Bahrain Medical Bulletin, Vol. 37, No. 2, June 2015

Bilateral Optic Neuritis

Ahmed Asal, MD* Emad Badawy, FRCS** Moemen Al Reefy, FRCSI, FRCOphth***

Bilateral optic neuritis in children is an atypical presentation that needs careful identification of the primary cause.

In this report, we present a fourteen-year-old female with bilateral vision reduction and eye pain. The patient received the standard 1 gm intravenous methylprednisolone for five days and showed significant improvement. Multiple sclerosis (MS) was confirmed to be the cause of optic neuritis, which underlines the importance of ophthalmologic examination in detecting children with MS.

---

* Senior House Officer
** Senior Registrar
*** Consultant
Head of Department, Head and Neck
Department of Ophthalmology
King Hamad University Hospital
Kingdom of Bahrain
Email: ahmed.asal@khuh.org.bh

Optic neuritis (ON) is an acute inflammation of the optic nerve that is commonly manifested as a unilateral sudden visual loss in young females[1]. It is the most common cause of sudden vision loss in young adults; the incidence is 1-5/100,000 per year, and it is usually the initial symptom of multiple sclerosis in that age group[2]. The disease is less common in children, and tends to be manifested in atypical clinical picture of bilateral vision loss proceeded by history of viral infection or immunization with fast recovery and a better prognosis than in adults.

The aim of this report is to highlight the manifestation of atypical optic neuritis in this age group and to discuss the management plan and visual outcome in such cases.

THE CASE

A fourteen-year-old Bahraini female presented to the emergency department complaining of sudden bilateral vision loss. The patient had a history of headache for a year and frequent glass prescriptions. The vision was not achieving 6/6 with correction, and it was associated with recurrent eye pain. She had no known systemic medical illness, no recent history of fever, common cold, immunization or traveling abroad.

On examination, uncorrected visual acuity was counting fingers (CF) in the right eye and hand motion (HM) in the left eye. The extraocular movement was within normal, but associated with pain in the extreme gaze. Afferent pupillary defect was more prominent in the left eye. Anterior segment and intraocular pressure were within normal. Dilated fundus examination revealed elevated optic nerve head more in the left eye than the right, see figure 1. Optic nerve ocular coherence topography was taken, see figure 2.

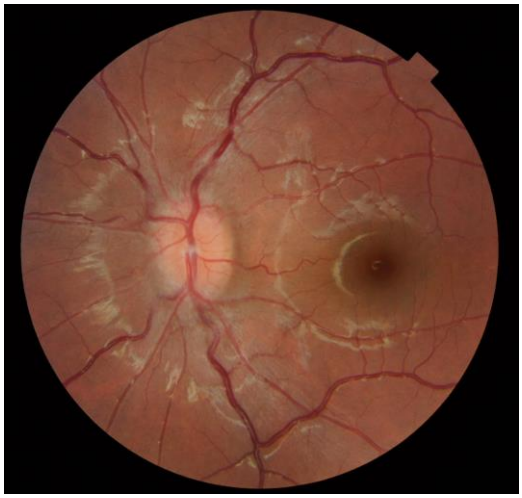

Figure 1: Optic Nerve Appearance

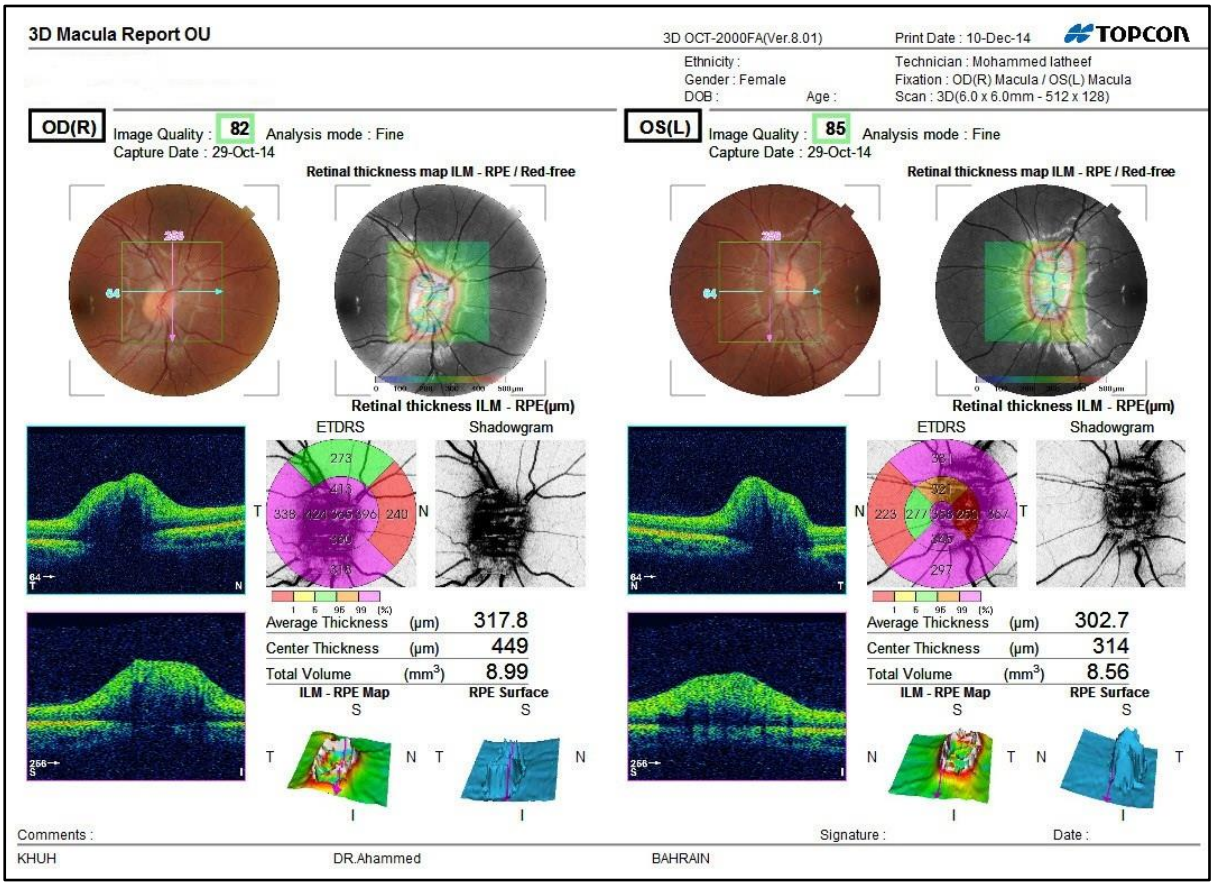

Figure 2: Ocular Coherence Topography Report for Optic Nerve

CT brain, CBC, RFT, LFT and autoimmune profile were within normal. The patient was diagnosed as bilateral optic neuritis and admitted for IV methylprednisolone 1 gm daily for three days. MRI and neurology consultation were requested. MRI showed multiple infra and supratentorial lesions with noted enhancement in the pontine lesion suggestive of active MS, see figure 3. During the first three days of admission, there was no significant change in visual acuity; therefore, the course of IV methylprednisolone was extended for two more days. After five days of IV methylprednisolone, the uncorrected visual acuity was 6/60 with

reduced optic nerve swelling. The patient's medication changed to 80 mg oral prednisolone and was discharged from the hospital to be followed up in ophthalmology and neurology clinics.

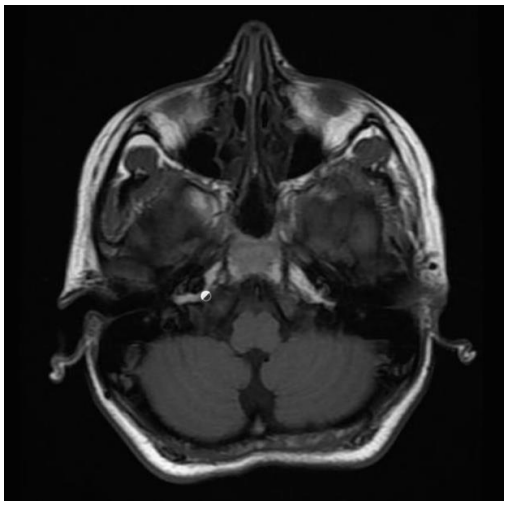

Figure 3: Multiple Sclerosis Lesions in MRI Brain

Within five days of discharge, the uncorrected visual acuity was 6/9; therefore, the oral prednisolone was tapered to 60 mg. After another five days, the patient's uncorrected visual acuity achieved 6/6. Prednisolone tapered to 40 mg and patient was regularly seen every five days with tapering of oral prednisolone by 10 mg each visit.

DISCUSSION

Optic neuritis is the most common manifestation of multiple sclerosis (MS) and may be the initial clinical manifestation[4]. MS is an autoimmune demyelinating disorder of the nervous system. Most MS patients develop some degree of visual impairment during the course of the disease[5].

Triad of impaired visual acuity, pain with eye movement and color defects typically present in the classical clinical picture. Usually, there are multiple causes for optic neuritis other than MS; these causes include post-infection, post-vaccination, neuroretinitis, acute disseminated encephalomyelitis, Vitamin B12 Deficiency, TB and ischemic[6].

Optic neuritis could be categorized into two forms based on the clinical presentation of the disease. The first category is typical optic neuritis in which the classical picture occurs and usually associated with benign non-treatable conditions. The second category is atypical optic neuritis which is seen as bilateral vision loss and often can be treated but usually is not benign. Therefore, it is important to consider carefully before diagnosing optic neuritis. The classic triad of ON is unilateral in 70% of adults; although, atypical ON presents with bilateral progressive vision loss for more than two weeks. Pain associated with eye movement can be severe or not present at all; therefore, it is of little clinical significance in diagnosing atypical cases[7].

Our case presented with atypical ON. The patient was below 20 years with bilateral vision loss and headache for long period.

Optic Neuritis Treatment Trials (ONTT) treatment has changed in recent years. Ophthalmologists treat patients with a combination of IV and oral steroids. Use of oral steroids alone is not recommended. The regimen typically includes three days of IV steroids, followed by about 11 days of oral steroids[8].

In our patient, we extended the course to five days because there was no vision response; the patient showed significant improvement on the fifth day and transferred to oral steroids.

Optic neuritis is not common in children and usually occurs after a viral infection or vaccination with an atypical clinical picture of bilateral vision loss. Visual prognosis in children is much better than in adults[3].

CONCLUSION

Optic neuritis is an acute inflammatory disorder of the optic nerve manifested commonly seen as unilateral visual loss in young adults. It is not common in children and usually happens after viral infection or vaccination. The visual prognosis in children is much better than in adults. Although multiple sclerosis (MS) occurs most commonly in adults, it is increasingly being diagnosed in children and teenagers; therefore, proper diagnosis of atypical presentation is very crucial.

Author Contribution: All authors share equal effort contribution towards (1) substantial contribution to conception and design, acquisition, analysis and interpretation of data; (2) drafting the article and revising it critically for important intellectual content; and (3) final approval of manuscript version to be published. Yes.

Potential Conflicts of Interest: None.

Competing Interest: None. **Sponsorship**: None.

Submission Date: 5 January 2015. **Acceptance Date:** 5 May 2015.

Ethical Approval: Approved by Research and Ethics Committee, King Hamad University Hospital, Bahrain.

REFERENCES

1. Optic Neuritis Study Group. Multiple Sclerosis Risk after Optic Neuritis: Final Optic Neuritis Treatment Trial Follow-Up. Arch Neurol 2008; 65(6):727-32.
2. Rodriguez M, Silva A, Cross SA, et al. Optic Neuritis: A Population-based study in Olmsted County, Minnesota. Neurology 1995; 45(2):244-50.
3. Badr M, Saleh AS. Bilateral Optic Neuritis in a 10-Year-Old Girl. MEAJO 2007; 14(2):76-8.
4. Bonhomme GR, Waldman AT, Balcer LJ, et al. Pediatric Optic Neuritis: Brain MRI Abnormalities and Risk of Multiple Sclerosis. Neurology 2009; 72(10):881-5.
5. Torres-Torres R, Sanchez-Dalmau BF. Treatment of Acute Optic Neuritis and Vision Complaints in Multiple Sclerosis. Curr Treat Options Neurol 2015; 17(1):328.

6. Acute Optic Neuritis. Available at: http://www.patient.co.uk/doctor/acute-optic-neuritis. Accessed on 12.12.2014.
7. Jaafar J, Hitam WH, Noor RA. Bilateral Atypical Optic Neuritis Associated with Tuberculosis in an Immunocompromised Patient. Asian Pac J Trop Biomed 2012; 2(7):586-8.
8. Knobbe CA. Optic Neuritis and Neuropathy. Available at: http://www.allaboutvision.com/conditions/optic-neuritis.htm. Accessed on 12.12.2014.ss