Optic Neuritis After Influenza Vaccination: Case Report

Grip Aşısı Sonrası Görülen Optik Nörit

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ABSTRACT Optic neuritis (ON) is an inflammatory demyelinating situation of the optic nerve. ON presents with subacute monocular visual loss associated with pain during eye movement. Visual loss usually develops during hours or days. ON is mostly idiopathic and infrequently occurs on the background of autoimmune diseases, infectious diseases or vaccination. There are still many points that remain unclear in terms of the mechanism underlying the development of ON following influenza vaccination. Some authors suggested that anti phosphatidylcholine antibodies may be one of the causes of autoimmune vasculitis such as influenza vaccination-associated ON. We describe a patient presenting retrobulber pain and visual disturbance in the left eye three days after receiving the influenza vaccination.

Key Words: Optic neuritis; vaccination

ÖZET Optik nörit (ON) optik sinirin inflamatuar ve demiyelinizan bir hastalığıdır. ON subakut monooküler görme kaybı ve göz hareketleri ile oluşan ağrı şikayetleriyle prezente olmaktadır. Görme kaybı saatler-günler içinde gelişir. ON genellikle idiopatiktir ve nadiren otoimmün hastalıklar, enfeksiyöz hastalıklar ve aşılama zemininde de gelişebilir. İnfluenza aşılamasını takiben ON gelişmesinin altında yatan mekanizma açısından belirsiz kalan pek çok husus vardır. Bazı yazarlar, antifosfatidilkolin antikorlarının influenza aşılaması ile ilişkili ON gibi otoimmün vaskülitlerin nedenlerinden biri olabileceğini savunmuşlardır. İnfluenza aşısından üç gün sonra, sol gözde, retrobulber ağrı ve görme bozukluğu ile başvuran bir hastayı sunuyoruz.

Anahtar Kelimeler: Optik nörit; aşılama

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Optic neuritis (ON) is an acute disease of the optic nerve with demyelination, infectious disease or autoimmunity. ON presents with subacute monocular visual loss associated with pain during eye movement. Visual loss usually develops during hours or days. ON is mostly idiopathic and infrequently occurs on the background of autoimmune disease, infectious disease or inoculation with adjuvanted vaccines.[1,2] ON may represent an association between vaccines and demyelination. We report a lady with unilateral ON following influenza vaccination and successfully treated with intravenous methylprednisolone.

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CASE REPORT

38- year-old woman presented with left retrobulber pain and development of unilateral visual disturbance three days after receiving the administration of trivalent inactivated influenza vaccination. The patient had no history of autoimmune disease. Past medical history was unmarkable otherwise. The neurological examination of the patient was normal except visual disturbance. Fundus examination showed normal optic disc appearence. Best corrected visual acuities (BCVA) were 20/40 in the right eye (OD) and 20/120 in the left eye (OS). The anterior segment and media of each eye were normal. There was a relative afferent pupillary defect (RAPD) of grade 2 OS and color vision defect in both eyes (OU). Visual field testing showed an inferotemporal field defect OD and a superior hemifield defect accompanied with visual field constriction OS. Laboratory examinations were unmarkable for erythrocyte sedimentation rate, complete blood cell count, C-reactive protein, ANA (antinuclear-antibody), anti-double stranded DNA antibodies, anti-citrullinated protein antibodies, rheumatoid factor, complement components, anticardiolipin antibodies, immunoglobulins (Ig) G, A and M, angiotensin-converting enzyme, anti-neutrophil cytoplasmic antibodies and aquaporin-4 antibodies. Microbiological tests were negative for hepatitis B and C viruses, human immunodeficiency virüs, syphilis, latent tuberculosis, toxoplasmosis, toxocariasis, *Bartonella hansalea*, Lyme disease, *Herpes simplex virus* and *Varicella zoster* virus. Cranial magnetic resonance imaging (MRI) revealed a high T2 signal intensity in the left optic nerve, but there were no pathological lesions in the cerebrum or spinal cord (Figure 1).

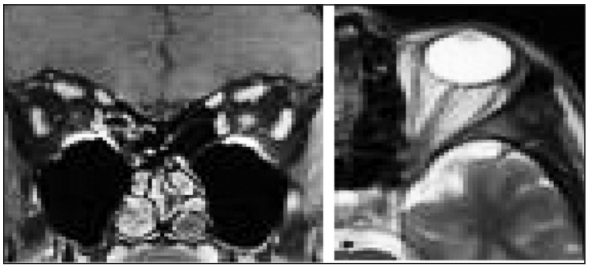

FIGURE 1: T2 signal intensity in the left optic nerve.

Examination of the cerebrospinal fluid (CSF) were normal without oligoclonal bands. The patient received intravenous methylprednisolone (1.0 g/day for 3 days), followed by oral prednisolone on day 4 of treatment, at 1 mg/kg/day tapeRed according to remission. The patient completely recovered after treatment with high dose intravenous methylprednisolone followed by a tapeRed dose of oral prednisolone. After 1 week, her best corrected visual acuties (BCVA) had improved to 20/25 OD and 20/30 OS. RAPD was absent, color vision was normal and visual field defects had almost completely resolved OU.

DISCUSSION

ON is a focal inflammation of the optic nerve. ON is mostly idiopathic and infrequently occurs on the backgraund of autoimmune disease, infectious disease or inoculation with adjuvanted vaccines. Presumed post-immunization ON is rarely follows inoculations with Bacillus Calmette-Guerin and tetanus toxoid, pneumococcal and meningococcal group C polysaccharides, anthrax and various antivirus vaccines.[1-6] Post- vaccination ON occured most commonly after influenza vaccination (13 cases), followed by rabies (seven cases) and combined rubella-measles (five cases) vaccination.[5,6]

ON presents with subacute monocular visual loss associated with pain during eye movement. Visual loss usually develops during hours or days. All cases of post-vaccination ON occured within 3 weeks after inoculation, even within several hours in two cases.[5] Most patients report diffuse blurring or forgiving of vision. Recovery from typical ON usually begins within the first few weeks of symptom onset. An initial rapid recovery is followed by a slow improvement that can continue for up to a year after onset, with more than 90% of patients making a good visual recovery (20/40 acuity or better). Our case is consistent with the literature with regard to the interval between vaccination and disease onset and visual outcome. In our case, the di-

agnosis of ON was definite and there was no apparent evidence for other causes of visual loss. The symptoms developed after the vaccination and the temporal relationship is consistent with the literature.[5,6]

There are still many points that remain unclear interms of the mechanism underlying the development of ON following influenza vaccination. Some authors suggested that anti-phospatidylcholine (anti-PC) antibodies may be one of the causes of autoimmune vasculitis such as influenza vaccination-associated ON.[8] Phospholipids are major structural components of vascular endothelial cells, the myelin sheath and the optic nerve. High serum titer of anti-phosphatidylcholine antibody levels were defined during acute phase in patients with ON. The two previously cited retrospective case-control studies evaluated the association between influenza vaccines and ON.[9,10] Anti-phosphatidylcholine antibodies may be one of the causes of ON.

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