The purpose of this case report was to present a rare case of optic disk tubercle. The optic disk edema resolved on antituberculous therapy with recovery of vision. We concluded that visual loss from an optic disk tubercle can be the presenting sign of tuberculosis.

**Key Words:** Optic disk tubercle.

Tuberculosis is a systemic disease of protean manifestation with many cases of extrapulmonary involvement. The most common ocular findings include disseminated choroiditis, anterior granulomatous uveitis, and retinal vasculitis. We describe a case presenting with visual loss from granulomatous optic disk infiltration as the first sign of tuberculosis.

**CASE REPORT**

A 29-year-old male architect noted marked visual loss in the left eye of 1 week's duration and mild visual loss in the right eye of 2 months' duration. He was placed on a high dose of systemic corticosteroids 3 days before presentation. Visual acuity was 6/9 in the right eye and 6/60 in the left eye with a moderate left afferent pupillary defect. The right eye had a mild iritis, whereas the left eye had a moderate granulomatous iritis. The right optic nerve head was mildly edematous with a temporal peripapillary flat choroidal yellowish lesion. The left optic disk edema was severe, with a large yellowish nodular elevation on the nasal papillary edge. Sheathing of retinal veins and multiple flat round pigmented chorioretinal scars were noted at the equator bilaterally. Medical history was negative for cough, headache, fever, and weight loss. Physical and neurologic examinations were unremarkable. Serology for syphilis, human immunodeficiency virus (HIV)-1 and HIV-2 were negative. A chest radiograph showed a nodule, and a purified protein derivative skin test was strongly positive with 5 cm of induration. Lumbar puncture and magnetic resonance imaging of the brain were not performed because signs and symptoms of tuberculous meningitis (malaise, apathy, anorexia, headache, nausea, and low-grade fever) were absent. Systemic corticosteroids were discontinued on presentation. He was started on isoniazid, ethambutol, and rifampin. After 3 weeks of antituberculous therapy, there was resolution of the afferent pupillary defect, quieting of the uveitis, and return of visual acuity to normal. The disk edema subsided in both eyes with a decrease in the size of the left peripapillary granuloma. Intravenous fluorescein angiography showed staining of the left peripapillary granuloma and optic disks (Figs. 1-5). Antituberculous therapy was tapered to isoniazid and ethambutol and discontinued 8 months after presentation. The optic disk appearance was unchanged 2 years after presentation (Fig. 6).

**DISCUSSION**

The most common ocular finding in tuberculosis is the choroidal tuberculoma that occurs either in pulmonary tuberculosis or in military tuberculosis (1,2). Choroidal tuberculomas appear as multiple yellowish nodules varying in size from one third the disk diameter to three disk diameters. Rarely, tuberculomas of the choroid represent the only manifestation of tuberculosis (3). Retinal vasculitis is the second fundus manifestation in tuberculosis (4).

Disk edema in tuberculosis is uncommon. In 1,000 patients examined in a sanatorium, Glover (5) mentioned the presence of optic disk edema in four patients, all of whom had severe continuous headaches from tuberculous meningitis. In 65 patients with tuberculous meningitis, Mooney (6) noted optic disk edema in 17 patients (26%), and the edema was attributed to "external" or "internal" hydrocephalus from tuberculosis-related adhesions. In a review of 10,524 patients with tuberculosis, Donahue (7) found 145 patients (1.4%) with ocular tuberculosis and a single case of tuberculosis of the optic nerve confirmed at necropsy. Luna-Pérez et al. (8) presented a case of retrobulbar optic nerve tuberculosis detected at necropsy in a 1.5-year-old boy with tuberculous meningitis and disseminated military tuberculosis. Miller and Frenkel (9) reported on a 45-year-old man who presented with visual acuity loss, central scotoma, and a diagnosis of retrobulbar neuritis. At craniotomy, an optic nerve tumor was discovered, and pathologic examination...
FIG. 1. The right posterior pole demonstrates minimal optic disk edema and flat chorioretinal scars along the vascular arcade (study taken 2 months after presentation).

FIG. 2. Intravenous fluorescein angiography shows multiple round defects of the retinal pigment epithelium around the vascular arcade of the right eye. Corkscrew-shaped retinal veins are noted (study taken 2 months after presentation).

FIG. 3. There is diffuse staining of the disk and retinal vessels in the right eye during the late transit of fluorescein angiography (study taken 2 months after presentation).

FIG. 4. The left posterior pole demonstrates the whitish optic disk tubercle and an inferior retinal branch vein occlusion from peripheral tobitis. A superior peripapillary flat choroidal yellowish lesion is noted (study taken 2 months after presentation).

FIG. 5. The optic disk tubercle stains during the late transit of fluorescein angiography in the left eye (study taken 2 months after presentation).

of the excised tumor was compatible with a tuberculoma. Arora et al. (10) presented the case of a 5-year-old girl who had extensive tuberculoma of the uvea, the retina, and the cut edge of the optic nerve after enucleation for a suspected retinoblastoma. We add another case of optic disk tubercle presenting with visual loss without a history of tuberculosis. Tuberculosis needs to be added to the list of inflammatory disorders of the optic nerve that manifest as infiltrative masses such as sarcoidosis, syphilis (11), toxocariasis, aspergillosis, candidiasis, and some bacteria (12).

Visual pathway involvement by tuberculoma includes most of the region of the optic chiasm and the neighboring optic nerve. Thirty-one patients with optochiasmatic tuberculomas have been reported in the literature (13,14), all suffering from tuberculous meningitis. When there is associated optochiasmatic arachnoiditis with symptoms of chronic chiasmatic compression (visual acuity loss, visual field constriction, and disk pallor), microsurgical decompression of the optic nerves and chiasm can yield prompt visual recovery (15). The visual pathways in the occipital, parietal, and temporal lobes...
are not usually involved by tuberculomas. Such lesions
can cause homonymous hemianopia and papilledema
(16, 17).

The most recent Centers for Disease Control guidelines (18)
for the therapy of active tuberculosis recommend an initial
60-day triple therapy (isoniazid, rifampin, and pyrazinamide)
followed by 120-day double therapy (isoniazid and rifampin).
In tuberculous meningitis, a regimen of 9-month double therapy
(isoniazid and rifampin) was found to be effective (19).

The optimal therapy for optic disk tubercle is not known, but based on
the present case, a double drug therapy for 8 months
appears adequate.

REFERENCES

1. Mansour AM. Military tuberculosis in a kidney graft and the chro-

2. Canganetti FE, Friedman AH, Josephtberg R. Tuberculoma of the

3. Mansour AM, Haymond R. Choroidal tuberculomas without evi-
dence of extracranial tuberculosis. Graefes Arch Clin Exp Ophthal-
mod 1990;228:382-3.


5. Glavrier JP. Some eye observations in tuberculous patients at the
13:411 2.

6. Moonen AJ. Some ocular sequelae of tuberculous meningitis: a

7. Donahue HC. Ophthalmologic experience with tuberculosis san-

8. Ueta-Prieto MA, Bambina BA, Pitrella JR. Optic nerve tubercu-


10. Anura VK, Dhalwal U, Singh N, Bhatia A. Tuberculous optic
neuritis histologically resembling lepromatous neuritis. Int J Lepra-

11. Koff R, Grimmj of the optic papilla—a case report. Am J Oph-

mass and toxoplasmosis-like encephalitis in an HIV seropositivc

13. Schlemminger DA, Holmes EJ III, Bigan M. Tuberculomas of the

14. Leachworth TW. Tuberculoma of the pineal body. Am J Oph-
thalmod 1924;1:1157.

15. Scott RM, Sonntag V, Wilcox IA, Adeleman LS, Rockel TL.
Visual loss from optochiasmatic arachnoiditis after tuberculous

16. Anderson JM, Macmillan JJ. Intracranial tuberculoma: an increas-
ing problem in Britain. J Neurol Neurosurg Psychiatry 1975;38:
194-201.

17. Dastur HM, Desai AD. A comparative study of brain tuberculomas
and gliomas based upon 107 cases records of each. Brain 1965;
88:375-90.


19. Phuapradil P, Vejjajiva A. Treatment of tuberculous meningitis: