Sporotrichosis
Definition

• Refers to the infection caused by the dimorphic fungus *Sporothrix schenckii* (DoctorFungus)
  – Causes the following types of sporotrichosis:
    • Cutaneous
      – Fixed
      – Lymphocutaneous
    • Pulmonary (somewhat rare)
    • Disseminated (rare)
    • Osteoarticular
    • Meningitis

Case Report 1

• Mycopathologia (2004) **158**: 53-56
• In 2003 a 40 year old Turkish female was referred and had a 1 year history of papulonodular, erythematous lesions.
  – Lesions ranged in size from 1 to 4 cm
  – Sporotrichosis was not suspected, because it is rare in Turkey.

Case Report 1 (cont)

• Upon examination, numerous ulcers were found on right arm and axilla
  – Largest ulcer was 4 cm (Figure 1)
  – Lesions started as small nodules
    • Perforated with purulent discharge
    • Healed but reappeared in another region
  
  Figure 1: Lesions of various sizes on right arm of patient

Histopathology

• Skin biopsy was performed
  – Showed suppurative granulomatous inflammation (Figure 2)
  – No bacteria were found in culture
  – Fungus culture was positive
    • Grew at 25 and 37° C
      – Only yeast form grows at 37°
    – Appearance of fungus in culture yielded diagnosis of subcutaneous sporotrichosis

  Figure 2: Suppurative granulomatous inflammation
Treatment

• Terbinafine
  – 250 mg, twice per day for 6 months
• Saturated solution of potassium iodide
  – Administered orally
  – Started at 10 drops 3 times per day
  – Increased as tolerated to 40-50 drops 3 times per day
  – Taken for 2 months
• Rapid response
  – Lesions healed after using potassium iodide

Presentation of Disease

• Lymphocutaneous sporotrichosis
  – Chronic infection that results from skin inoculation with *S. schenckii*.
  – *S. schenckii* is normally found on wood splinters or thorns.
    • Patient had no recollection of trauma near the infection site.
  – Normally only effects people with decreased immune function
    • Patient had no indication of suppressed immune system
  – Lesions begin as papule, postule or nodule which may ulcerate
    • Usually painless

Presentation of Disease (cont)

• Pathogen spreads through lymphatic system to nearby lymph nodes.
  – This results in numerous lesions regional to the initial infection site.

Case Report #2

Case Report 2

• An unusual case of disseminated sporotrichosis with vitreoretinal involvement (relating to the retina and the vitreous chamber of the eye)

• Eighteen year old male was referred to the infectious disease department
  – 5 month history of disseminated lesions (Figure 3)

Figure 3: Ulcerated skin lesions
Histopathology

• Skin biopsy was performed
  – Numerous cells resembling what was thought to be Paracoccidioides brasiliensis
  – First treatment: Amphotericin B
    • Due to side effects the medication was canceled one week later
  – Second treatment: Trimethoprim-sulfamethoxazole (Bactrim)
  – Examinations were ordered
    • Chest and brain computed tomography
    • Abdominal ultra sound
    • Radiologic study

Results from the study:

• Lystic lesions:
  – Skull
  – Tibia
  – Femur
  – And arms
• After cultures were taken, it was discovered that the skin lesions and lymph nodes were positive for S. schenckii. (Figure 4)
  – Another treatment of Amphotericin B was begun.
    Figure 4: Positive culture for S. schenckii

• Patient received examination for a red eye and blurred vision
  – No signs of inflammation in anterior chambers
    • Reason why no culture was taken from this area.
  – Intraocular pressures were within normal limits
  – Whitish, fluffy opacities in the left eye
  – Retinal granuloma close to the right eye (Figure 5)
• After fifty days of treatment with intravenous Amphotericin B:
  – Skin and intraocular lesions are resolved

Figure 5: Fundus photography showing retinal granuloma and fluffy opacities.

Other Cases

• Few cases of intraocular inflammation
  – One case had obtained and isolated an aqueous humor from the anterior chamber
S. schenckii was discovered
- Another case in which examination initially showed fluffy retinal lesions
- S. schenckii was discovered
- Despite aggressive therapy the eye was removed due to untreatable endophthalmitis (inflammation of tissues inside the eye).

Figure 6: Resolution of skin lesions

**Sporotrichosis**

- **Presentation:**
  - Chronic subcutaneous infection
  - Systemic infection
  - Symptoms dependent on infection location
  - Pathogenic agent is *S. schenckii*

**Sporotrichosis (cont.)**

- **Etiological Agents**
  - *S. schenckii*

**Sporotrichosis (cont.)**

- *Sporothrix* is a temperature dependent dimorphic fungus
  - Mold form at 25°C
  - Transformation to yeast form at 37°C
- **Mold form**
  - Septate hyaline hyphae
  - Two types of conidia
    - Some difference between the two include thickness of cell wall and shape

**Sporotrichosis (cont.)**

- **Yeast form**
  - Oval or cigar shaped
  - Conversion to yeast form is necessary to identify *S. schenckii*

**Sporotrichosis (cont.)**

- **Epidemiology:**
  - Anyone can be infected
  - Severe infections afflict immunocompromised individuals

**Sporotrichosis (cont.)**

- Found worldwide
  - Most common in subtropical Americas
  - Highest incidence in Mexico
- Living plants
- Decomposing plants
- Soil
- Peat moss

Cutaneous Sporotrichosis

- Clinical Manifestations
  - Two types

- Lymphocutaneous sporotrichosis
  - Characterized by:
    - Lesions or ulcers affecting the skin and subcutaneous tissues
    - May spread along lymph nodes without affecting them

Cutaneous Sporotrichosis (cont)

- Fixed sporotrichosis
  - Characterized by:
    - Lesions and ulcers that do not spread

Osteoarticular Sporotrichosis

- Characterized by:
  - Arthritis affecting
    - Ankles, knees, elbows and hands
    - Causes pain, inflammation, and reduced motion

Pulmonary Sporotrichosis

- Characterized by:
  - Lesions within the pleural cavity
  - Causes weight loss, coughing, and a fever

Rare Cases

- Disseminated
  - Spreads throughout body
- Meningitis
  - Brain
- Occurs in immunocompromised individuals
• Associated with fungemia
  
  **Sporotrichosis**

• Mimics Other Diseases
• Tuberculosis or leprosy
• Cowpox
• Herpes
• Other fungi and bacteria
• Noninfectious diseases such as lupus

**Symptoms**

• Formation of Nodules
• Small, painless lump
• First sign of sporotrichosis
• Forms on the skin
• Color can range from pink to nearly purple.

**Symptoms (cont)**

• Nodules may become an ulcer- an open sore
• Ulcers drain clear fluid
• In some cases, can enter the lymph nodes.
• New nodules and ulcers develop on the arm or leg.
• Although rare, can spread to other parts of the body.

**Diagnosis**

• A physical examination of the lesions

• A culture of tissue to confirm *S. schenckii*

**Treatment**

**Depends on site of infection**

• Skin- Lymphocutaneous or Fixed

• Bones and Joints- Osteomyelitis or arthritis

• Lungs- Pulmonary

• Brain- Meningitis

**Treatment of Skin**

• Saturated potassium iodide solution

• 3 times per day for 3-6 months
• Itraconazole (also known as Sporanox)

Treatment of Sporotrichosis in Bones and Joints

• Potassium iodide essentially ineffective.
• Itraconazole
• Amphotericin
• Surgery to remove infected bone

Treatment of Sporotrichosis:
Pulmonary

• Potassium iodide
• Itraconazole
• Amphotericin
• Occasionally, removal of the infected lung

Treatment of Sporotrichosis:
Meningitis

• Sporotrichosis meningitis is rare

• Amphotericin plus 5-fluorocytosine
• Itraconazole

• Treatment is sometimes ineffective

References