PHILIPPINE JOURNAL OF
Ophthalmology

VOL. 35 • NO. 2 JULY – DECEMBER 2010

CASE REPORT

Papilledema due to iron-deficiency anemia

Simran Singh Mangat, MD, MBChB
Wirral University Hospital
Merseyside, United Kingdom

ABSTRACT

Objective

We reported the association between iron-deficiency anemia and papilledema in a case of presumed idiopathic intracranial hypertension (IIH) and subsequent resolution of the signs and symptoms on correction of anemia.

Methods

Case notes, blood tests, clinical photographs, and neuroimaging were collected and analyzed. Iron-deficiency anemia was treated with oral ferrous sulphate.

Results

Blood tests revealed a microcytic anemia consistent with iron-deficiency anemia. Magnetic resonance imaging did not demonstrate enlarged ventricles. There was complete resolution of all signs and symptoms after treatment of the anemia.

Conclusion

We recommend that a simple full blood count should be performed on all patients diagnosed with IIH.

Correspondence to
Simran Singh Mangat, MD
2 Cannon Park Road
Coventry, CV4 7AY, United Kingdom
Telephone : +447889829045
Fax : +442476693193
E-mail : simranmangat36@hotmail.com

No financial assistance was received for this study.

The author has no propriety or financial interest in any product used or cited in this study.

Keywords: *Iron-deficiency anemia, Papilledema, Idiopathic intracranial hypertension*

PHILIPP J OPHTHALMOL 2010; 35(2): 76-78

WE REPORT a case of presumed idiopathic intracranial hypertension (IIH) resolving with treatment of iron-deficiency anemia. Treatment consisted of solely correcting the iron-deficiency anemia without using other medications or procedures to treat IIH. Considering both these conditions are relatively common, this association has only rarely been reported. It has been shown that anemic individuals with IIH suffer from visual deterioration more than those that are not anemic.[1]

CASE REPORT

A 13-year-old Asian girl complained of lethargy and menorrhagia after menarche. She also admitted to a gradual onset of a frontal headache with nausea. She denied any fever, neck stiffness, or any visual complaints.

On examination, visual acuity was 6/6 OD and OS. Anterior segment examination was normal. Fundoscopy showed bilateral optic disc swelling (Figure 1).

Investigations revealed a hemoglobin of 5.8g/dl, MCV 60.5, hematocrit 0.216, ferritin 2, and microcytic hypochromic cells.

Magnetic resonance imaging (MRI) of the brain did not demonstrate any abnormality. A lumbar puncture, however, was not performed. Visual-field charting did not demonstrate any scotoma.

She was treated for anemia initially with blood transfusion and subsequently with ferrous-sulphate tablets.

One month after initiation of treatment, her

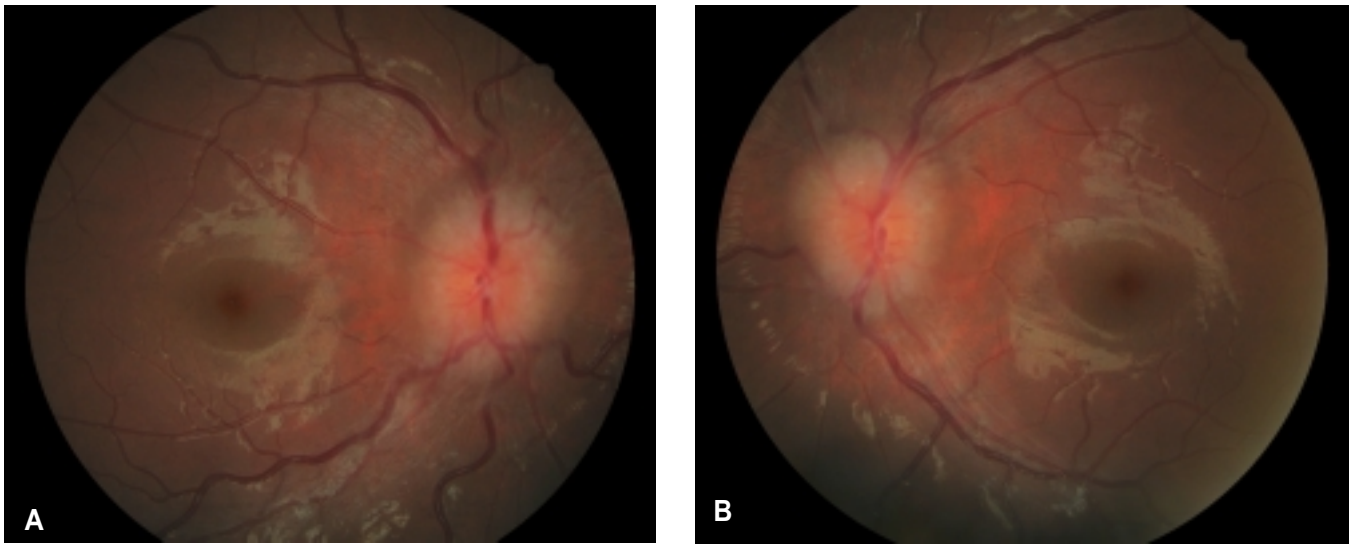

Figure 1. Fundus appearance at presentation showing bilateral optic disc swelling.

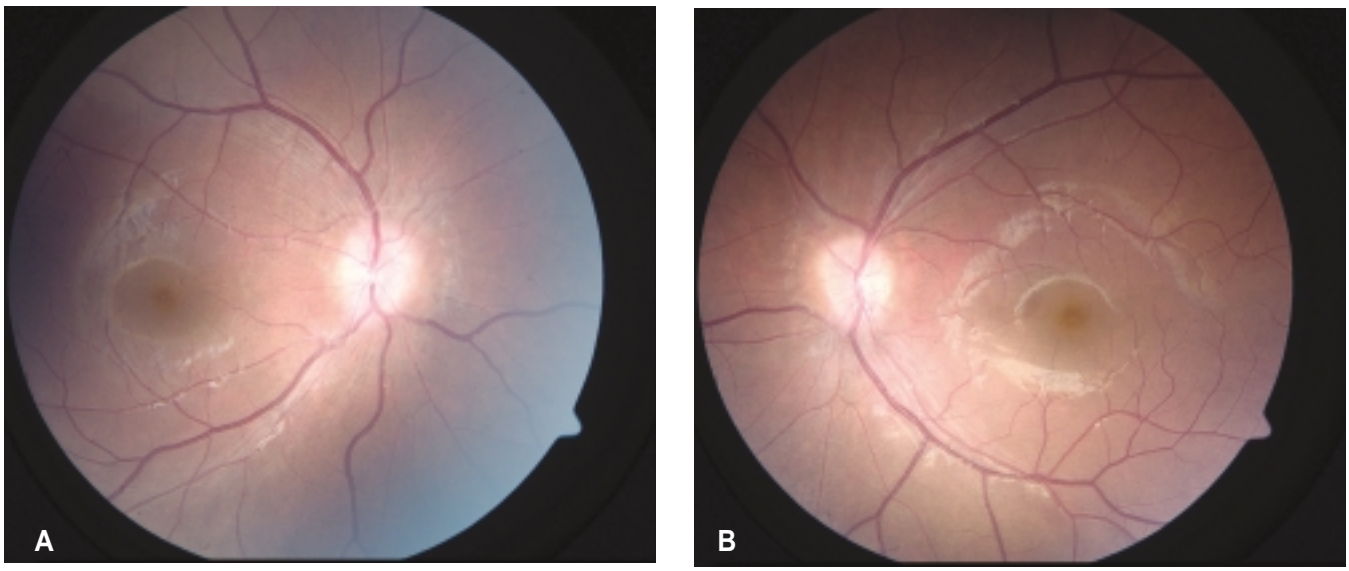

Figure 2. Fundus appearance after treatment showing resolution of papilledema.

hemoglobin increased to 8.3g/dl, MCV 64.9, hematocrit 0.303. Two months after treatment, her hemoglobin was 10.4g/dl and MCV 69.5. Her headaches and papilledema had resolved (Figure 2).

DISCUSSION

This young girl had presumed idiopathic intracranial hypertension (IIH) since no lumbar puncture was performed. This can be attributable to her iron-deficiency anemia as treatment of this resulted in resolution of her symptoms. No diuretics were used at any point during the course of the condition.

IIH has been associated with anemia, in particular iron-deficiency anemia. However, the evidence for this association is limited to case reports and case series.

Controlled studies have not demonstrated anemia as a statistically significant cause of IIH.[1] Most affected patients have been young females. It may be argued that both these conditions are common in this population; thus, this may not represent a causal relationship based on the current level of evidence.

In a literature review of 17 cases by Biouse et al., most patients were young females with a mean hemoglobin of 5.4g/dl on presentation.[2] This patient correlated with this finding.

There was no visual disturbance in this case, but it has been shown that anemic individuals with IIH suffer from visual deterioration more than those that are not anemic.[1] Thus, anemia should be recognized and treated early to prevent poor long-term visual outcome.

It is important to exclude central venous thrombosis in a patient presenting in this fashion with a normal MRI. Magnetic resonance venography was not carried out in this case because of low clinical suspicion and normal platelet counts throughout her clinical course. However, it has been reported by Lin and associates that the occurrence of central venous sinus thrombosis was 9.4% in 106 patients presumed to have IIH.[4] Of the patients in this study who had central venous thrombosis, 90% had vascular risk factors for thrombosis. As a result, the percentage of venous sinus thrombosis may have been artificially high.

The pathophysiology behind this association between anemia and papilledema has not been clearly explained. Many hypotheses have been put forward. It has been thought a loss of iron dependent enzymes due to anemia may result in lowering oxygen carrying capacity with resultant papilledema and cerebral edema causing raised intracranial pressure.[5]

It is also known that iron-deficiency anemia can induce a state of hyperviscosity and this has been postulated to increase venous sinus pressure without thrombosis.[2]

In this patient, iron-deficiency anemia was diagnosed prior to the papilledema being recognized, in contrast to the majority of cases. Anemia should be ruled out in those patients being treated for IIH who demonstrate visual disturbance and do not improve with conventional treatment.

References

1. Orcutt JC, Page NGR, Sanders MD. Factors affecting visual loss in benign intracranial hypertension. *Ophthalmology* 1984; 91: 1303-1313.
2. Giuseffi V, Wall M, Siegel PZ, Rojas PB. Symptoms and disease associations in idiopathic intracranial hypertension (pseudotumor cerebri): a case-control study. *Neurology* 1991; 41: 239-244.
3. Biouse V, Rucker JC, Vignal C, et al. Anemia and papilledema. *Am J Ophthalmol* 2003; 135: 437-446.
4. Lin A, Foroozan R, Danesh-Meyer HV, et al. Occurrence of cerebral venous sinus thrombosis in patients with presumed idiopathic intracranial hypertension. *Ophthalmology* 2006; 113: 2281-2284.
5. Saleh T, Green W. Bilateral reversible optic disc edema associated with iron-deficiency anemia. *Eye* 2000; 14: 672-673.