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
   *Sporothrichum*

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 and in South America.
Taxonomy

*Sporothrix schenckii*

anamorph

Hyphomycetes Form-class

Teleomorph (suspected)

Ascomycota

Phylum

Euascomycotina

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 $\rightarrow$ purple $\rightarrow$ black
4. lesion ulceration to $\rightarrow$ 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 cavitary 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).

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Primary Pulmonary Types

a. chronic cavitary
   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
  1g/ml supersaturated solution; 10-40 drops/8 hr
  KI treatment 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, particulary lymphocutaneous form (has been the first line drug of choice in Rio de Janeiro epidemic).