RHINOSPORIDIUM

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HISTORY AND HABITAT

- Rhinosporidiosis is mycosis of cattle, horses, mules, dogs and humans and is characterized by large polyps, tumors or wart like lesions on the nasal and ocular mucous membrane.
- The causative agent is *Rhinosporidium seeberi*.

History

Seeberi described the Rhinosporidiosis in Man during 1910.

Natural habitat and distribution

- The natural habitat of the organism is thought to be associated with stagnant water.
- The disease has worldwide distribution but its occurrence is most common in India and Srilanka.
- The disease has been reported in India more frequently in human beings.
- It is of interest that 90% infections involve the nose of male animals.
- In south India, particularly humid climatic areas, the disease is more in animals and in dry areas the disease mostly occur in man.

PATHOGENESIS

- The mode of transmission and mechanism of infection is not known.
- No evidence of animal-to-animal, animal to man and man-to-man transmission.
- It is however probable that injury plays a part in determining infection and that infection is sometimes from airborne soil particles.
- Inhalation of contaminated dust may also be a mode of transmission.

PATHOGENICITY

- Rhinosporidium lives in soil and it is believed that water is a necessary medium of transmission.
- Infection usually results from a local traumatic inoculation and is associated with water activities e.g. swimming in stagnant water.

- The infection is typically limited to the mucosal epithelium.
- Its life cycle begins with a round endospore(6-10 μm in diameter), which grows to become a thick-walled sporangium (100-450 μm in diameter) that contains up to several thousand endospores.

- Mature sporangiospores are approximately 7-9 um in size and escape through a pore that develops in the sporangial wall.
- The disease progresses with the local replication of *R. seeberi* and associated hyperplastic growth of host tissue and a localized immune response.

- Infection of the nose and nasopharynx is common; other parts include palpebral conjunctivae, skin, ear,genitals, and rectum.
- These polyps are pink to deep red, are sessile or pedunculated, and are often described as strawberrylike in appearance.
- Because the polyps of rhinosporidiosis are vascular and friable, they bleed easily upon manipulation.

- The polyps are chronic but are not painful.
- They can cause obstruction of the respiratory tract resulting in asphyxia.
- The rhinosporidial mass has been classically described as a strawberry like mulberry mass.

- This mass may extend from the nasal cavity into the nasopharynx and present itself in the oral cavity. These lesions commonly cause bleeding from the nasal cavity.
- *Rhinosporidium seeberi* can also affect the lacrimal gland and also rarely the skin and genitalia.

Rhinosporidiosis in dogs

- Rhinosporidiosis is a very rare chronic (long-term) infection that typically occurs in the mucous membranes of dogs.
- It most commonly occurs in the nose and nostrils, but can also take hold in the nose and eyes. Rhinosporidiosis belongs to the zoonotic class of fungal infections, meaning that it can be transmitted to humans.

- Signs and symptoms of rhinosporidiosis include the following: sneezing, bleeding, wheezing, or labored breathing; an infection of the nostrils with a cauliflower-like growth; a polyp or other growth located near or on the nostril - this growth may be white or yellowish in color and may appear speckled or spotted because of the fungus associated with the growth

DIAGNOSIS AND TREATMENT

- *Rhinosporidium seeberi* has not been grown in culture and no laboratory animals are available for cultivation.
- Only method of diagnosis is demonstration of spores and sporangia in wetmount preparations of nasal discharge and section of polyps.
- Spores are 6 - 7 µm in d.m. Spores increase in size and attaining a size of approximately 100 µm become transformed into sporangia by the deposition of a layer of cellulose within the chitinous wall. Numerous nucleoid division occur and it attains 200 -300µm in d.m.

- A sporangium contains approximately 16,000 to 20,000 spores.
- At one point, the sporangium thins to form a pore and the spores are escaped.
- In the tissue sections stained by H &E stain, various forms of sporangia are seen
- Young trophic forms: 10 to 100 µm in d.m. with single central basophilic karyosomes and amorphous cytoplasm.
- Mature forms 100 -300µm in d.m. containing sporangiospore.
- Empty and collapse form of sporangia.

Treatment

- Surgical excision of polyps. But there is a chance of recurrence.