Sino Orbital Aspergillosis presenting as Choroidal Granuloma and Scleral Abscess – a case report
Bindu N, MS, Nisha Namia

Introduction
Aspergillus is a saprophytic ubiquitous fungi which exist in air, soil or skin and as common food molds. Patients may be exposed to infection by inhaling spores or ingesting contaminated food. Sino orbital aspergillosis is a rare but potentially blinding condition with high mortality rates. Aspergillosis presenting as choroidal granuloma or sclera abscess is rather rare.

Case Report
A 65 year old lady presented with history of pain, redness, defective vision and inability to open her left eye of 3 weeks duration. She also gave history of a swelling in the medial aspect of her left eye 3 years back. The CT scan taken at that time showed a small irregularly enhancing mass left ethmoid sinus with destruction of lateral wall and extension into left orbit. Her old medical records revealed she had undergone a left fronto ethmoidectomy for the same the HPR of which was inflammatory lesion and fungal culture was positive for aspergillus. She was put on fluconazole, became asymptomatic and was on irregular follow up. She also report 2-3 similar episodes with pain and redness left eye with 6-8 months interval between each episode for which she consulted local doctor and had symptomatic relief. Her best corrected visual acuity in left eye was recorded to be 1mcf since 1 year.

On examination her BCVA was 6/12 in right eye and light perception with inaccurate projection of rays in left eye. On left eye examination there was ptosis, dystopia with the eyeball pushed downward and medially by a firm to hard mass (1.5 x 1cm) in the lacrimal gland area (Fig.1 & 2). There was total ophthalmoplegia. Slit lamp examination showed exposure keratitis with signs of anterior uveitis. There was a scleral abscess which was discharging through the overlying conjunctiva about 1 x 1cm size in the super temporal quadrant adjacent to the enlarged lacrimal gland. Fundus examination of left eye showed severe vitritis. There were multiple choroidal granulomas in the posterior
pole. Two were in the superotemporal quadrant corresponding to the site of scleral abscess about 2DD and 1DD size surrounded by shallow retinal detachment. Another granuloma about 1DD size was present in the superonasal quadrants (Fig.3).

Haematological workup was normal except for a raised ESR (106). Clinical examination and investigations showed no evidence of immunosuppression and diabetes mellitus. CT scan showed 3x2.5x1.5cm lesion in the left orbit in the lateral, superior and posterior aspect of the eyeball involving extraconal and intraconal compartments and involving superior rectus, lateral rectus and levator palpebrae superioris muscles. Lesion was closely abutting the eyeball and optic nerve (Fig.4 & 5). Nonenhancing soft tissue density area with calcific foci was noted in the right sphenoid sinus extending to the sphen ethmoidal recess. Pus from the scleral abscess sent for microbiological evaluation came negative.

Considering the clinical picture and previous history of aspergillosis she was put on intravenous Amphotericin B (1mg/kg body weight /day) and Natamycin eye drops since the day of admission. Lateral orbitotomy and debulking of the lesion was done after neurosurgery consultation (Fig.6). HPR came as inflammatory lesion suggestive of chronic dacryoadenitis (Fig.7). Culture revealed Aspergillus flavus species (Fig.8).

Intravenous Amphotericin B was continued for 21 days. The patient responded well to treatment as evidenced by the disappearance of scleral abscess and decrease in the size of the choroidal granulomas. However, visual acuity and extraocular movements did not show much improvements. Patient was discharged after 21 days at her request and is under follow up in local hospital.

**Discussion**

Sino orbital aspergillosis can either be invasive or non invasive. Non-invasive infections are either allergic aspergillosis or aspergillomas where in destruction of the sinus mucosa and bone expansion may occur but with no invasion of tissue or bone. Invasive infections can either be localized or fulminant. Localized disease often starts in sinus and spreads to orbit through focal bony erosion or blood vessels. Fulminant form is characterized by multiple organ involvement¹.

Compared to mucormycosis which occurs only in immunocompromised, aspergillosis even though rarely affects healthy individuals as well. Other ocular manifestations of aspergillosis included endogenous endophthalmitis, orbital apex syndrome, infiltrative or ischemic optic neuropathy². Even though very rare aspergillus iris granulomas has also been reported in literature².

Scleral involvement by aspergillus is very rare but has been reported following trauma or surgeries like pterygium excision, glaucoma surgery, cataract extraction and retinal detachment surgeries and is characterized by redness, ulceration, nodule or abscess formation. Abscess formation indicates intrascleral dissemination of the infectious process³. In this case scleral involvement could be attributed to the direct invasion by the organism from the adjacent structures.

Choroidal and retinal involvement in aspergillosis usually occurs through haematogenous spread. It appears as multifocal yellow white lesions of the choroid with retinal necrosis and vitritis. With more severe infection, subretinal abscess and endophthalmitis may result⁴. In our patient with no evidence of any systemic involvement, choroidal granulomas especially in superotemporal quadrants without much retinal involvement could be due to the contiguous spread from the adjacent sclera.

Correct diagnosis depends on a high degree of clinical suspicion and confirmation is by biopsy
demonstrating dichotomously branching septate hyphae and positive cultures. There is no uniformly accepted completely effective treatment. Amphotericin B (0.5-1.5mg/kg body weight) still remains the gold standard\(^1\). Treatment of sino orbital aspergillosis include surgical debridement and Amphotericin B local irrigation followed by systemic antifungal – usually intravenous amphotericin B alone or in combination with Flucytosine or Rifampicin\(^4\). The newer azole, voriconazole (6mg/kg Q12H followed by 4mg/kg Q12H) is increasingly being used now a days\(^5\). Other drugs used in aspergillosis include Itraconazole and Caspofungin. Treatment should continue well past any remaining signs of disease and indefinite use considered in patients with ongoing immunosuppression\(^1\).

**Summary**

In conclusion sino nasal aspergillosis occurring in immunocompetent and that too presenting as sclera abscess and choroidal granuloma is extremely rare. We are presenting this case for its extreme rarity. Eventhough our patient has responded to treatment, as orbital aspergillosis is well known for recurrences, she needs long term follow up may be life long.
Figure 5 CT scan showing lesion closely abutting (L) eye ball and optic nerve

Figure 6 Lateral orbitotomy - Intraoperative picture

Figure 7 Histopathology showing lacrimal acini with infiltration by inflammatory cells

Figure 8 Lactophenol cotton blue mount showing aspergillus flavus

References


