crit Care Med 2016;20:545-7.

by an ophthalmologist. The patient improved with conservative management.

Case Report

A 26-year-old female, para 2 and gravida 3, presented with the history of 2 days of swelling of whole body, headache, and blurring of vision associated with decreased urine output. Her mentation was intact, with Glasgow coma scale of 15. Her previous pregnancy and the antenatal checkup during the current pregnancy were uneventful. She had no significant medical history. Her blood pressure on admission was 160/110 mm Hg. Her liver enzymes and lactate dehydrogenase were raised, platelet count was 55,000 per ml, and urine examination revealed 4 plus albuminuria and hematuria. Her serum creatinine was 4.6 mg/dL, and she was oliguric. Her hemoglobin was 9 g/L. She was started on Amlodipine 5 mg daily. Emergency lower segment cesarean section was performed, and the patient was transferred to the intensive care unit.

Her visual acuity was 1/60. An intensivist, trained in bedside focused ultrasonography, performed ocular ultrasound (using high frequency linear probe; frequency range of 6–13 MHz; MicroMaxx®; SonoSite, USA), which revealed a linear hyperechoic membrane floating off the posterior globe, with the medial end attached to the margin of optic nerve head, which was suggestive of retinal detachment [Figure 1]. Formal bedside fundoscopy by an ophthalmologist confirmed the diagnosis. Blood pressure was refractory to amlodipine 5 mg daily. She was started on injection glyceryl trinitrate, along with amlodipine 10 mg 12 hourly, prazosin 2.5 mg 12 hourly, metoprolol 50 mg 12 hourly, clonidine 100 mcg 12 hourly, and methyldopa 500 mg 6 hourly. With these drug combinations, blood pressure was controlled (130/80 mm Hg) and glyceryl trinitrate was tapered and stopped after 24 h. The patient underwent four sessions of hemodialysis for acute kidney injury. Renal function and liver function gradually improved.

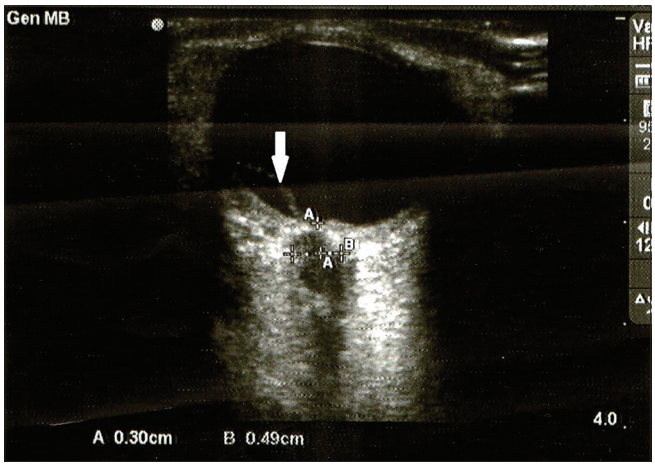

Figure 1: A linear hyperechoic membrane floating off the posterior globe (marked by white arrow), with the medial end attached to the margin of optic nerve head, suggestive of retinal detachment

The patient was explained about the favorable prognosis. With the supportive care, her vision progressively improved. Ocular ultrasound repeated after 7 days showed regression of retinal detachment [Figure 2]. Fundoscopic findings correlated with the findings of ultrasonography. After another 1 week, she had complete recovery of vision.

Discussion

Visual symptoms are not uncommon in patients with preeclampsia and eclampsia. Retinal vascular changes, usually in the form of spasm and narrowing of retinal vessels, occur in up to 40%–100% of patients with preeclampsia/eclampsia syndrome.[4] Arteriolar vasospasm affecting the retinal pigment epithelium leads to breakdown of blood-retinal barrier. Subsequent leakage of protein and fluids from the capillaries, into the subretinal space, causes retinal detachment.[5] The combination of microangiopathic hemolysis, hypoalbuminemia, and severe hypertension further contributes to the pathophysiology of retinal detachment.[4]

Bedside ultrasound by a trained physician has been shown to be reliable and accurate for the diagnosis of retinal detachment.[6,7] It usually resolves spontaneously with the resolution of preeclampsia/eclampsia/HELLP syndrome. The incidence of retinal detachment in these conditions can be much higher than actually detected.[4] In our patient, bedside ocular sonography helped in early

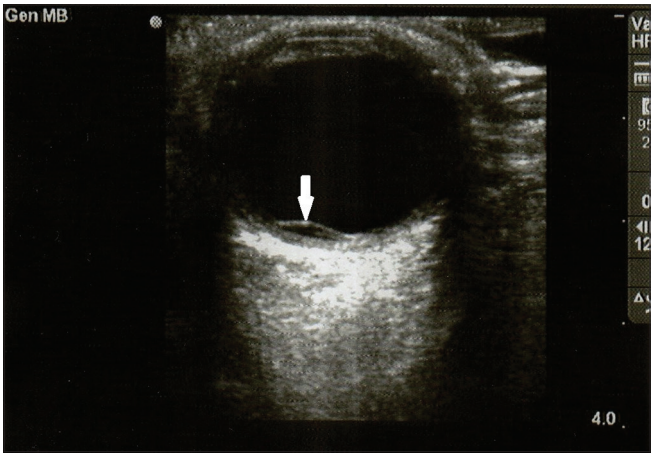

Figure 2: Resolving retinal detachment (marked by white arrow)

confirmation of retinal detachment. Early initiation of aggressive supportive care was coupled with favorable prognostication of visual outcome to the patient. The progressive improvement of vision correlated with both the ophthalmoscopic evidence of resolution of retinal detachment and sonographic appearance of resolution.

Conclusion

To conclude, bedside ocular sonography can be a valuable and easily available tool for early detection of retinal detachment in patients with preeclampsia/eclampsia/HELLP syndrome, presenting with visual symptoms. It can also be used to follow the evolution of retinal detachment.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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