Case Report

Choroidal Effusion Following Continuous Positive Airway Pressure Treatment

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A 46-year-old man was diagnosed with obstructive sleep apnea and began using a nasal continuous positive airway pressure (CPAP) during sleep for a month. He presented with the complaint of a painful blurred vision in his left eye upon awakening two days earlier. His visual acuity was 20/25 both eyes. There was a mild anterior chamber reaction in the left eye. Fundus examination showed a localized choroidal effusion at the inferotemporal part of the left retina. The patient received topical 0.1% dexamethasone four times daily and temporarily discontinued the CPAP. By one week after treatment, the choroidal effusion was completely resolved.

Keywords: *Choroid diseases, Complications, Continuous positive airway pressure, Sleep apnea obstructive*

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Obstructive sleep apnea (OSA) is a breathing disorder characterized by the occurrence of repetitive episodes of partial or complete obstruction of the upper airway during sleep. The main therapy for sleep apnea is with the use of nasal continuous positive airway pressure (CPAP)[1], which requires a flow generator and mask. Although nasal CPAP generally provides good improvement in signs and symptoms, compliance with treatment is not good. Most patients experience difficulties in tolerating the machine and/or mask. Ocular discomfort is one of the common problems. The patients often complain about the leakage of air into the eyes, causing dry eye and irritate the surrounding skin[2]. The authors report a new phenomenon of ocular complication, choroidal effusion that developed after CPAP therapy in an OSA patient.

Case Report

A 46-year-old man was diagnosed with OSA and began using a nasal CPAP during sleep for a month with resolution of his symptoms. He presented with the complaint of blurred vision in his left eye upon awakening two days earlier. The left eye had been swelling, red and painful for several hours. After the periodic placement of cold compression, the symptoms partially improved. On examination, best corrected visual acuity was 20/25 both eyes. He had 7 diopters of myopia in each eye. Slit lamp examination revealed mild ciliary injection and trace anterior chamber cell without flare in the left eye. Vitreous cell was not detected. Pupils were equal and reactive. There was no relative afferent pupillary defect. Fundus examination showed a localized orange, smooth surface choroidal elevation at the inferotemporal part of the left retina. Ultrasonography revealed a localized smooth detachment of the choroid with the retina staying attached to the pigment epithelium (Fig. 1).

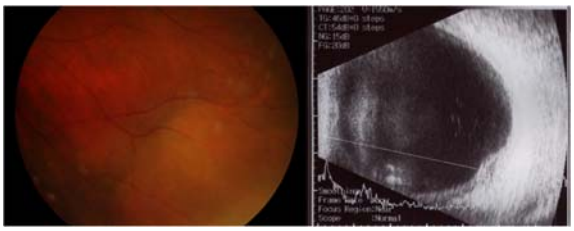

Fig. 1 Fundus photograph and ultrasonography of the left eye show a localized choroidal effusion at the inferotemporal part of the retina

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The patient received topical 0.1% dexamethasone four times daily. By one week after treatment, there was no anterior chamber inflammation and the choroidal effusion was completely resolved. The serological tests for syphilitic infection, antinuclear antibody, and rheumatoid factor were negative. He was recommended to change the size of mask to a proper fitting and beware of the side-lying position that might displace the position of mask during sleep. No recurrence of choroidal effusion or other intraocular inflammations was observed in 6 months of follow-up.

Discussion

Choroidal effusion or detachment is an accumulation of fluid in the potential space between the sclera externally and choroid internally. This condition may result from various systemic or ocular abnormalities. Recent intraocular surgery is the most common predisposing factor[3]. Various surgical procedures may be complicated by a choroidal effusion during or after the procedure. Several ocular inflammatory diseases[4-7] may lead to choroidal effusion including scleritis, syphilitic uveitis, rheumatoid arthritis, pars planitis, and Vogt-Koyanagi-Harada syndrome. Choroidal tumors, vascular causes, trauma, nanophthalmos, and using of IOP-lowering medications have also reportedly been associated with choroidal effusion[3,8-9].

The presented patient developed a localized choroidal effusion that happened after sleeping overnight. In the absence of known associated systemic or ocular diseases, nasal CPAP might be the probable risk factor in this patient.

The complication might be caused by the pressure effect of the globe and the resulting compression of choroidal venous drainage channels by improper fitting mask. Lying on the side may displace the position of mask and aggravate this condition. The vortex vein compromise may further disturb the choroidal vasculature and contribute to the leakage of fluid into the suprachoroidal space[10].

The presented case demonstrates that the lesion disappeared after receiving topical steroid eye drop and temporarily discontinuing CPAP therapy. The patient had no recurrence of choroidal effusion over the 6-month period of follow-up.

The author highlights the importance for ophthalmologists and internists to knowing this serious potential complication of CPAP therapy. Selection of the optimal fit mask for each individual anatomy and the proper position of lying will prevent this problem.

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ภาวะ choroidal effusion ซึ่งเกิดขึ้นภายหลังการใช้เครื่องเป่าความดันลมเพื่อเปิดขยายทางเดินหายใจ (CPAP)

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รายงานผู้ป่วยชายอายุ 46 ปี ซึ่งได้รับการวินิจฉัยว่าเป็นโรค obstructive sleep apnea และได้รับการรักษาโดยใช้ nasal CPAP มานาน 1 เดือน ผู้ป่วยมาตรวจด้วยอาการตาซ้ายมัวร่วมกับอาการปวดตา ซึ่งเริ่มเกิดขึ้นหลังจากตื่นนอนเมื่อ 2 วันก่อน ผลการตรวจตาพบว่า ระดับสายตา 20/25 ทั้งสองตา มีการอักเสบของช่องหน้าตาซ้ายเล็กน้อย และมี choroidal effusion ตรงบริเวณ inferotemporal ของจอตาซ้าย ผู้ป่วยได้รับการรักษาด้วยยาหยอด dexamethasone 0.1 เปอร์เซ็นต์ วันละ 4 ครั้ง และแนะนำให้หยุดใช้ CPAP ชั่วคราว ผลการรักษาที่หนึ่งสัปดาห์พบว่าจอตาหายเป็นปกติ