

Osseous Rhinosporidiosis Mimicking Osteosarcoma - A Master of Camouflage!

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ABSTRACT

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Rhinosporidiosis is a chronic granulomatous disease caused by *Rhinosporidium seeberi*. The usual site of affection is the nasopharyngeal mucosa followed by the eyes. Cutaneous and genital lesions are also commonly seen. However, osseous involvement is rare. We report a case of Rhinosporidiosis involving the metatarsal bone of the foot in a 50-year-old male who was HIV positive.

Keywords: Rhinosporidiosis, Bone, Osteosarcoma, Mimicker

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A 50 year old male presented to the Orthopaedics OPD with complaints of pain and swelling of the medial aspect of his right foot since six months. He was Retro-positive. Xray (**Figures 1 & 2**) and MRI (**Figures 3 & 4**) of the right foot revealed a permeative lesion in the first metatarsal with periosteal reaction and a sunburst appearance. With the radiological diagnosis of Osteosarcoma, a trucut biopsy from the lesion was done and sent to the pathology department.

Microscopy revealed bony fragments intervened by numerous sporangia in varying stages of maturation, with intact as well as ruptured walls suggestive of Rhinosporidiosis (**Figures 5,6,7**). Special stains, Periodic Acid Schiff (PAS) and Gomori Methenamine Silver (GMS) highlighted the sporangia and spores (**Figures 8,9**).

With these, the diagnosis of Rhinosporidiosis Bone was made. On further detailed enquiry, the patient revealed a previous history of excision of swellings from the forehead and forearm which were diagnosed as Rhinosporidiosis after histopathological examination.

DISCUSSION

Rhinosporidiosis is a chronic granulomatous disease caused by *Rhinosporidium seeberi*. The disease has diverse geographical distribution with 90% of cases reported from India and Sri Lanka. In India, the distribution is largely subtropical with Chhattisgarh being an endemic area. The next endemic region is



Figure 1. Xray of right foot showing a lytic lesion in the first metatarsal bone.



Figure 2. Periosteal reaction with sunburst appearance

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Figure 3. MRI Rt Foot showing a lesion in the first metatarsal

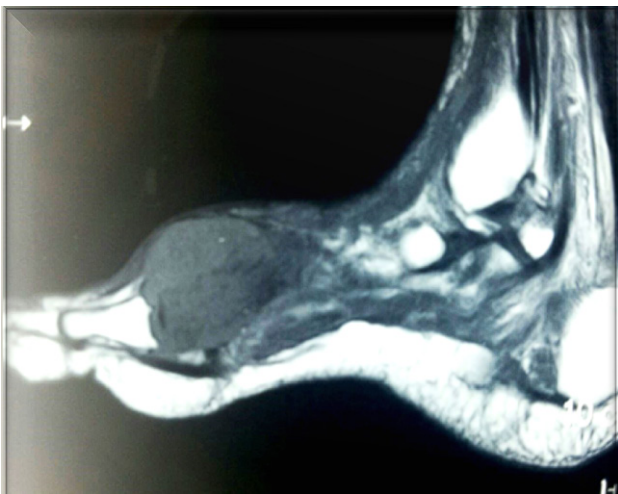


Figure 4. MRI showing a large destructive lesion

South America. Males are more often affected than females. The causative organisms are mostly transmitted while bathing in stagnant ponds, through water, dust or digital trauma when the endospores penetrate the mucosal epithelium.¹ Haematologic or lymphatic dissemination, direct inoculation or autoinoculation may cause skin lesions to occur at sites that are distant from the nasal mucosa. There is no person-to-person transmission. The infection is known to affect birds, cattle, horses and mules also, but no definitive host has been established.

Rhinosporidiosis presents in 4 clinical forms- nasal, ocular, cutaneous and disseminated. It frequently involves the nasopharynx (70%) with painless, friable, polypoidal growths which are reddish friable associated with symptoms like nasal obstruction, epistaxis and rhinorrhoea. The commonest extra nasal sites are the conjunctiva and lacrimal sac. Though not common, other sites of occurrence are the lips, palate, uvula, maxillary antrum, epiglottis, larynx, trachea, bronchus, ear, scalp, genital areas like vulva, vagina, penis, rectum and the skin.

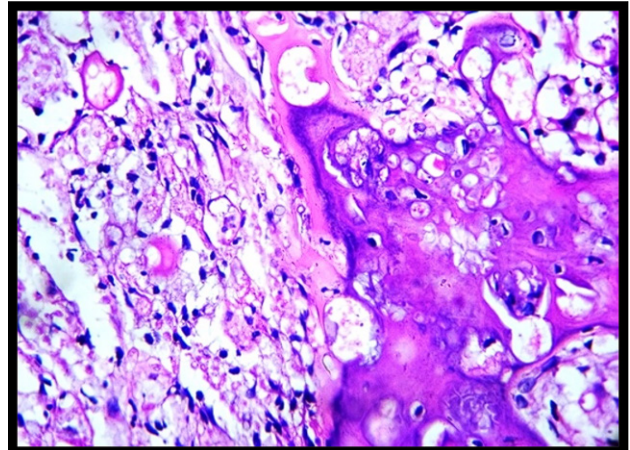


Figure 5. H&E stained sections showing bony spicules intervened by sporangia

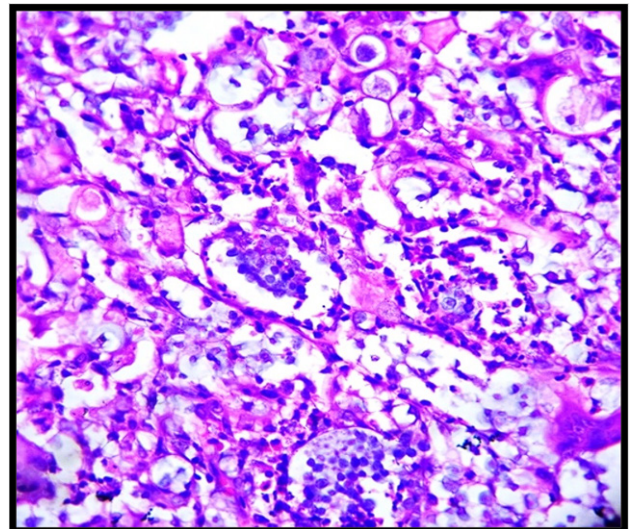


Figure 6. H&E stain showing the intact sporangia filled with spores

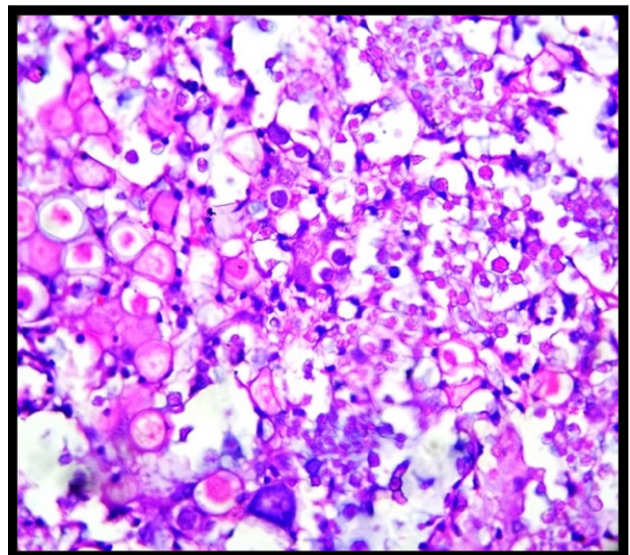


Figure 7. H&E stain showing numerous sporangia

Bony involvement is rare. Solitary lytic lesions have been reported involving the talus, tibia, femoral condyle, bones of the hands and feet, calcaneum, and clavicle.²

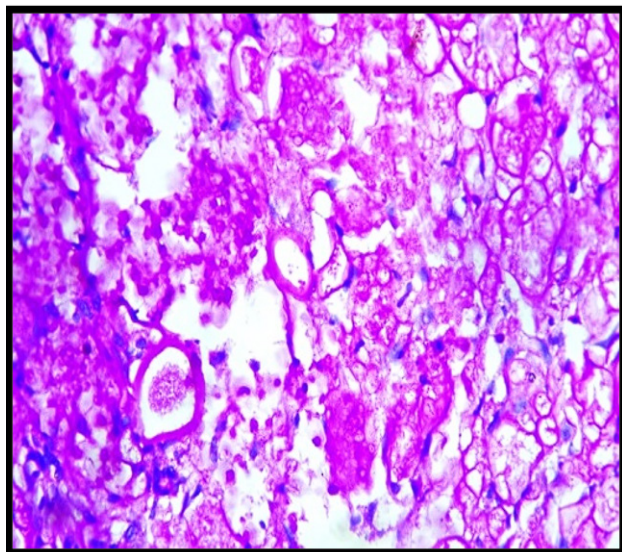


Figure 8. PAS stain highlighting the walls of the sporangia

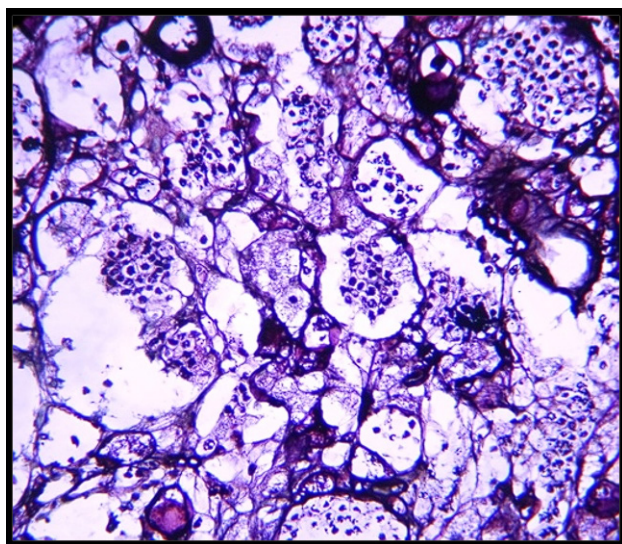


Figure 9. GMS Stain highlighting the spores

Radiologically, Rhinosporidiosis can mimic bone tumours like chondrosarcoma, giant cell tumour, and other infections, mostly tuberculosis and fungal.³ However, in our case, the lesion mimicked osteosarcoma, which is an infrequent radiological presentation.

Histopathological findings remain the gold standard for definitive diagnosis. Macroscopically they are friable tissue with a purple pink to reddish hue. The cut section shows a pink to purplish glistening appearance. Numerous yellowish pinhead-sized spots, indicative of underlying sporangia are characteristically seen grossly.

Microscopically, Rhinosporidiosis is characterized by acute and chronic inflammatory infiltrates admixed with numerous thick-walled intact sporangia containing large and small endospores. These structures can be highlighted by PAS stains and silver stains like Gomori

methenamine silver. The closest differential diagnosis is Coccidioidomycosis caused by *Coccidioides immitis*. The differentiating feature is the size of the spores. *Coccidioides* has larger spores of 20-80 micrometres compared to the small spores of 5-10 micrometres of *Rhinosporidium seeberi*.

Rhinosporidium seeberi has not been definitively cultured but is thought to be a blue green algae.

Surgical excision of the mass with wide margins is the treatment of choice.⁴ Dapsone has been the gold-standard antimicrobial agent to prevent recurrence, but its effectiveness has been questioned because of its inability to penetrate the sporangia. Salvage is difficult in osseous lesions with pathological breach of the cortex and soft tissue involvement and may require resection of the affected bone or amputation.

CONCLUSION

Osseous dissemination of Rhinosporidiosis is rare and can mimic primary bone tumours. A high degree of clinical suspicion and histopathological study are essential to arrive at the correct diagnosis. Osseous Rhinosporidiosis should not be overlooked in cases that present with the stigma of local or systemic Rhinosporidiosis.

END NOTE

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Conflict of Interest: None declared

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