INVASIVE SINO NASAL ASPERGILLOSIS - DIAGNOSTIC CRITERIA

J. Janardhana Rao¹, E. C. Vinaya Kumar², V. Sathavahana Chowdary³,
Nirmal Kumar⁴, K. Jitender Reddy⁵

ABSTRACT: This study highlights the high incidence of fungal granulomas in our patients and to stress the need to differentiate the invasive Sino nasal aspergillosis from the non invasive ones because, the management of invasive Aspergillosis includes the administration of the potentially toxic drug, Amphotericin. The various diagnostic criteria used by us to identify the cases for systemic anti fungal treatment in addition to thorough local debridement are discussed.

INTRODUCTION
The nose, with its moist environment and with sequestrated spaces in the form of para nasal sinuses provides an ideal environment for the growth of fungi. The two important fungal infections involved in invasive fungal sinusitis are Aspergillosis and mucromycosis. Sino nasal Aspergillosis is caused by three types of fungi, Viz:

Aspergillus fumigatus, Aspergillus flavus and Aspergillus niger.

Most of the cases seen in our series were Aspergilli. Two cases of mucormycosis were seen in our study. The mode of entry of fungal spores into the nose and PNS is by inhalation, through sinus fuitulae and/or through the perforation of the maxillary sinus via root canal.

The predisposing factors for the fungal sinusitis are:
A) Local anatomical factors within the nasal architecture leading to osteomeatal or other regional obstruction resulting in a decrease in sinus ventilation and lowered PH.

B) Immuno compromised states such as:
1) Usage of intensive chemotherapy and broad spectrum antibiotics in malignancies especially hematological neoplasms.
2) Acquired Immuno deficiency syndrome (AIDS).
3) Long term cortico steroid therapy for various conditions.
4) Severe diabetes mellitus and chronic systemic illnesses.

Immuno compromised states predispose a patient to invasive aspergillosis and hence patient needs aggressive total treatment to prevent a fatal outcome. So, it is important to identify invasive Aspergillosis as early as possible and treat it with parenteral Amphotericin in addition to local clearance. No systemic drug other than Amphotericin till date has been proven to be useful in sino nasal aspergillosis. Apart from the immuno compromised states, the clinical indicators which suggest invasiveness are, any immuno compromised patient with sinusitis who has not responded to routine treatment, spiking fevers, shooting facial pain or paresthesias, thick mucous rhinorrhea of unusual color, pale relatively insensitive turbinates, black insensitive tissue crusts, spread to surrounding structures like orbit and intra cranial extensions and necrosis or gangrene of turbinates.

Fig. I : C. T. Scan of PNS - Showing erosion of medial wall of orbit and portions of maxillary sinus on left side and also involving opposite ethmoids by invasive fungal granuloma.

¹Senior Consultant, ²Senior Consultant, ³Sr. Registrar, ⁴Jr. Consultant, Dept. of ENT, Head and Neck Surgery, ⁵Consultant Radiologist, Dept. of Radiology & Imaging Sciences, Apollo Hospital, Jubilee Hills, Hyderabad - 500 033, India
Aspergilloma (colonising type) shows a granulomatous appearance with or without colonies of fungi in the specimen.

MATERIALS & METHODS
During the period January, 93 to September, 97 (approx., 3 1/2 years), 95 cases of nasal polypectomies done were screened for fungal infections. In addition to the routine tests, the following investigations were done:

CT scan of para nasal sinuses with contrast study.

Histo-pathological study of all nasal polypi removed with routine haematoxylin and eosin stains and special stains like PAS (Periodic Acid Schiff stains) and GROCOTT’S silver methenamine stains, direct smear study of specimens of fungus and fungal culture. In severe infections, colonies of fungus are grown by a method called Abundant fungus method or repeated isolation of fungus and culture. It consists of growing Aspergillus from several specimens or several colonies from a single specimen.

Among the positive cases of fungal infections of PNS, the invasive ones which were identified by clinical radiological and histopathological criteria were subjected to a systemic antifungal treatment along with thorough local debridement. Allergic sino nasal Aspergillosis cases were treated with topical and systemic steroids and local clearance. Aspergillomas (colonising ) type were subjected to a good local clearance and regular follow-up. amphotericin-B is the mainstay drug in the management of invasive aspergillosis. Before using the drug, its benefits have to be weighed against the untoward side effects & its cost is also very high. It can be given only in a