

Case Report

Unilateral central retinal vein occlusion as a first manifestation of diabetes mellitus in a ten-year-old girl



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Abstract

Central retinal vein occlusion (CRVO) is relatively rare in the pediatric age group. We present a case of CRVO as the first manifestation of diabetes mellitus in a ten-year-old girl. The associated macular edema was managed successfully with a single injection of Ranibizumab. Ophthalmologists should consider the possibility of diabetes mellitus in pediatric cases of CRVO.

Keywords: Central retinal vein occlusion, Diabetes mellitus

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Introduction

Central retinal vein occlusion (CRVO) is a major vision threatening vascular disorder that affects the retina.¹ It usually occurs in adult age with an average age of onset of 53 years.² Diabetes mellitus is a known risk factor, with a prevalence of 13–34% in patients with CRVO.² However, in patients under fifty years it was only 3–9%.²

We report a case of central retinal vein occlusion in a ten years old girl as a first manifestation of diabetes mellitus.

Case report

A healthy ten-year-old female presented to the emergency room with painless reduction of vision in the right eye for one week. Her sister had uveitis but no family history of CRVO. She did not have any history of joint pain, skin changes, numbness, weakness or fever.

Visual acuity was 20/50 in the right eye and 20/20 in the left eye. The intraocular pressure was 18 in the right eye

and 20 in the left eye. The anterior segments and lenses of both eyes were unremarkable. Fundus exam of the right eye showed multiple splinter hemorrhages with tortuous blood vessels. left eye fundus was within normal limit.

Spectral-domain Optical coherence tomography (SD-OCT) showed cystoid macular edema at presentation (Fig. 1). Laboratory studies included a fasting blood glucose (16.2 mmol/l), Glycosylated Hemoglobin A1c (8.8%). In addition to, complete blood count with differential including Hematocrit, Lysozyme, erythrocyte sedimentation rate, C-reactive protein, platelet count, prothrombin time, activated partial thromboplastin time, bleeding time, protein S, protein C and lipid profile were within normal limits. Sickle cell screening, antinuclear antibodies, Anti- double stranded DNA, rheumatoid factor and Tuberculosis quantiferon were negative.

Based on her presentation, diagnosis of CRVO was made. She received 0.05 ml (0.5 mg) of Ranibizumab (Lucentis®) intravitreal injection in the right eye. The injection was done under brief general anesthesia. One month after the

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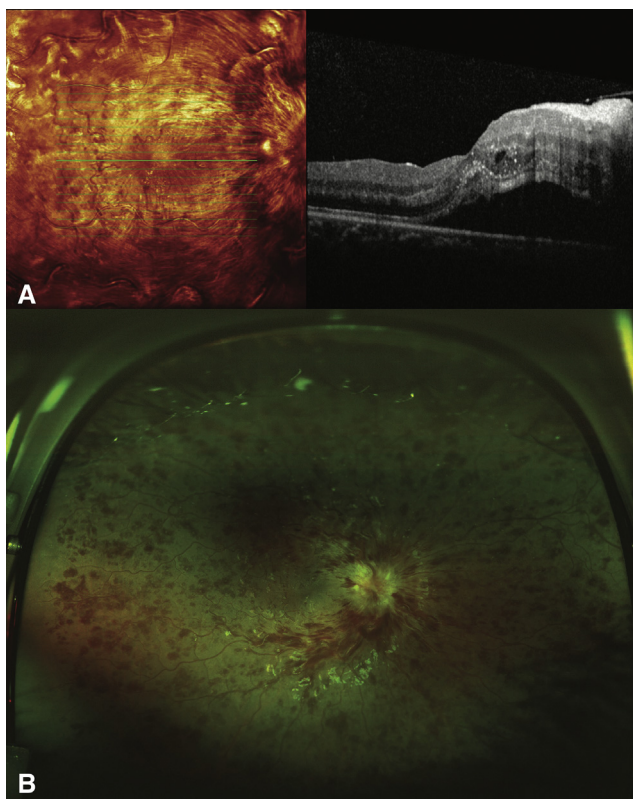


Fig. 1. A ten years old girl who presented with central retinal vein occlusion in the right eye as the first manifestation of diabetes mellitus. (A) Spectral-domain Optical coherence tomography (SD-OCT) of the right eye at presentation showed cystoid macular edema. (B) Fundus wide field photograph of the right eye at presentation showed multiple splinter hemorrhages with tortuous blood vessels.

injection, her visual acuity improved to 20/30 and the fundus exam showed some disc hyperemia persistent without macular edema or neovascularization of blood vessels. In the follow-up appointment after three months, she came with visual acuity of 20/40 in the right eye and 20/25 in the left eye. The fundus exam of the right eye showed tortuous vessels, clearing hemorrhages, disc hyperemia without neovascularization or disc collaterals (Fig. 2).

Discussion

This case report describes CRVO in a pediatric patient as a first presentation of diabetes mellitus. However, children with diabetes vary in presentation, ranging from the triad of polyuria, polydipsia and weight loss which is the most common mode of presentation, to diabetic ketoacidosis (DKA); which is the presenting condition in 80% of children with type one diabetes.^{3,4}

To the best of our knowledge, this is the first description of CRVO as a first presentation of diabetes mellitus in pediatric age group. Among the few previous case reports of children with retinal venous occlusion are; a 14 years old girl who was positive for *Bartonella henselae* (Ischemic central retinal vein occlusion),⁵ an otherwise healthy 6 years old girl (Central retinal venous occlusion),⁶ two cases of otherwise healthy 13 years old boys (Central retinal vein occlusion),^{7,8} a 15 years old girl with SLE and anti-phospholipid antibodies (Central retinal vein occlusion),⁹ a 12 months old girl with exanthema subitum associated with human herpes virus 6 (central retinal

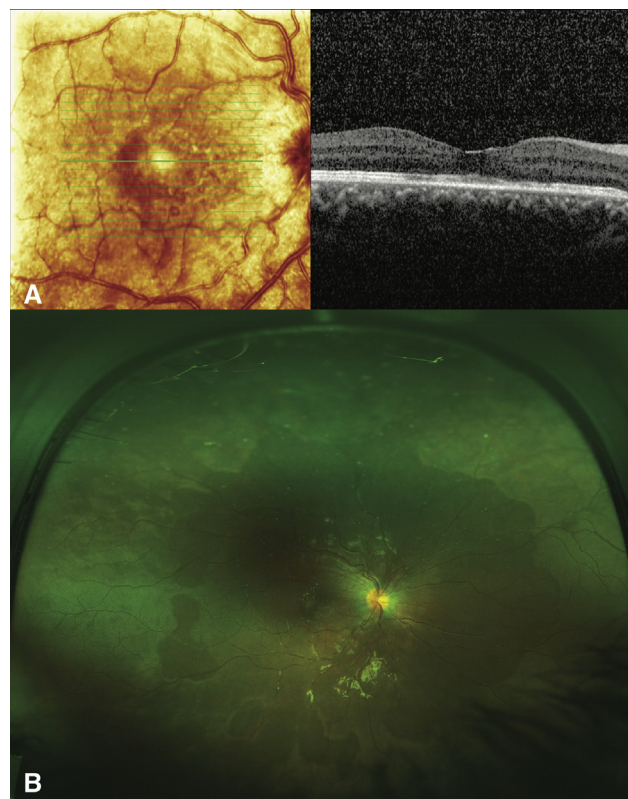


Fig. 2. A ten years old girl who presented with central retinal vein occlusion in the right eye as the first manifestation of diabetes mellitus. Follow up after 3 months. (A) Spectral-domain Optical coherence tomography (SD-OCT) of the right eye showed resolution of macular edema. (B) Fundus wide field photo of the right eye showed tortuous vessels, clearing hemorrhages and disc hyperemia.

vein occlusion),¹⁰ a 20 months old boy with cyanotic heart disease (central retinal vein occlusion),¹¹ a 13 years old girl with sarcoidosis (branch retinal vein occlusion),¹² a 14 years old girl with infective endocarditis (combined central retinal vein occlusion and central retinal artery occlusion).¹³

CRVO is more common in adults with various medical and ocular conditions, such as diabetes, hypertension, hyperlipidemia or glaucoma.²

In our case, the patient was otherwise healthy and after multiple lab studies including the fasting blood glucose and Glycosylated Hemoglobin A1c we were able to reach the diagnosis of diabetes mellitus, which was most likely the cause of the CRVO. The macular edema associated with it, was managed successfully with a single injection of Ranibizumab.

In conclusion, ophthalmologists should be aware of a potential association between CRVO and diabetes mellitus not only in adults, but also in pediatric patients.

Conflict of interest

The authors declared that there is no conflict of interest.

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