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A Rare Case Of Pilocytic Astrocytoma Diagnosed In A Child On Routine Eye Examination.

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I. Introduction:

Papilledema refers to swelling of the optic discs secondary to increased intracranial pressure, and occurs when axonal transport is interrupted at the optic disc head.[1] Papilledema evaluation in a child is a common, but often stressful endeavor for the patient, parents, and ophthalmologist alike, although it is rare in pediatric population.[2]Papilledema is not very common in pediatric age group and if at all it is detected, it should be managed energetically to prevent vision threatening complications like optic atrophy. Papilledema, or optic disc swelling due to elevated intracranial pressure (ICP), can represent a harbinger of life-threatening etiologies such as intracranial mass lesions or meningitis. An early and accurate diagnosis of papilledema can avoid anxiety-provoking and expensive testing. On the other hand optic disc edema in Optic neuritis (ON) is called papillitis as it is inflammatory in nature. ON is generally confused with papilledema as it has similar clinical presentation. We encountered a similar case which posed a diagnostic dilemma and was managed effectively.

II. Case report:

A 6 year old boy came to outpatient department for routine review of refractive error in March 2023. He had no other complaints, best corrected visual acuity was RE- -3.0*10 6/9 LE -0.50*170 6/6. Anterior segment was within normal limit; pupil was round regular and reacting to light. Ocular movements were full and free.color vision was normal.Routine dilated fundus examination revealed bilateral disc edema as shown in figure 1. He was investigated for the causes of papilledema/papillitis keeping in view common etiologies in pediatric age group. MRI brain with contrast was done showing a well-defined internal hypo tenseseptations with mild edema measuring 5*4cms involving right cerebellar hemisphere causing kinking on the optic nerve , child was diagnosed with pilocytic astrocytoma as shown in figure 2. The child underwent surgery for the same. Review was done in July 2023. BCVA was re -3.0 *10 6/9 p LE -.0.50* 170 6/6p.colour vision was normal,extra ocular movements were full and free in all directions of gaze. Fundus examination was normal as shown in figure 3. The child was followed up over a period of 6months and is doing well with no change in visual acuity.

Figure1: Fundus photo showing blurred disc margins in both eyes

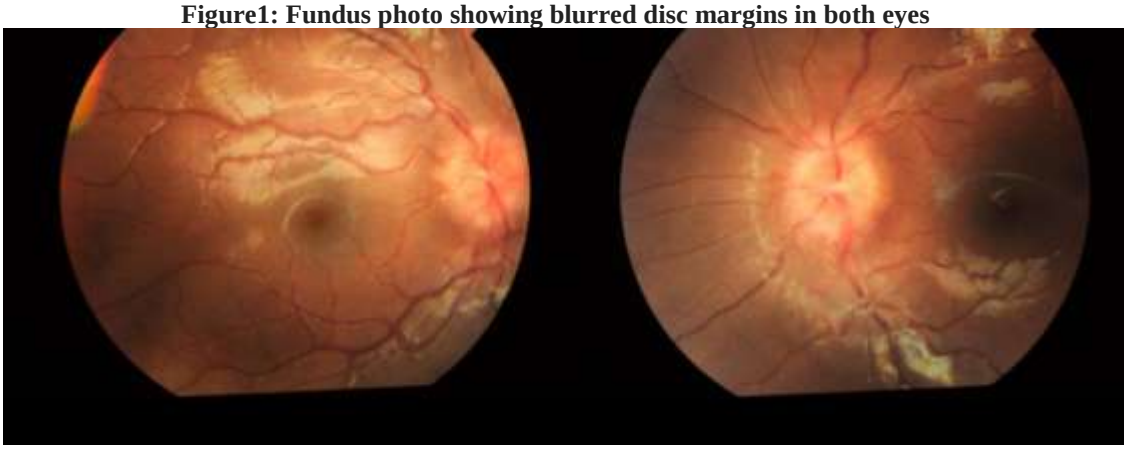


Figure 2: MRI contrast image showing hypotense lesion in the right cerebellar hemisphere.

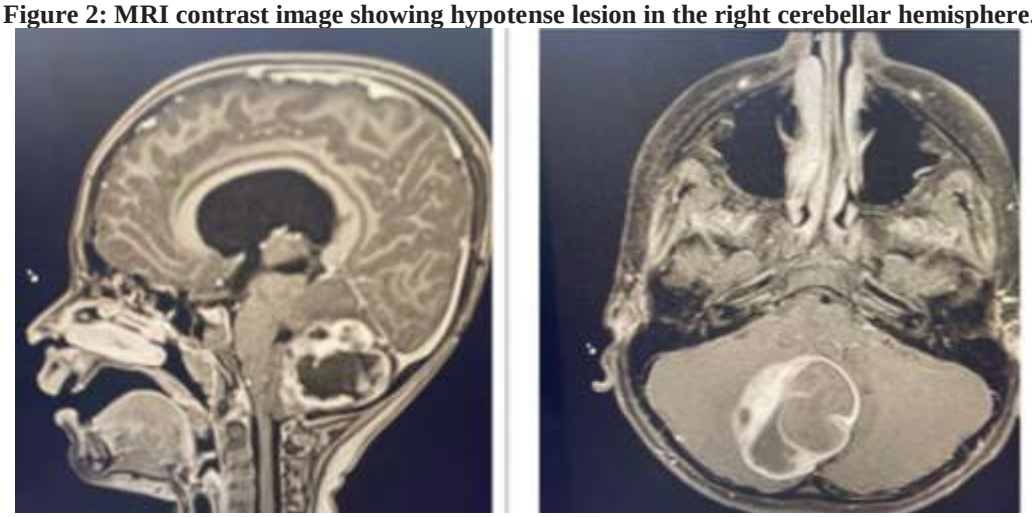
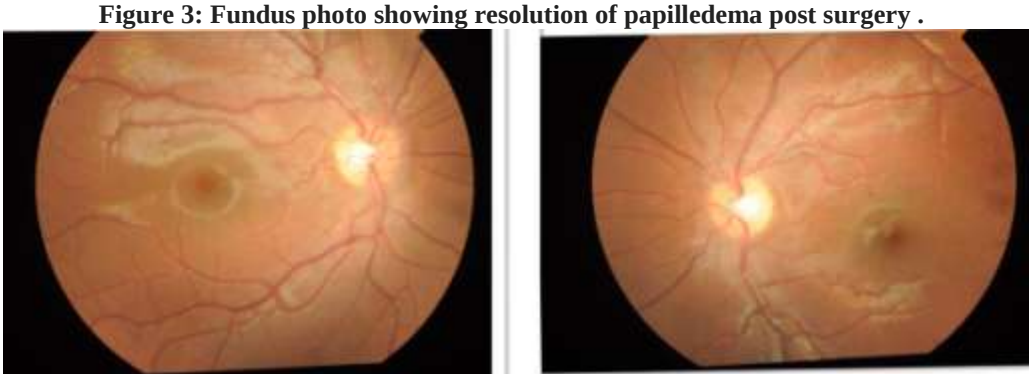


Figure 3: Fundus photo showing resolution of papilledema post surgery .



III. Discussion

Papilledema may be observed at almost any age, but it is relatively uncommon in infants, because the fontanelle are not obliterated and the cranial sutures are not fused at this age; therefore they bulge and split leading to increase in head circumference rather papilledema. [3]Possible conditions causing papilledema in a child include intracerebral mass lesions, cerebral hemorrhage, head trauma, meningitis, hydrocephalus, impairment of cerebral sinus drainage, anomalies of the cranium, and idiopathic intracranial hypertension (IIH). [4] These conditions should be ruled out in a child presenting with optic disc edema. In this case also, MRI brain was done to rule out these conditions. Optic disc edema in a child poses a difficult situation for the clinicians as there is a long list of conditions which can cause this. To diagnose the exact etiology and rule out others is a herculean task as most of times child will not cooperate for the examination as well as investigations. Pilocytic astrocytoma can present with symptoms secondary to the posterior fossa mass effect. This may include obstructive hydrocephalus, with resultant headache, nausea and vomiting, and papilledema. In our case child did not complain of any of the above symptoms. What was supposed to be a routine checkup for the child turned out to be brain tumor which was presented as papilledema.[5]The exact prevalence of this condition in pediatric population is not known though few cases have been reported. Similar to adult patients, children are at risk of development of permanent visual loss[6].Although children usually complain of headaches and may have vomiting, blurred vision and horizontal diplopia, very rarely like in our case sometimes child may not present with any symptoms. On the other hand, optic neuritis (ON) in pediatric patients is considered as a different entity in comparison to adults. It is normally bilateral and occurs after a viral infection. Due to presence of bilateral optic disc edema, it is confused with papilledema. Morales et al in their study has shown that ON has good prognosis in pediatric age group[7,8]. A good clinical and systemic approach is needed to differentiate ON and papilledema in children.

IV. Conclusion

Optic disc edema in a child can occur without any presenting symptoms. A thorough clinical examination led to a discovery of a brain tumor. Meticulous and systematic approach can clinch the diagnosis. Management should be started immediately to prevent vision threatening complications.

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