

Aspergillus related diseases



➤ What is Aspergillus? فطر الاسبرجيليس

Aspergillus fumigatus is a type of fungus that is commonly found in the environment. It can be found in the soil, dust, water, and rotting or decaying vegetation (like dead leaves or compost piles)

➤ Aspergillus related diseases include

☞ ASPERGILLOMA {fungal ball or Mycetoma}

Fungal infection of top of pre-existing lung Cavitory lesions (e.g TB)

☞ Allergic Bronchopulmonary Aspergillosis

Hypersensitivity to Aspergillus, it might be also associated with Allergic Aspergillus Sinusitis

☞ Chronic pulmonary Aspergillosis:

Direct infection in patients with chronic lung diseases

☞ INFECTION of the immunocompromised patients { Invasive Aspergillosis }

✚ ASPERGILLOMA

وڤى نوع من أنواع العدوى الفطريه اللى بتحدث على
cavity

موجوده فى أحد الرئتين أو كلاهما نتيجة مرض ثانى

خالص زى

- TB
- Lung cancer
- Cystic fibrosis
- Chronic lung abscess
- Sarcoidosis



Aspergilloma. There is a thin-walled upper lobe cavity (white arrows) presumably from old TB, with a fungus ball in the dependent portion (black arrow).

C/P

- It may be symptomatic but it might be discovered accidentally by radiograph
- HEMOPTYSIS (usually frank) is the typical presentation of such disease
- History of pre-existing Cavitory disease as mentioned before

DX

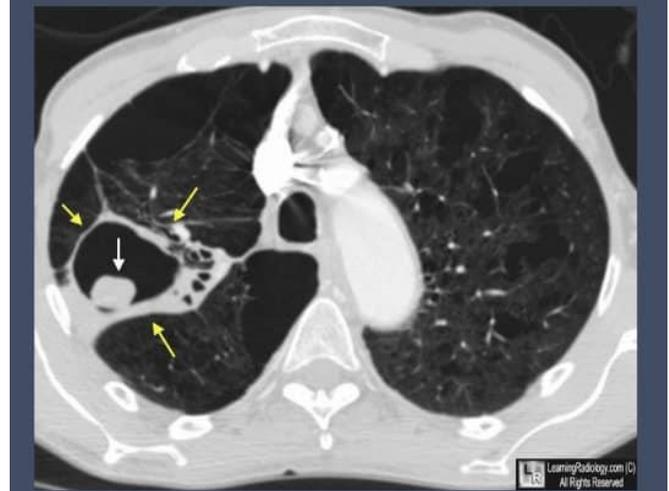
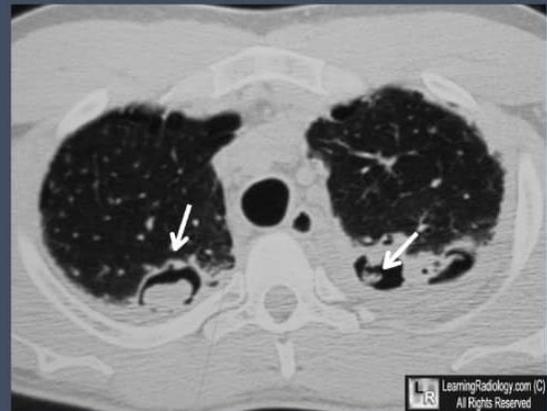
- The main diagnostic tool is chest imaging (CXR or preferably CT scan)
- Mass within cavity giving the appearance of AIR CRESCENT ●
- Labs
Aspergillus IgG Ab may be positive

TREATMENT

- ☞ If it is symptomatic (HEMOPTYSIS) ➡➡
- **Supportive care** (fluids)
+
- **Intervention**
Intervention might be in the form of
 - ✓ Surgical resection (curative)
 - ✓ Intracavitary treatment by Amphotericin B
 - ✓ Bronchial artery embolization in life threatening conditions
- **Medical ttt :**
Oral itraconazole (Sporanox) 100 mg
Dose: 200-400 mg/day PO



- Crescent-shaped airspace separates the fungus ball from the wall of cavity
- Fungus ball may calcify



✚ Allergic Bronchopulmonary Aspergillosis (ABPA)

- Allergic bronchopulmonary aspergillosis is a form of lung disease that occurs in some people who Allergic to Aspergillus.
- With ABPA, this allergic reaction causes the immune system to overreact to Aspergillus leading to lung inflammation.
- ABPA causes bronchospasm (tightening of airway muscles) and mucus buildup resulting in coughing, breathing difficulty and airway obstruction.

✓ المرض ده بما أنه مرض من أمراض الحساسيه ،، ممكن يكون فى صورة asthma صعبة العلاج (مهم جدااا)

✓ وممكن يحصل معاه (Bronchiectasis) لكنها بتبقى (central) مهم جدااا

✓ وممكن بييجى مع مرضى ال (CYSTIC FIBROSIS) مهم

ما تنساش إن ال Cystic fibrosis ده من أسباب ال bronchiectasis

☒ اعراض مرض ال ABPA ⚡⚡

- Coughing up mucus plugs that may be brown in color.
- HEMOPTYSIS may occur but it is less common
- Difficulty exercising
- Wheezing (ASTHMA like) or mimic
- Shortness of breath
- Chest pain or tightness
- Recurrent fever
- Fatigue

☒ ايه الفحوصات اللى هتفيدنى فى تشخيص ال ABPA ? ⚡⚡

☞ Labs

- CBC looking for Eosinophilia (allergic disease)
- Serum IgE: high
- RAST (Radioallergosorbant test)
- Positive radioallergosorbent (RAST) test to Aspergillus

Immediate (type I) reactions occur in virtually all patients with ABPA following intradermal injections of Aspergillus fumigatus extracts, with only 16% developing delayed (type IV) reactions.

خلى بالك 🙌🙌🙌

N.B: An early positive skin-prick test for *Aspergillus fumigatus* is the most specific to (ABPA). Positive skin-prick tests reflect antigen-specific IgE.

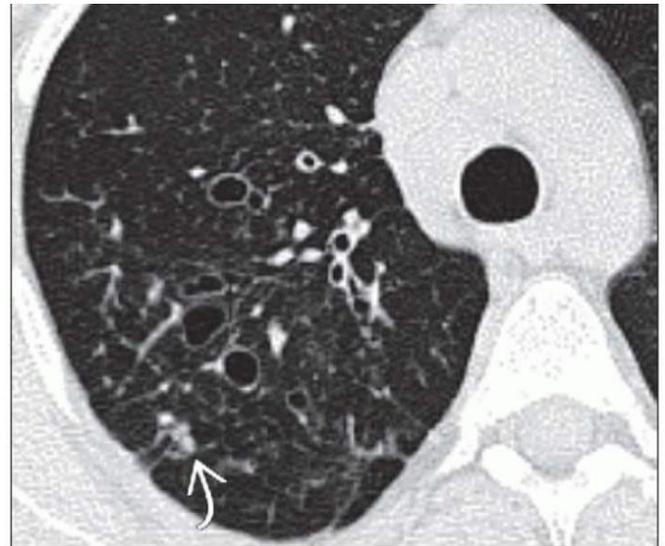
- *Aspergillus* antibody IgG (precipitin): would be positive

👉 Imaging

High resolution CT chest may show Proximal or central Bronchiectatic changes



Axial HRCT shows cylindrical and mild varicose bronchiectasis of the segmental and subsegmental bronchi of the right upper lobe with airway wall thickening ➡



Axial HRCT shows cylindrical bronchiectasis of the segmental and subsegmental bronchi of the right upper lobe and mucoid impaction manifesting as a nodular opacity

هل هناك معايير تشخيصية لهذا المرض؟ ☒

📌 International diagnostic criteria

👉 Mandatory Criteria

1) IgE specific to *Aspergillus fumigatus* >0.35 kU/L

Or

2) Positive skin test against a *fumigatus*

Or

3) Total Serum IgE > 1000

☞ **Other criteria** (at least 2 must be present)

- 1) IgG against *A. fumigatus* > 27 mg/L
- 2) Radiological changes typical for ABPA
 - Central or proximal cylindrical bronchiectasis
 - alterations predominantly in upper lobes
 - Nodules
 - Atelectasis
 - Air trapping
- 3) Total Eosinophilic count > 500 cells/UL

☒ TREATMENT

I. Oral corticosteroids (inhaled steroids are not effective)

Dose: The commonly used treatment strategy is an initial dose of prednisolone 0.5 mg/kg daily for 14 days, followed by 0.5 mg/kg every other day, and then further tapered and finally discontinued at three months.

II. Antifungals

-
- Itraconazole:
(Sporanox) 200-400 mg/day PO;
May be used in combination with corticosteroids
 - Second line: Voriconazole (Vfend)

