October 2004

Cavernous Mass In The Lung

Advanced Clerkship In Diagnostic Radiology

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Outline

- Introduction
- Clinical Case
- Radiological Findings
- Differential Diagnosis
- Treatment

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Introduction

- Cavernous mass can often be seen in chest x-ray
- It has many differential diagnosis
- Not always easy to find the right diagnosis...ergo...
- Look always for clinical feature!

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Clinical Case
Patient History

- 27 year old female with pain in right ankle (arthropathy) & fatigue
- Some respiratory symptoms

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Physical Examination

- Swollen right ankle
- Otherwise normal examination, i.e. asymptomatic

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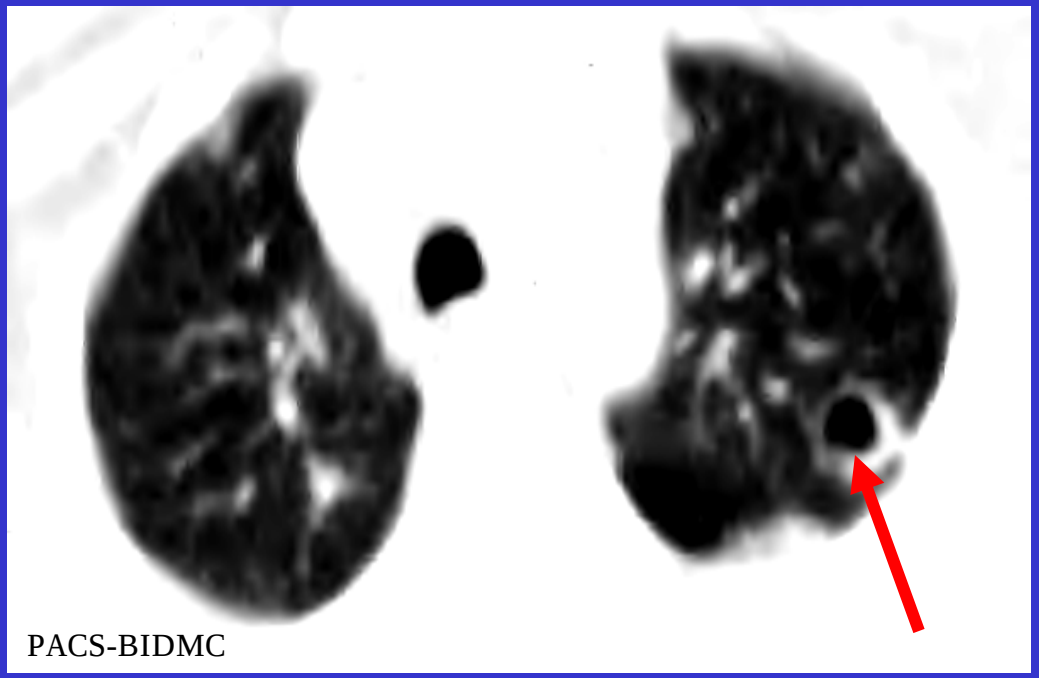
Radiological Findings

Chest CT Imaging (Lung window)

Cavitary Lesion



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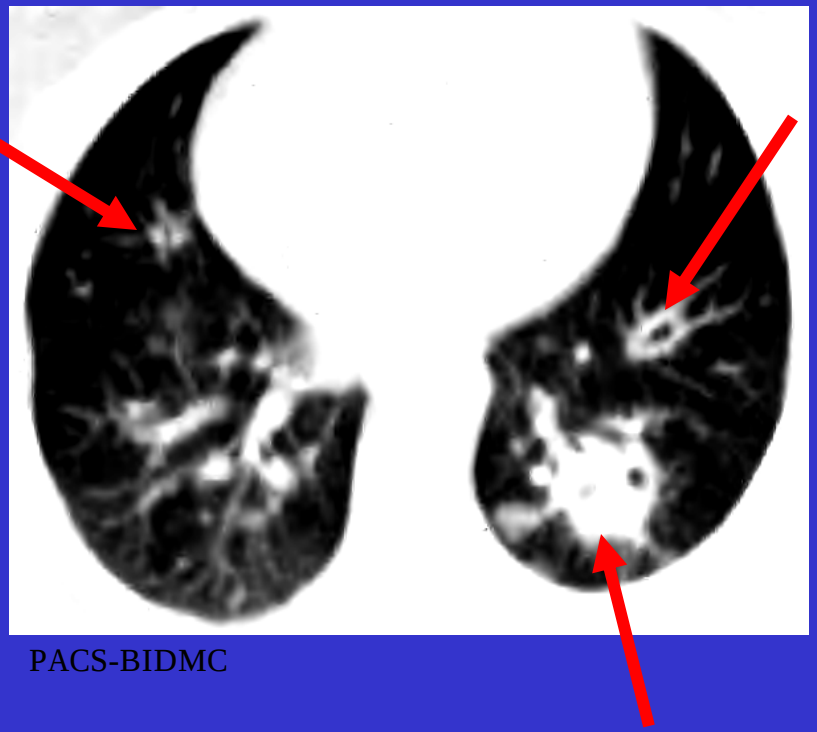
Radiological Findings



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- Multiple nodular opacities
- Evidence of cavitation in several of these opacities

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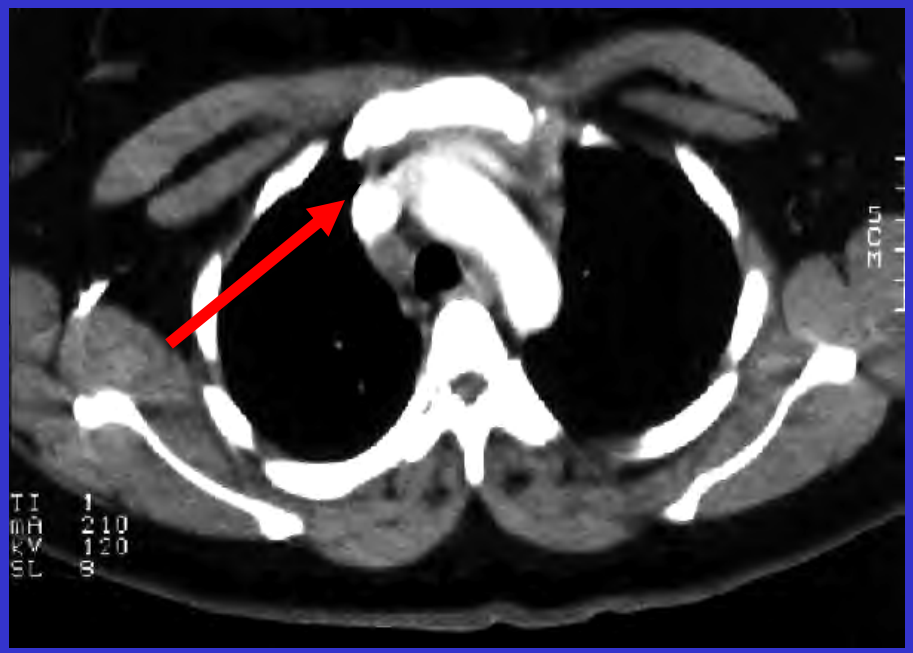
Radiological Findings

Chest CT-Imaging (Soft-tissue window)



- Mediastinal and hilar adenopathy

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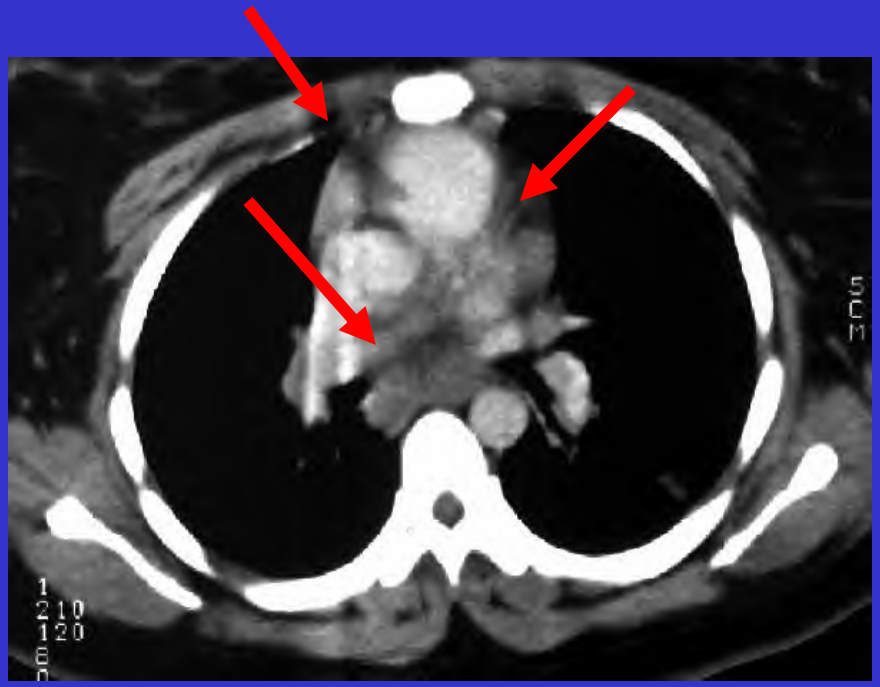
Radiological Findings



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- Again, mediastinal and hilar adenopathy

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Differential Diagnosis

- Metastasis
- Wegener‘s Disease
- Pneumatoceles
- Lymphangiomyomatosis
- Langerhans Cell Histiocytosis (= Eosinophilic Granuloma)
- Sjögren‘s Disease
- Emphysema
- Sarcoidosis
- Mycobacterial Infection

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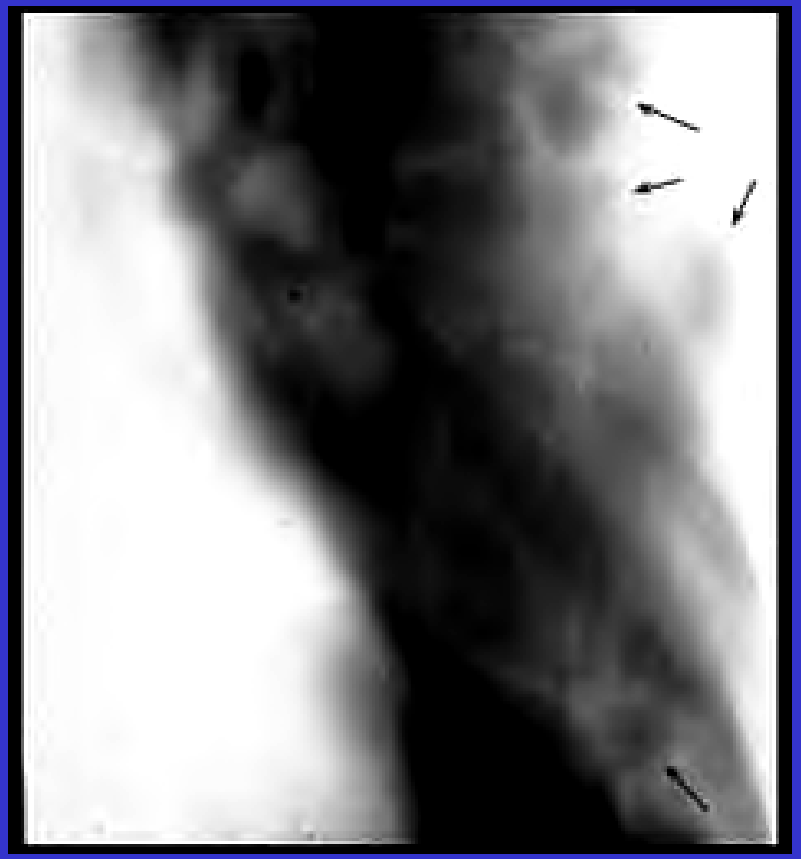
Radiological Findings

Chest X-Ray



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- On this chest x-ray, cavitaries can be appreciated

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In this case...it was

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Sarcoidosis

- Also called sarcoid of Boeck
- Female individuals btw. 20 ~ 40 are often affected (m:f = 1:3)
- Ten times higher prevalence in blacks
- Pathogenesis unknown; pollen?, mycobacterial infection?, inorganic dusts?

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Clinical Feature

1. Acute form: fatigue, fever, muscle aches, dyspnea, joint pain, swollen glands etc.
2. Subacute form: mostly asymptomatic, also with organ involvement
3. Chronic form: symptoms appear slowly; intial symptoms can be dyspnea, cough and other respiratory abnormalities

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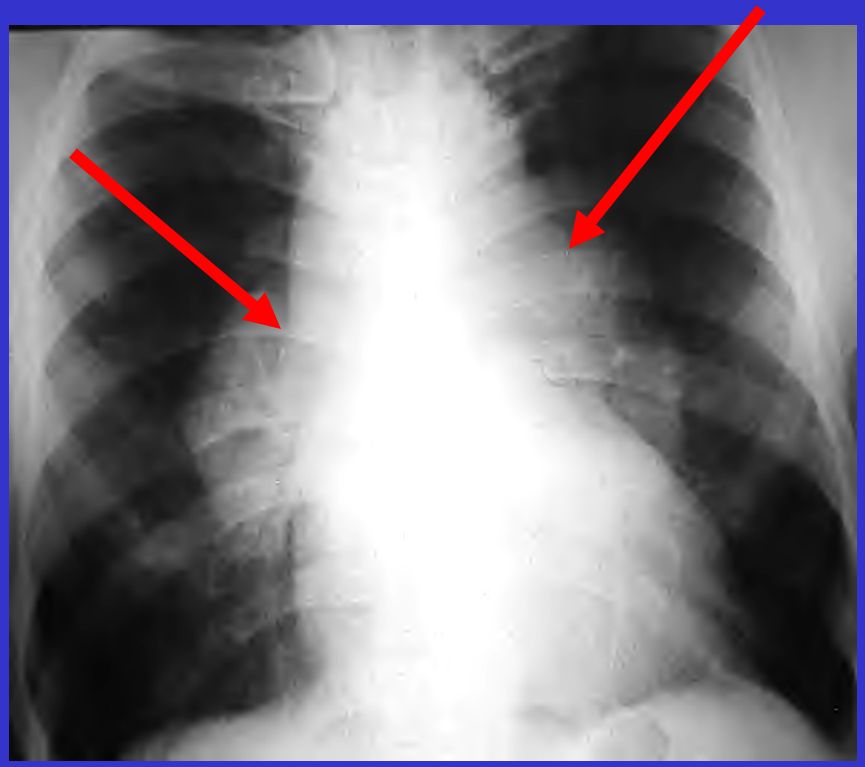
Radiological Findings (Comparison)

Chest X-Ray: “usual finding”

Bihilar lymphadenopathy



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Staging

The lung is the most affected organ!

Stage I (45 ~65%):
isolated lymphadenopathy
(right paratracheal or bihilar)
Stage II: involvement of parenchyma & adenopathy
Stage III: isolated to the parenchyma
Stage IV: end stage of sarcoidosis; extensive fibrosis & honeycombing

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Rare Cases

1. Tracheobronchial involvement (~25%)
2. Eggshell calcification of the lymph nodes (~5%)
3. Pleural effusion (< 2%)
4. Nodular sarcoidosis (<1%)
5. Cavitary sarcoidosis (only 10 cases in the literature!)

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Cavitary Sarcoidosis

Discussion

- Cavities range from 3~8cm
- Usually thick walled
- Probably result from ischemic necrosis of the granulomas, or
- Secondary to a granulomatous angiitis

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Cavitary Sarcoidosis

Discussion

- Patient may be asymptomatic; however, life threatening hemoptysis has been reported
- May mimic cavitary infection and other diseases

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Typical Pathological Findings

- Mononuclear infiltrate of cells
- Development of granulomas of epithelioid cells, macrophages, and multinucleated giant cells
- Granulomas distribute along lymphatic pathways

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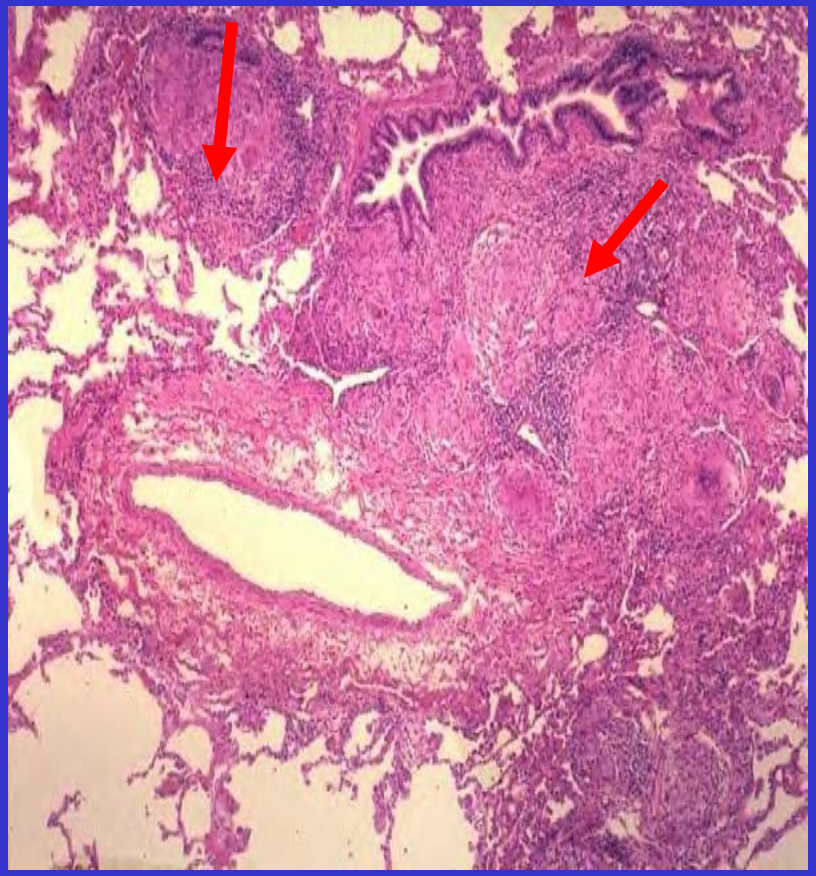
Typical Pathological Findings



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Granulomas adjacent to bronchiole and pulmonary artery

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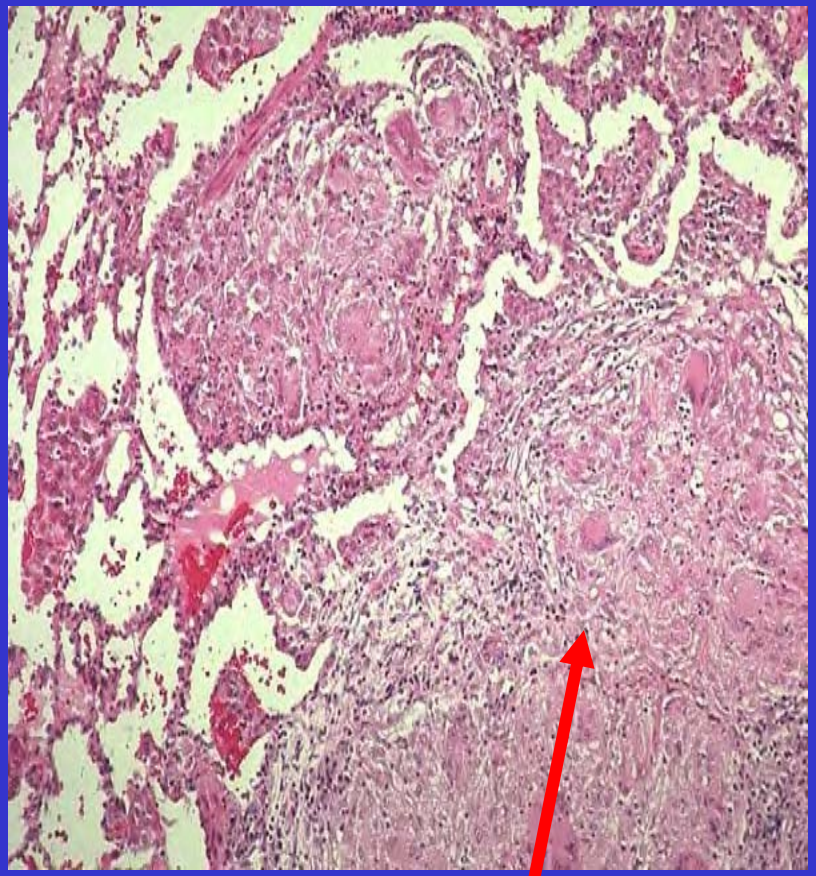
Typical Pathological Findings



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Confluent granulomas, forming nodules

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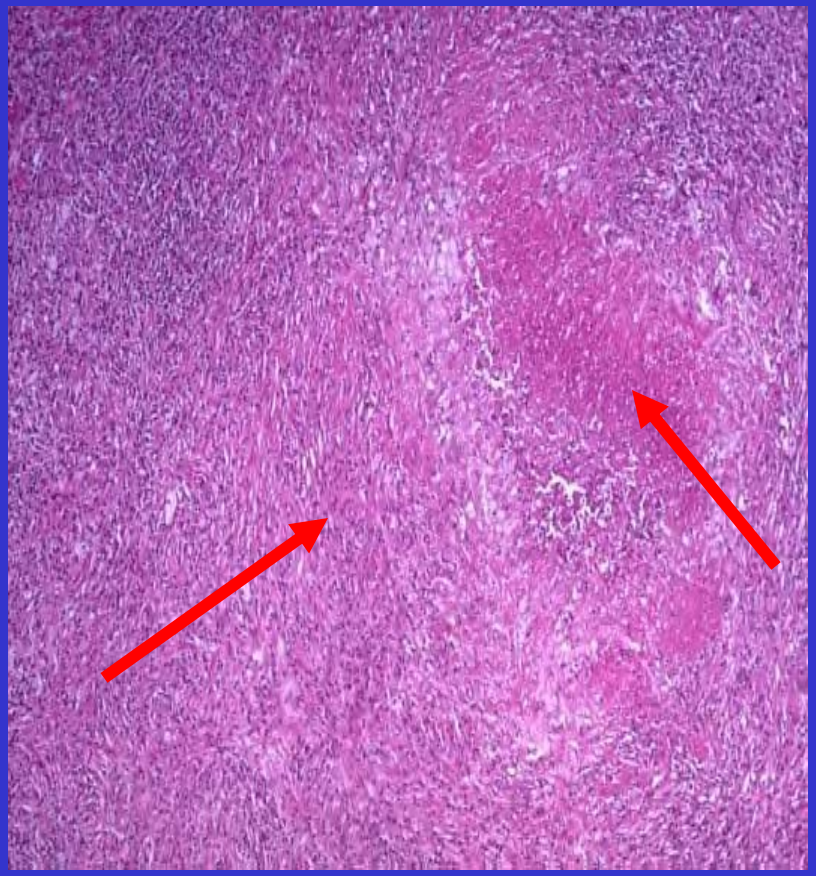
Typical Pathological Findings



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Microscopic – confluent granulomas and necrosis

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Treatment & Prognosis

- Usually not treated; Steroids in severe cases: 80% of cases resolve completely; fibrosis develops in 20%
- Recurrence may appear, also in transplanted lung
- Mortality: 2 ~ 7% (respiratory failure, cor pulmonale, hemorrhage) – worse in black population

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Thank you to:

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