Case Report

When Congenital Heart Repair Is Good but Vision Is Not –a Rare Occurrence of Cortical Visual Impairment Due to Unilateral Subdural Hematoma

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When Congenital Heart Repair Is Good but Vision Is Not –A Rare Occurrence of Cortical Visual Impairment Due to Unilateral Subdural Hematoma

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Abstract: Blindness or visual impairment following congenital heart repair is a rare complication. It can be transient or permanent depending in underlying etiology and damage to optic pathway. We report first case of transient blindness following congenital heart repair due to unilateral subdural hematoma in occipital region.

Keywords: congenital heart repair; cortical blindness; subdural hematoma

Introduction

Peri operative visual impairment/Blindness as an isolated complication following cardiac surgery is known to occur in 0.05-0.1% of cases [2]. Most common etiology is ischemic damage to retina / optic nerve/ occipital cortex [2]. We report a case of bilateral cortical blindness due to unilateral subdural hematoma in occipital region with spontaneous remission after 4 weeks.

Case Report

20 months old child with tetralogy of fallot's (TOF), weighing 10 kg and saturation of 82% underwent elective intracardiac repair. Repair was performed through median sternotomy. Trans right atrial VSD closure, right ventricular outflow tract resection along with limited transannular patch augmentation was performed on cardiopulmonary bypass (CPB). Aorto-Bicaval cannulation was performed and baby was cooled to 28 degree C. Aortic X clamp time and CPB time were 180 min and 240 min respectively. On CPB,range of mean blood pressure, hematocrit, ACT and lactate were 50-65 mm Hg, 30-33%, 450-900 and 1-2mmlol/litre respectively . Arterial filter and hemofilter were part of CPB circuit.

Post repair, patient was rewarmed gradually to 36 degree C and CPB was weaned off on epinephrine 0.05 mcg/kg/hr, milrinone 0.25 mcg/kg/min and vasopressin 0.02U/kg/hr. Echocardiography showed good biventricular function, small residual VSD and RVOT gradient of 40 mmHg. Repair was accepted and patient shifted to intensive care unit (ICU). Baby was extubated on post operative day 1 and inotropes tapered off.

It was noticed that baby was irritable and not making eye contact. He was not able to locate mother but was responding to her voice. On examination, perception of light was negative in both the eyes but pupils were reacting to light. There was absence of lid reflex response to threat in both the eyes. Fundus examination was normal bilaterally. There was no other neurological abnormality. MRI brain with MR angiography revealed small subdural hematoma in left occipital cortex extending into interhemispheric fissure. It showed no evidence of embolism/diffusion restriction/ venous thrombosis/optic nerve damage. EEG was normal. Visual Evoked Potential (VEP) response to flash light was negative bilaterally. Diagnosis of cortical blindness was made. SDH remained nonexpanding with no midline shift on post op day 6 and 10. (Figures 1–3). Baby was discharged on

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post operative day 11. On Follow up after 4 weeks vision was normal and CT scan showed resolution of SDH.

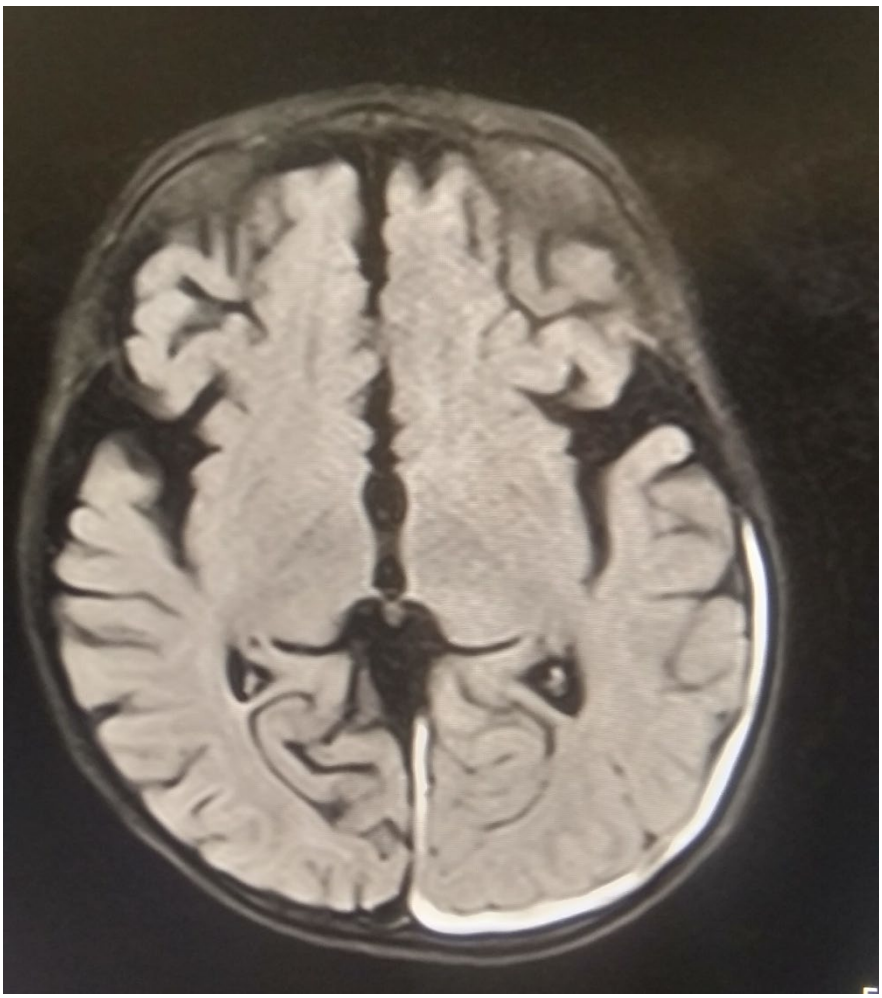

Figure 1. Pathophysiological mechanism suggested to cause blindness following CPB are episodes of hypotension, anemia, non pulsatile flow, air embolism, posterior reversible encephalopathy syndrome [3,6]. All these etiological factors contribute to ischemic damage to retina or optic nerve or occipital cortex (cortical blindness).

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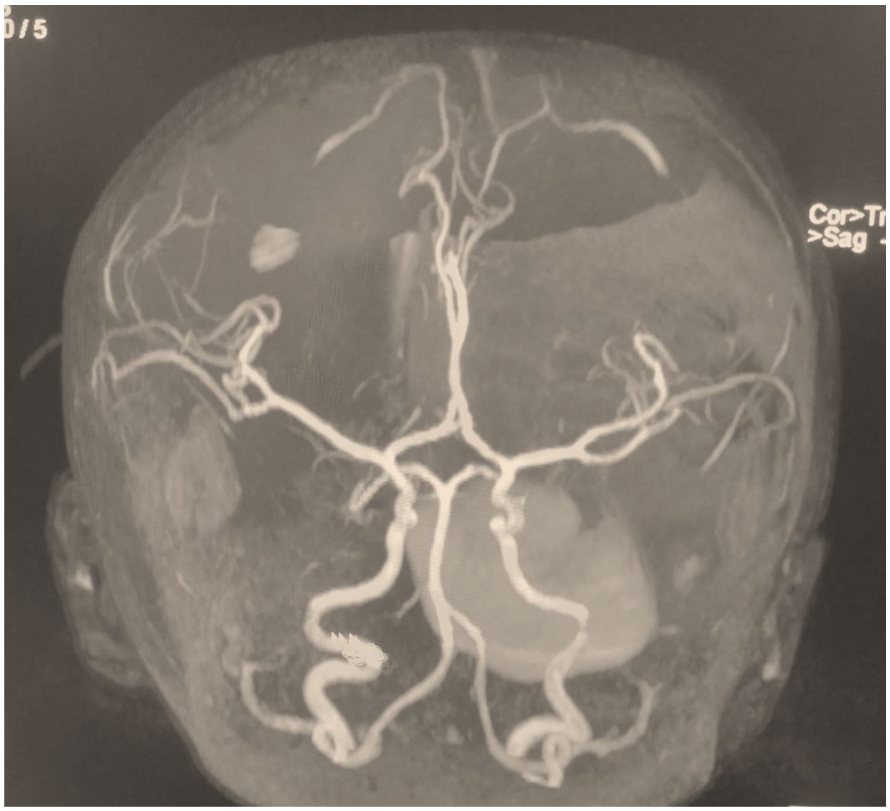

Figure 2. MR arterial angiogram showing patent anterior and posterior circulation.

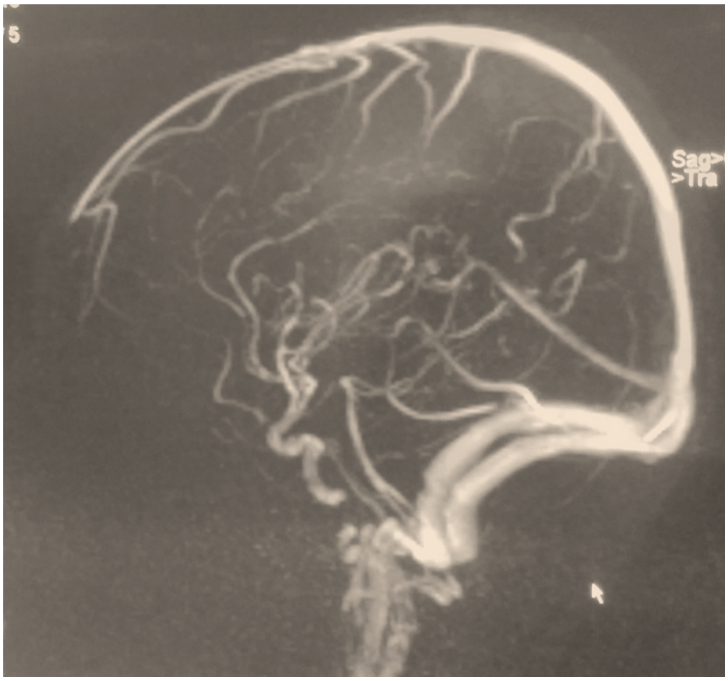

Figure 3. The same may have resulted in visual loss in our patient too. As SDH resolved, visual recovery was apparent suggestive of temporal causation.

Most of previous reported cases of cortical blindness following cardiac surgery had evidence of infarcts on CT/MRI in occipital region and abnormal EEG changes. These were typically absent in our case, further suggesting that SDH was possible culprit of causing visual impairment in our patient.

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The visual recovery after acquiring cortical blindness is reported to be between 2 weeks to 5 months. [8] EEG has been found to be better predictor of visual recovery than VEP [8]. Good prognostic factors for visual recovery include a) normal EEG b) focal / multifocal spike and wave discharge c) slow sharp wave discharges.

There was no positive correlation between VEP and recovery of vision [8]. Normal CT/MRI were suggestive of possible visual recovery [8].

Conclusions

Cortical blindness is a rare and devastating complication after congenital heart repair. It can be transient if underlying cause is reversible. Unilateral occipital SDH can result in bilateral cortical blindness in post operative period.

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