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COTTON-WOOL SPOT IN A PATIENT WITH SLEEP APNEA SYNDROME

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A 55-year-old woman complained of visible floaters in the right eye. The patient had a cotton-wool spot in the right fundus and sleep apnea syndrome. After treatment with nasal continuous positive airway pressure during sleep, the cotton-wool spot disappeared. Sleep apnea syndrome should be added to the list of causes of cotton-wool spots.

Key words: cotton-wool spot, sleep apnea syndrome, ocular complication

INTRODUCTION

Sleep apnea syndrome is characterized by recurrent upper airway obstruction during sleep (1). Ocular complications associated with the syndrome include floppy eyelid, keratoconus, papilledema, and glaucoma (2-4). Cotton-wool spots are commonly seen in association with diabetes mellitus, hypertension, collagen disease, blood disorder, cardiac disease, vascular obstruction, drug abuse and infectious disease (5). We describe herein a cotton-wool spot in a 55-year-old woman with sleep apnea syndrome.

CASE REPORT

A 55-year-old woman complained of seeing floaters in her right eye on May 25, 2001. She also suffered from general fatigue. She denied any history of drug abuse, ocular trauma, blood transfusion, or homosexual activity. Her family history for ophthalmic problems was unremarkable. On ophthalmic examination, her corrected visual acuity was 1.2 OD and 1.0 OS. Her intraocular pressures were 12 mmHg OU. The corneas, anterior chambers and lenses appeared clear bilaterally. A cotton-wool spot was seen in the right fundus (Fig. 1). The left fundus appeared normal. Fluorescein angiography showed hypofluorescence in the early phase, and adjacent hyperfluorescence in the late phase, suggesting cotton-wool spot. Laboratory test results including blood pressure, blood cell and platelet counts, immunoglobulin, antinuclear antibody, antimitochondrial antibody, antibodies for hepatitis B and C, glutamic-oxaloacetic transaminase, glutamic-pyruvic transaminase, blood urea nitrogen, creatinine, serum albumin, serum total protein, electrolytes, urinalysis, erythrocyte sedimentation rate, coagulation profile, lipid profile, Treponema pallidum hemaglutination, C-reactive protein, fasting blood glucose, and serum and urine catecholamines were negative or within normal range.

Fig. 1. A cotton-wool spot (arrow) is seen in the right fundus.

On June 29, a cotton-wool spot was still visible in the right fundus. The patient further complained of chest pain on the left and sleep disturbance. Electrocardiography, echocardiography, chest X-ray, and bilateral carotid Doppler study showed no

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abnormality. Serum hemoglobin A1C level was within normal range. Blood pressure measurements during 24 hours showed 121-159 mmHg of systolic pressure and 64-98 mmHg of diastolic pressure. Polysomnography showed 65 episodes of apnea during sleep; the duration of each episode lasted up to 39 seconds. Respiratory disturbance index (RDI) was 39.8 (normal, RDI < 10; mild sleep apnea, 10≦RDI<20; moderate sleep apnea, 20≦RDI<40; severe sleep apnea, 40≦RDI). Arterial oxygen saturation (SaO_2) during sleep decreased to 87% (awake average SaO_2; 98%). The patient was diagnosed as having sleep apnea syndrome. On July 6, 2001, treatment with nasal continuous positive airway pressure (CPAP) during sleep was started. After CPAP treatment, the patient's systemic symptoms improved significantly. On July 25, 2001, no cotton-wool spot was noted (Fig. 2).

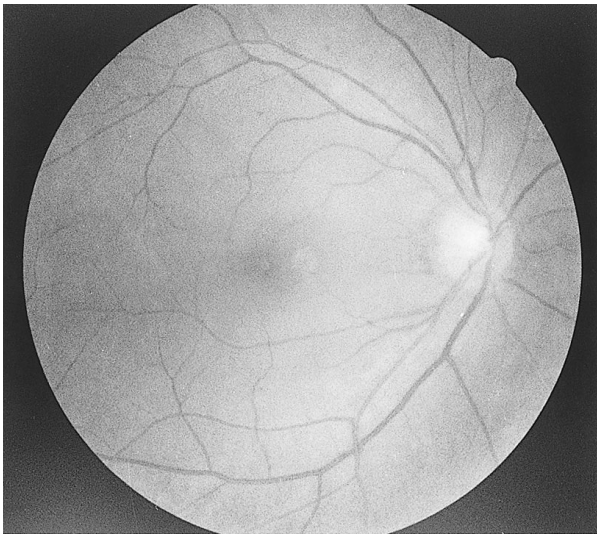

Fig. 2. The cotton-wool spot has disappeared after treatment with continuous airway pressure.

DISCUSSION

Sleep apnea syndrome is a breathing disorder caused by intermittent upper airway obstruction during sleep. Sleep apnea syndrome is diagnosed by polysomnography. Its severity is graded by RDI. The RDI in our patient was 39.8, indicating moderate sleep apnea.

Ocular complications in sleep apnea syndrome include papilledema and glaucoma (3, 4). Both conditions appear to be caused by hypoxia subsequent to apnea and hypopnea. In our patient, minimum saturation of oxygen during sleep decreased to 87%.

Cotton-wool spot is a manifestation of microinfarction induced by diabetes mellitus, hypertension, collagen disease, blood disorder, cardiac disease, vascular obstruction, drug abuse, and infectious disease (5). The retinal lesion in our patient was excluded from the above diseases, according to laboratory and physical findings. The cotton-wool spot disappeared within 3 weeks after CPAP treatment. Cotton-wool spots tend to disappear over a period of weeks to several months in many of above mentioned systemic diseases (6). It is possible that the cotton-wool spot in our patient could have been caused by sleep apnea syndrome. We propose that sleep apnea syndrome should be added to the list of causes of cotton-wool spots.

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