

Topic 12: Sporotrichosis

Sporotrichosis

A chronic mycosis caused by *Sporothrix schenckii** characterized initially by nodular lesions of the cutaneous and subcutaneous tissue and adjacent lymphatics which suppurate, ulcerate and drain; systemic forms rare, but occur.

Main route of infection - traumatic implantation

Infrequently - primary lung infection

Major differences from chromoblastomycosis, phaeohyphomycosis and mycetoma:

1. agent - *S. schenckii* hyphomycetous molds
S. cyanescens???
2. general (common) lymphatic involvement & initial nodular lesions

*dematiaceous???but not member of black yeast "clade"

**tissue form a budding yeast

History

Schenck - 1898 - involved patient at Johns Hopkins Hospital in Baltimore, M.D., 1st case isolated "sporotrichia"- like fungus; with Smith, named the fungus

Sporotrichum

Hektoen & Perkins - 1900 - 2nd recorded case - fungus isolated and named *Sporothrix schenckii* in honor of Schenck's original description of first case; also U.S. case

Early switch in form-genus name

- disease =Sporotrichosis
- form-genus *Sporothrix*

deBeurmann - 1900 to ~ 1912 - best descriptions because he and associates identified and studied 10 cases and tabulated some 200 more during a mini-epidemic in France.

By 1932 ~ 200 U.S. cases

Today based on 1982 hospital release data, it is estimated that there may be as many as 1000 new cases/year in U.S. and ~4 deaths/year.

1940 epidemic in S. Africa → ~ 3000 cases

1988 epidemic in U.S. → 84 cases in 15 states

Disease currently considered to be a trauma & occupation/activity-related mycosis. This mycosis is very common in parts of Mexico and possibly the most common subcutaneous mycosis there.

Taxonomy

Sporothrix schenckii
anamorph
Hyphomycetes Form-class

Teleomorph (suspected)
Ascomycota Phylum
Eurascomycotina Subphylum
Pyrenomycetes* Class
Ophiostomatales Order
Ophiostomataceae Family

*Ophiostoma stenoseras**
- close cousins of the agent of Dutch elm disease caused by *O. ulmi* and oak wilt disease caused by *O. fagacearum*.

*by ascus structure a plectomycete but by 18 S rDNA and chitin synthase gene fragment analysis a pyrenomycete.

Clinical types of Sporotrichosis

1. lymphocutaneous*
2. fixed cutaneous traumatic implantation types
3. mucocutaneous
4. extracutaneous and disseminated
5. primary pulmonary

50 - 75% of all cases are of the lymphocutaneous (gummatous) type
#2 also common ----- ^ ?

*1st sign of infection after trauma is nodule (moveable) formation

Pathology of Lymphocutaneous (Gummatous)

1. traumatic implantation of fungus
2. formation of small, hard, moveable, nontender and nonattached subcutaneous nodule
3. attachment of nodule to overlying skin which eventually becomes discolored;
pink → purple → black
4. lesion ulceration to → a "sporotrichotic chancre"
5. spontaneous cure or more frequently continued ulceration and chronic spread via lymphatic channels

Clinical types of Sporotrichosis (continued)

1. **Lymphocutaneous***
2. **Fixed cutaneous*** - infections that remain localized for years w/o lymphatic involvement
 - + immune protected hosts?
 - + skin test for sporotrichin (from 5?)
3. & 4. **Mucocutaneous & disseminated rare & probably opportunistic,** involvement of bone common**
5. **Primary pulmonary; often hospital-acquired**
 - a. **chronic cavitory type**
 - b. **lymph node type**

***KI oral @ 10 → 40 drops of 1g/ml saturated solution/8 hrs and after meals; 3 - 6 months---mode of action?---**

****no evidence of being associated with HIV (same so far for chromoblastomycoses & mycetoma, although not for all phaeohyphomycosis: CMI defects,however, may increase severity and likelihood of dissemination).**

Primary Pulmonary Types

- a. **chronic cavitory**
formation of thin-walled cavities in the lung tissue after an acute case of pneumonitis*
- b. **lymph node type;**
acute, and rapidly progressive, but resolution of lesions and recovery are frequent*

***w/o culture, misdiagnosis common**

To culture pulmonary forms -

**bronchial washings for pulmonary -
sputum unsatisfactory because of candidal overgrowth**

**Serology - sporotrichin -
-a yeast cell antigen-
-strongly positive for pulmonary form of disease**

Treatments

skin forms - progress or regress in chronic pattern for years if untreated

KI treatment	1g/ml supersaturated solution; 10-40 drops/8 hr after meals for ~ 4 wks after resolution of lesions
---------------------	--

more serious forms, oral EBIs*, Amphotericin B

*** itraconazole often current drug of choice among the EBIs, also now used for treating some skin forms, particularly lymphocutaneous form.**