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CASE REPORT

Acute non-arteritic ischemic optic neuropathy following conjunctival malignant melanoma excision

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Abstract

The aim of the study was to report a patient who developed acute non-arteritic ischemic optic neuropathy following conjunctival melanoma excisional biopsy. An otherwise healthy 55-year-old man presented with a 3-month history of progressively growing pigmented lesion in the left eye. Clinical examination revealed a dark pigmented conjunctival lesion adjacent to temporal limbus with an evident feeder vessel. With the initial diagnosis of conjunctival melanoma; excisional biopsy, alcohol epitheliectomy, cryotherapy (double-thaw), episclerectomy, and amniotic membrane transplantation for ocular surface reconstruction were performed. Histopathological examination confirmed the diagnosis. Four months after surgical intervention, sudden visual loss in the operated eye occurred. According to detailed neuro-ophthalmological examination, patient was diagnosed as acute non-arteritic ischemic optic neuropathy. Non-arteritic ischemic optic neuropathy is a multifactorial disease and may occur after several ophthalmic surgeries. To the best of our knowledge, this is the first reported case of non-arteritic ischemic optic neuropathy following conjunctival melanoma excision.

Keywords: Conjunctival mass; malignant melanoma; non-arteritic ischemic optic neuropathy.

Non-arteritic anterior ischemic optic neuropathy (NAION) usually presents with acute, painless, unilateral visual loss with a visual field defect, a relative afferent pupillary defect, and segmental or diffuse hyperemic disc edema.^[1] It is a multifactorial disease in which some systemic problems such as arterial hypertension, diabetes mellitus, and so on may act as predisposing or precipitating factors.^[2] The disease has also been reported after several intraocular procedures such as cataract surgery.^[3]

Conjunctival melanoma is a rare disease with a 2% of all ocular melanomas.^[4] The current treatment for conjunctival melanoma consists of complete tumor resection with 3-mm tumor free margins, alcohol epitheliectomy for corneal involvement, episclerectomy for scleral involvement, double freeze-thaw cryotherapy to conjunctival margins, and ocular surface reconstruction.^[5]

We hereby report, to the best of our knowledge, the first case of NAION following conjunctival melanoma excision.



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Case Report

An otherwise healthy 55-year-old man presented with a 3-month history of a progressively growing pigmented lesion over a preexisting conjunctival nevus in the left eye. Best-corrected visual acuity (BCVA) was 20/20 in both eyes. On slit lamp examination, a dark pigmented conjunctival lesion adjacent to temporal limbus with markedly dilated vessels was noted (Fig. 1a). Both eyes were otherwise within normal limits. No pathological lymph node was detected and all blood tests were normal. With the initial diagnosis of conjunctival melanoma excisional biopsy, alcohol epitheliectomy, double-thaw cryotherapy, episclerectomy, and amniotic membrane transplantation for ocular surface reconstruction were performed (Fig. 1b). On histopathological examination the lesion thickness was 2.3-mm, and it consisted of epithelioid-nevoid cells with intense pigmentation and the diagnosis of malignant melanoma was confirmed. The surgical margins were negative for melanoma.

Four months after surgery, patient presented with sudden visual loss in the operated eye with accompanying relative afferent pupillary defect. There was no additional drug usage or any systemic disease occurrence during this period. BCVA was 20/1250, and color vision was impaired (plate 0/21). Left funduscopy revealed a pallor and swollen optic disc. Optical coherence tomography confirmed these findings (Fig. 2). Complete laboratorial examination including erythrocyte sedimentation rate and C-reactive protein measurements was within normal limits. No accompanying symptoms such as headache, scalp tenderness, and jaw claudication that might be associated with temporal arteritis were present. Magnetic resonance imaging of the brain

showed no pathology. The patient was diagnosed as acute NAION and acetyl salicylic acid 100 mg (Coraspin, Bayer, TR) was prescribed to prevent the fellow eye. At 25th month after surgery, left BCVA was 20/640 with no signs of local recurrent or metastatic melanoma.

Discussion

NAION is a multifactorial disease and many systemic diseases including arterial hypertension, nocturnal arterial hypotension, diabetes mellitus, ischemic heart disease, cerebrovascular accidents, and arteriosclerosis might play a predisposing role.^[2] Although the exact mechanism and location of ischemia is unclear, the small vessel circulatory disturbance of the optic nerve is likely to take place.^[6]

NAION also may occur following various ocular surgeries.^[3] It may present in the immediate post-operative period due to spikes in intraocular pressure,^[7] or in the late (weeks to months) post-operative period.^[3] Although there are several hypothesis about the consecutive NAION occurrence after the ocular surgery, the exact relationship between the delayed type of postoperative NAION and intraocular surgery is still unclear.^[3,7]

Conjunctival melanoma is a rare but a life-threatening pathology.^[4] The current accepted treatment for conjunctival melanoma is complete tumor resection using “no touch” technique, alcohol keratectomy for the corneal component, wide surgical resection with 3-mm tumor free margins, episclerectomy to scleral bed, double freeze-thaw cryotherapy to all margins except the cornea, and ocular surface reconstruction with flaps, grafts, or amniotic membrane.^[5]

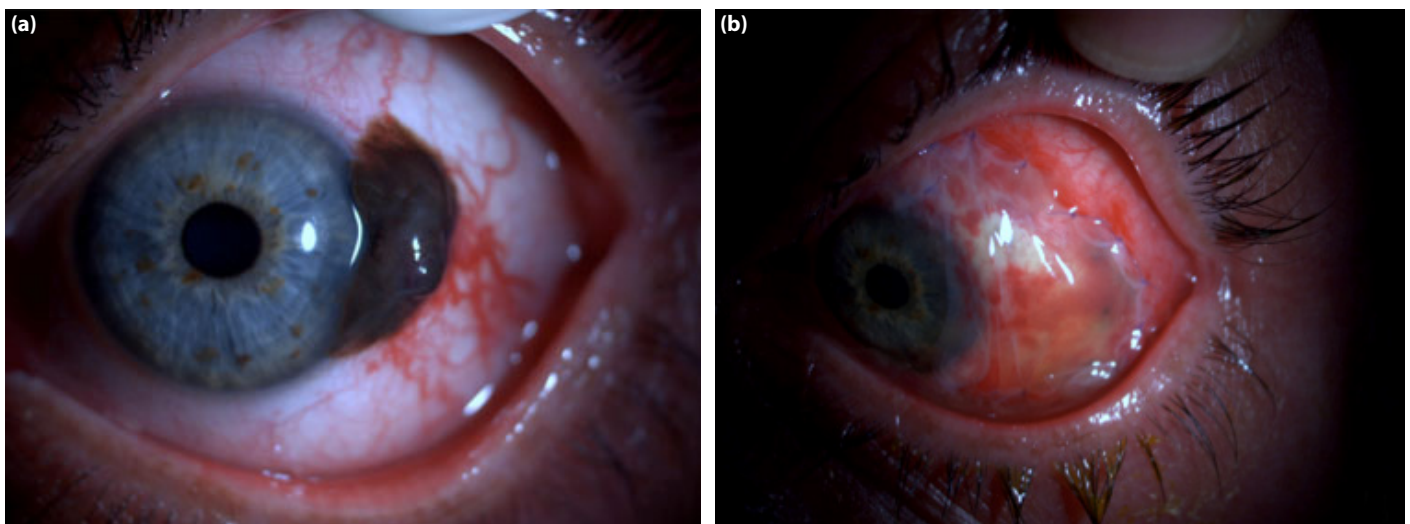


Fig. 1. (a) Note the dark pigmented conjunctival lesion with evident intralesional vasculature adjacent to temporal limbus with markedly dilated vessels. (b) Early post-operative appearance demonstrating the ocular surface reconstruction with cryopreserved amniotic membrane.

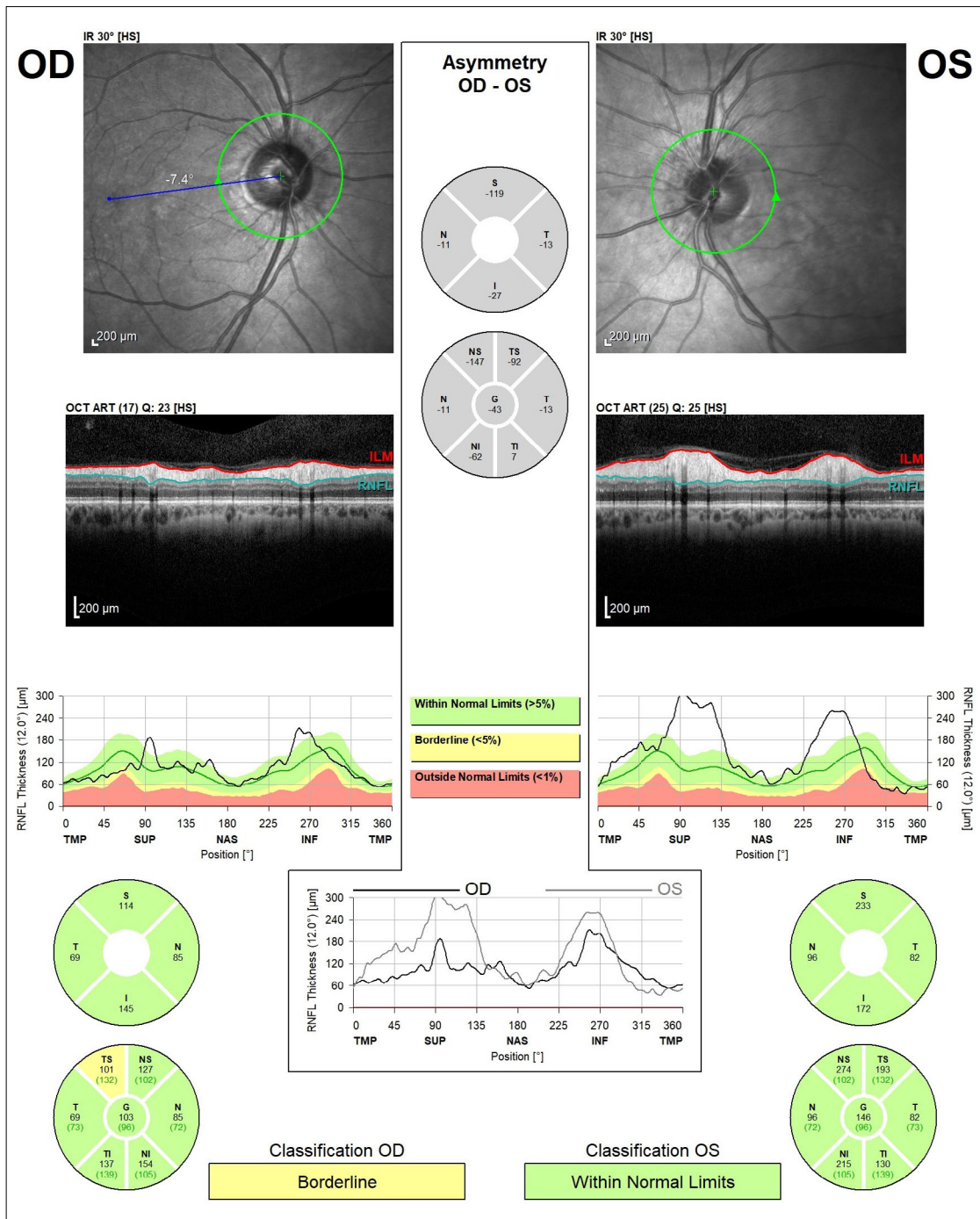


Fig. 2. Optic disc OCT depicting the increase in retinal nerve fiber layer thickness compared to right eye.

To the best of our knowledge, this is the first case report that demonstrates NAION after conjunctival melanoma excision. In conjunctival melanoma surgery, cryotherapy is one of the most important stages, which preserves cell destruction by initial thermal and subsequent ischemic effect caused by the microvasculature damage.^[4] Although cryotherapy is a precious adjunct to local surgical excision, it may cause several complications such as trichiasis, dry eye, ptosis, paresis of the extraocular muscles, and sym-

blepharon.^[8] During the surgical procedure of conjunctival melanoma, cryotherapy might be the only potential predisposing stage for NAION because of its microvascular ischemic damage effect. Thus, we attributed the NAION occurrence in the presented patient to the cryotherapy step of the surgical intervention.

The written consent of the patient was provided, and the report was conducted in compliance with the Declaration of Helsinki.

Informed Consent: Written informed consents were obtained from the parents for publication of this case report and accompanying images.

Peer-review: Externally peer-reviewed.

Authorship Contributions: Concept: O.U., E.D.B.; Design: O.B.S.; Supervision: M.P., E.D.B.; Resource: M.P.; Materials: B.Y.; Data Collection and/or Processing: O.B.S.; Analysis and/or Interpretation: O.B.S.; Literature Search: O.B.S., M.P.; Writing: O.B.S., M.P.; Critical Reviews: M.P., O.B.S., E.D.B., B.Y., O.U.

Conflict of Interest: None declared.

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