

Optic neuritis with normal visual acuity – A case report

Tran Hong Bao^{1,2,*}, Hoang Mai Linh³



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ABSTRACT

Background: Optic neuritis is an acquired disorder of the optic nerve due to inflammation or demyelination. Diagnosis of optic neuritis was based mainly on clinical signs and symptoms, ancillary tests only help confirm the diagnosis or follow treatment progress. However, in cases with high visual acuity and with mild or without optic disc edema, the disease can be easily underdiagnosed.

Case report: We report a case of optic neuritis with normal visual acuity. The patient complained of blurring vision and mild pain in her right eye upon gazing; however, her right eye best corrected visual acuity was 20/20. Ishihara color vision test was 20/24 on her right eye and 24/24 on her left eye. Relative afferent pupillary defect was detected, fundus examination revealed mild optic disc edema, and visual field test showed enlarged physiological blind spot on her right eye. The patient received careful follow-up with no corticosteroids treatment. After 3 months, all the signs and symptoms resolved completely.

Conclusion: This case demonstrated that optic neuritis can be easily underdiagnosed; relative afferent pupillary defect check, visual field, magnetic resonance imaging and color vision test should be performed in every suspected cases. Strict follow-up check, instead of corticosteroids may be of priority when patient visual acuity is still good.

Key words: optic neuritis, normal visual acuity, corticosteroids, case report

INTRODUCTION

Optic neuritis (ON) is an acquired disorder of the optic nerve due to inflammation or demyelination. The disease prevalence is higher in female patients than male, age from 15-49, with acute onset and vision might be decreased to absolute blindness, which reduces work and life quality. Moreover, ON is frequently recurrent, and usually related to systemic disorders, such as multiple sclerosis¹. While fully presented ON can be diagnosed clinically without necessity of laboratory tests², early onset stage of disease with high best corrected visual acuity (BCVA) and no apparent disc edema, or without disc edema (retrobulbar form), might be underdiagnosed. We report a case of ON with normal BCVA.

CASE REPORT

History

A 30-year-old female patient was admitted to Ho Chi Minh City Eye Hospital due to blurry vision in her right eye. She told us that her foggy vision began 1 week ago, with mild orbital pain and no redness. She had no history of eye disease or trauma, and no history of other diseases. She had her eyes checked at a tertiary clinic with BCVA 20/20 in both eyes, intraocular pressure (IOP) 17.3 both eyes, no abnormal sign was discovered and no further ancillary test was

indicated. She was diagnosed with accommodative spasm and treated topically with collyre Cyanocobalamin 0.02% 6 times per day in both eyes. She came to our hospital due to no improvement after 2 days.

Clinical examinations

Her BCVA was 20/20 both eyes, IOP was 11 mmHg both eyes and her Ishihara color vision test was 20/24 in the right eye and 24/24 in the left eye. Eye movements were normal in all directions with mild pain in her right eye; examination of anterior segment was normal. The patient had a right relative afferent pupillary defect (RAPD) and fundus examination revealed a blurred nasal margin of the right optic disc.

Ancillary tests

Her color fundus image demonstrated a mildly blurred nasal margin of the right eye optic disc, while optical coherence tomography (OCT) confirmed our finding with increased retinal nerve fiber layer (RNFL) thickness (Figure 1). Her 24-2 visual field test revealed enlarged physiological blind spot on right eye (Figure 2). Magnetic resonance imaging (MRI) showed enhanced signal and size of optic nerve on T1 images and no lesion of white matter on T2 FLAIR images (Figure 3).

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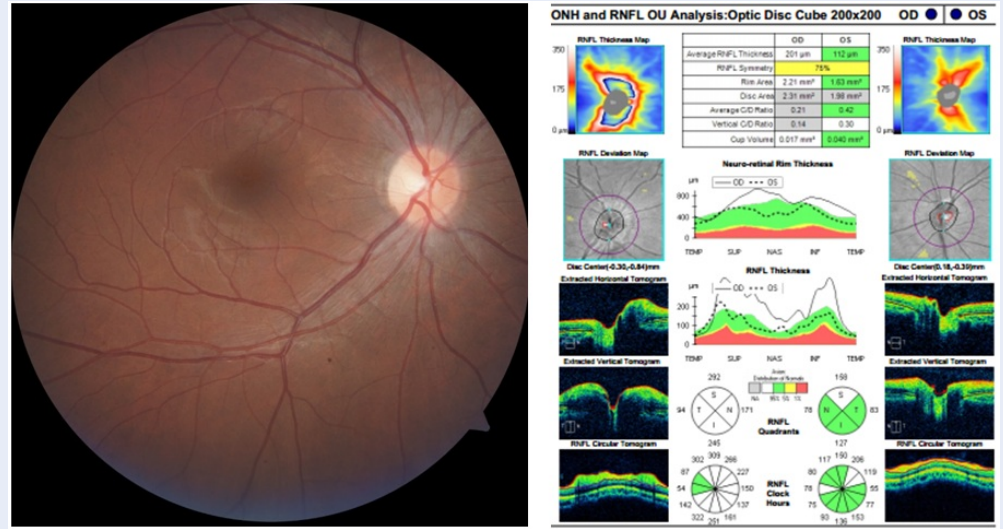


Figure 1: Blurred nasal margin of right optic disc (left) and increased RNFL thickness (right)

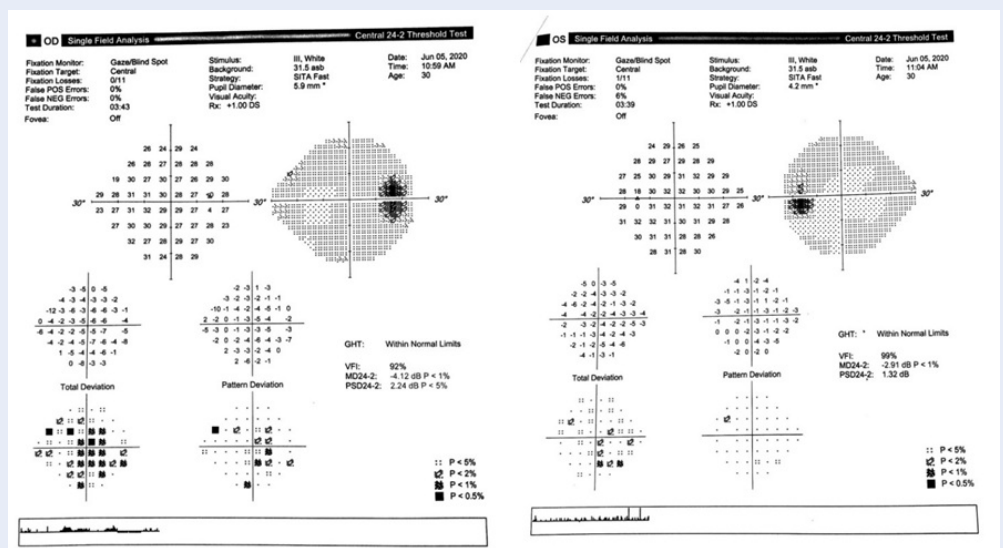


Figure 2: Enlarged physiological blind spot on right eye (left) compared to left eye (right)

Treatment and follow-up

Clinical signs, symptoms and ancillary tests pointed to optic neuritis on the right eye. Multiple sclerosis was ruled out because no lesion was found in white matter. As her right eye BCVA was still 20/20, she was advised to undergo careful follow-up check without corticosteroids treatment. The first follow-up was 1 week after the baseline check, then 2 weeks and then every month. At 3-month follow-up, her right eye BCVA was 20/20, Ishihara color vision test was 24/24 on both eyes. Her optic disc edema resolved and her

visual field test returned to normal condition (Figures 4 and 5).

DISCUSSION

ON is the inflammation or demyelination of the optic nerve. Based on the lesion location, ON can be classified as (1) retrobulbar, with no visible lesion of the optic disc, (2) papillitis, with presence of optic disc edema and (3) neuroretinitis, with edema of the optic disc and adjacent retina¹. Another classification of ON is typical and atypical form. Clinical presen-

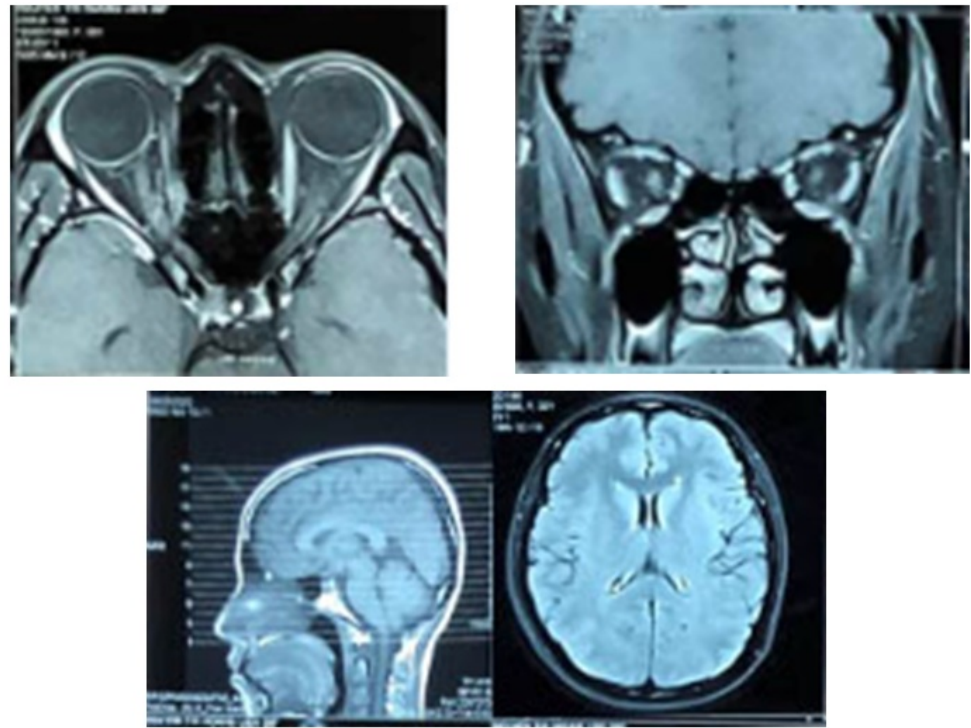


Figure 3: MRI showed enhanced signal and size of the right optic nerve (upper images) and no white matter lesion around the ventricles (lower image)

tations of typical form include: young female (15-49 year of age), acute onset, unilateral, decreased visual acuity with periocular pain (especially when gazing), color vision defect, presence of RAPD, good response with corticosteroids treatment and less recurrence³. Among those signs and symptoms, the classical triads of optic neuritis are blurry vision, periocular pain and color vision defect⁴. Diagnosis of optic neuritis is mainly a clinical diagnosis while ancillary tests only help confirm the diagnosis, find the reason and confirm treatment improvement^{5,6}.

Our patient had all the signs, symptoms and ancillary tests of a typical ON; multiple sclerosis can be excluded because no lesion was found in white matter on MRI images^{1,7}. Other reasons can be excluded as she does not have any accompanying disease and ancillary tests found no other abnormality⁸. However, the unique circumstance of this patient is that her right eye had 20/20 visual acuity (which takes only 10% of all cases⁹), and that her right optic disc was nearly normal; therefore, she could be easily underdiagnosed. In this case, OCT images help confirm optic disc edema, and more importantly, the presence of color vision defect, RAPD and visual field test

help confirm the diagnosis of ON. Therefore, it can be concluded that, besides taking patient history carefully, RAPD check, visual field test and color vision test are crucial in diagnosing ON, especially in suspected cases.

Based on the ONTT study, corticosteroids treatment is not recommended with patients who has baseline BCVA better than 20/40 because it may not be beneficial for such patients. Treatment should be initiated only when BCVA was worse than 20/40 eight days after the onset of ON¹⁰. The patient was clearly explained at the time of the diagnosis that her visual acuity was still very good (20/20) and she could undergo careful follow-up before any treatment was initiated, along with all possible side-effects of corticosteroids. At 3-month follow-up, her right eye visual acuity maintained 20/20, periorbital pain disappeared, RAPD and color vision defect were absent and visual field test returned to normal. Therefore, it can be stated that patients with ON can recover themselves when the inflammation was mild and BCVA was still good; strict follow-up should be the first choice, prior to corticosteroids treatment in such cases.

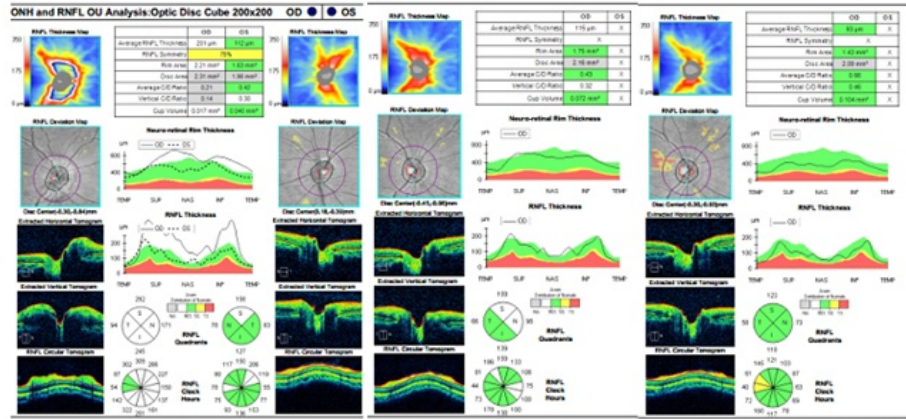
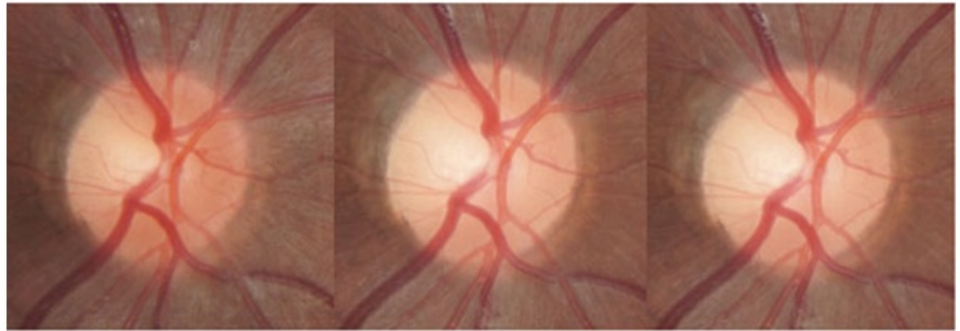


Figure 4: Color fundus images (upper) and OCT images (lower) of the patient. Comparing to baseline (left images), it can be seen that the edema resolved after 12 weeks (right images, RNFL becomes less shiny), optic disc margin and RNFL thickness returned to normal condition.

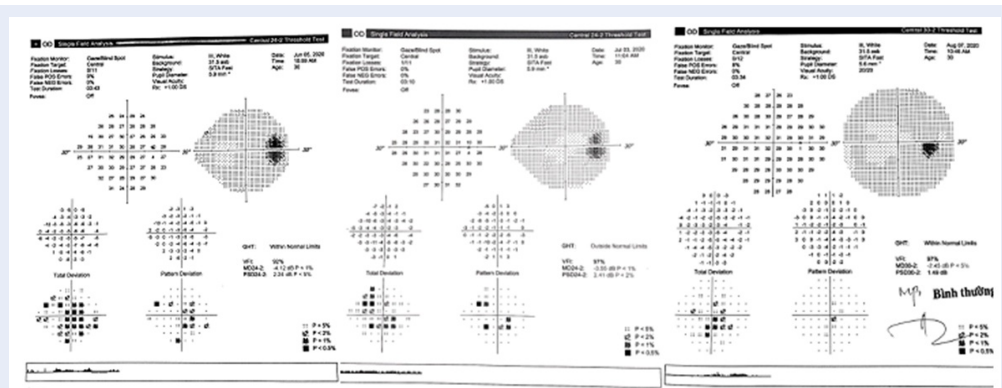


Figure 5: Comparing to baseline (left), the patient’s blind spot reduced in size and returned to normal condition after 12 weeks (right).

CONCLUSION

Optic neuritis can be easily misdiagnosed when the patient's BCVA is high and disc edema is not apparent, or especially the patient presents retrobulbar clinical form. Therefore, RAPD check, color vision test, MRI images and visual field test are critical in suspected cases. Careful follow-up checks should be prior to corticosteroids treatment as first choice when BCVA is still good.

INFORMED CONSENT

Written informed consent has been obtained from the patient for publication of this case report and accompanying images.

ABBREVIATIONS

BCVA: best corrected visual acuity
IOP: intra ocular pressure
MRI: magnetic resonance image
OCT: optical coherence tomography
ON: optic neuritis
RAPD: relative afferent pupillary defect
RNFL: retinal nerve fiber layer

COMPETING INTERESTS

The authors declare that they have no competing interests.

AUTHORS' CONTRIBUTION

THB was involved in the medical care of the patient, designed and reviewed the manuscript critically. HML wrote the manuscript. All authors approved the final version of the manuscript.

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Một trường hợp viêm thần kinh thị có thị lực bình thường

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TÓM TẮT

Giới thiệu: Viêm thần kinh thị là tình trạng viêm hay mất myelin của thần kinh thị do mắc phải. Chẩn đoán viêm thần kinh thị chủ yếu dựa trên lâm sàng, các cận lâm sàng chỉ có vai trò xác nhận chẩn đoán và theo dõi diễn tiến điều trị. Tuy nhiên, trong những trường hợp thị lực còn cao và gai thị phù ít hoặc không phù, bệnh có thể dễ dàng bị bỏ sót.

Trường hợp lâm sàng: Chúng tôi báo cáo một trường hợp viêm thần kinh thị có thị lực bình thường. Bệnh nhân đến khám do mắt phải nhìn mờ và đau nhức khi nhìn lên, tuy nhiên thị lực mắt phải của bệnh nhân là 20/20. Khám sắc giác Ishihara cho kết quả 20/24 ở mắt phải và 24/24 ở mắt trái. Khám mắt phải có bất thường phản xạ đồng tử hướng tâm, phù gai thị nhẹ và kết quả thử thị trường cho thấy mờ rộng điểm mù sinh lý. Bệnh nhân được hẹn tái khám theo dõi, chưa điều trị corticosteroids ngay. Triệu chứng lâm sàng thoái lui hoàn toàn sau 3 tháng.

Kết luận: Trường hợp lâm sàng này cho thấy viêm thần kinh thị có thể dễ dàng bị bỏ sót; cần thử sắc giác, thị trường, phản xạ đồng tử hướng tâm và chụp cộng hưởng từ với tất cả những trường hợp nghi ngờ. Khi thị lực bệnh nhân còn tốt, có thể theo dõi diễn tiến mà chưa cần điều trị corticosteroids ngay.

Từ khóa: viêm thần kinh thị, thị lực bình thường, corticosteroids, trường hợp lâm sàng

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