



Chronic Pulmonary Aspregillosis (CPA)

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Chronic Pulmonary Aspergillosis (CPA)

CPA- A case of SAIA

19/7/2013: Admission to the hospital :

- Haemoptysis
- Cavity lesion
- Checked for TB
- (+) Mantoux
- Positive galactomannan antigen bronchial (BAL)/serum
- CT angiography. Absence of visible bleeding site
- Voriconazole

18/10/2013 : New bleeding

18/03/2014: Discontinuous treatment for Aspergilosis





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CPA- A case of SAIA

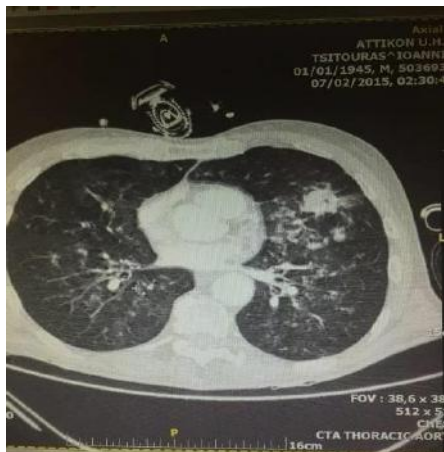


Male 69 yrs

28/01/2015 : 3 episodes of massive haemoptysis

06.02.2015 : Admission to ICU due to:

- massive haemoptysis
- aspiration
- desaturation
- loss of consciousness
- Intubation- mechanical ventilation



- **2006**: prostate cancer, prostatectomy
- **2013**: radiotherapy 03-23/05/2013
- **2013**: **nephrotic syndrome / AKF**
 - kidney biopsy → diffuse proliferative glomerulonephritis
 - IGC: immunocomplex associated immunodeficiency /chronic thrombotic microangiopathy possibly due to radiotherapy
- Methylprednisolone and cyclophosphamide.
- Oral methylprednisolone



Chronic Pulmonary Aspergillosis (CPA)

CPA- A case of SAIA

During the next two years

Symptoms

- Weakness
- Weight loss
- **Haemoptysis**

Tests

- **8 CT and CTA**
- **Never embolized**

Therapeutic interventions in summary

- Voriconazole 07/13-03/14 (9 months)
- Patient stops therapy for 4 months
- Restarted voriconazole 07/14 stops in 10/14 (3 months)
- Patient stops therapy again for 2 months
- Haemoptysis 04/01/15 voriconazole was restarted
 - New episode of haemoptysis
 - Admission to the Internal Medicine Clinic



Chronic Pulmonary Aspergillosis (CPA)

CPA- A case of SAIA

- Admission to ICU **06/02/2015**
- Sedation
- Analgesia
- Intubation - Ensuring airway

Patient problems

- * Frequently hemoptysis
- * Imminent airway
- * Inadequate ventilation and oxygenation

Actions performed

- Double lumen intubation tube
- Bronchoscopy
- Early tracheostomy day 5

Diagnostic tests performed

- TB / Nocardia (-)
- Biopsy nasal mucosa (-)
- GM serum and bronchial aspirates (+)
- Precipitins : IgG 6.5 / IgM 0.4 / IgA 1.1
- Biopsy bronchial mucosa (-)
- Lung Biopsy (Confers aspergillosis)
- Voriconazole



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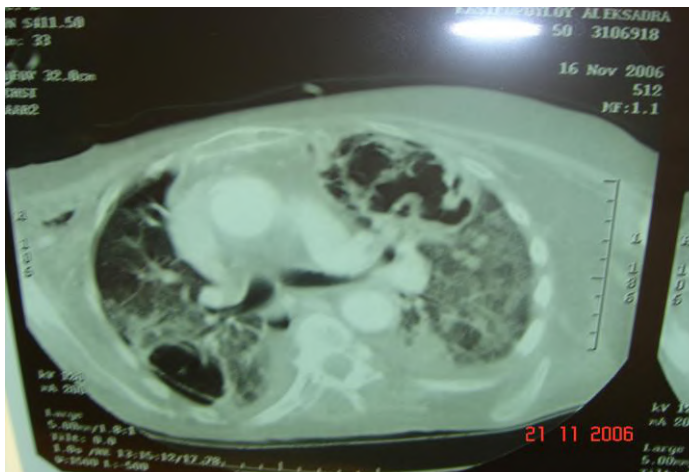
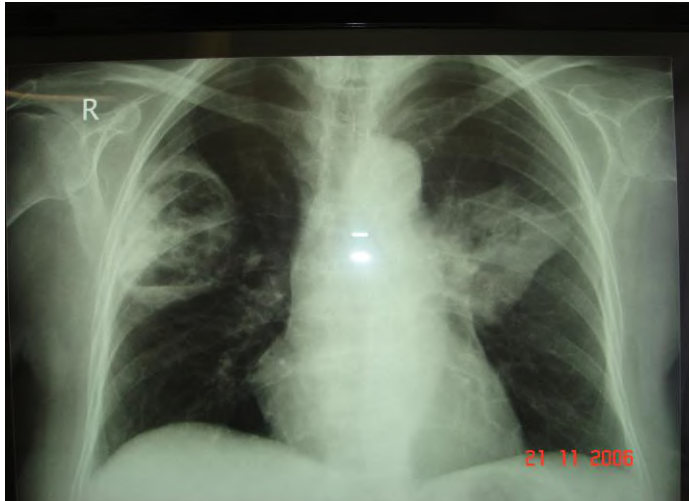
CPA- A case of SAIA

The patient after 4 months of hospitalization in the ICU died due to septic shock and multiorgan failure (MOF)



Chronic Pulmonary Aspergillosis (CPA)

CPA- Imaging findings / SAIA



Female patient with leukemia
ARDS / Resp failure
Intubation
Mechanical Ventilation
BAL : Aspergillus / GM (+)
Voriconazole
Death
Autopsy : SAIA



Chronic Pulmonary Aspergillosis (CPA)

CPA- Treatment

- 1. Treatment with Antifungals**
- 2. Surgical treatment**
- 3. Treatment of hemoptysis**
 - a. Local cavity therapy**
- 4. Corticosteroids**
- 5. INF- γ**



Chronic Pulmonary Aspergillosis (CPA)

CPA – Treatment with antifungals

- **PO triazole therapy**

- Patient's type of disease or clinical phenotype and eligibility for surgical treatment

- **Main target : QUALITY OF LIFE**

- **CCPA** : Voriconazole or itraconazole PO

Duration : at least 4-6 months, slow response

- **CFPA** : Long-term itraconazole PO ➡ **stabilizing patients**

- **SAIA** : Treatment as in IPA

- **IV administration**

WHERE ?

Progressive disease, PO failure, intolerant of triazoles, resistance

WITH WHAT ?

IV **Micafungin** 150mg/day vs **Voriconazole** (response to treatment vs 60 vs 53%),
Liposomal AmB 3 mg/kg/ day, **Caspofungin** 50–70 mg/day



Chronic Pulmonary Aspergillosis (CPA)

CPA – Surgical treatment

1. **Aspergilloma** : in patients with adequate pulmonary function
 - a. Full resection without spillage of fungal elements into the pleural space.
 - b. Recurrence of disease and haemoptysis are rare in simple aspergilloma
2. **CCPA carries a lower success rate**
3. **Surgery** : in all patients with **severe haemoptysis**
4. **Careful patient selection** to avoid peri- and post-operative complications
 - a. Bullectomy, segmentectomy, sublobar resection, wedge resection, lobectomy, pleurectomy, pneumonectomy
5. **Post-operative complications**
 - a. persistent air-leak, empyema, pneumonia, wound infection, bronchopleural fistula, respiratory failure, massive haemorrhage, and death
6. **Catheter embolisation** of bronchial arteries
 - a. prior to surgery **and a bridge** towards selective surgery



Chronic Pulmonary Aspergillosis (CPA)

CPA – Local cavity therapy

Aim : to control recurrent haemoptysis if surgical treatment is not an option in those without a haemorrhagic diathesis when systemic use of antifungals is ineffective or prevented by Aes

- **Instillation of antifungals through**
 - an endobronchial catheter under bronchoscopic guidance
 - via a percutaneous transthoracic needle or
 - catheter placed into the aspergilloma cavity
- **Antifungals**
 - Amphotericin B (as paste or solution), *the drug of choice* (50 mg in 20 mL 5% Dextrose solution)
 - azoles (miconazole, itraconazole)
 - sodium iodide and nystatin (as paste with amphotericin B).
- **Complications**
 - cough, chest pain, pneumothorax or endobronchial reflux
- **Short-term response rates : 70% to 100%.**



Chronic Pulmonary Aspergillosis (CPA)

CPA – Therapies for haemoptysis

I. Mild, moderate or life-threatening haemoptysis

- CCPA and simple aspergilloma usually
- Tranexamic acid (typically 500 mg three times daily)

II. Moderate or severe haemoptysis

- Embolisation either as a temporising measure before surgery or as a definitive treatment

III. Complications of embolisation

- chest wall pain, stroke with cortical blindness or impaired vision
- chest wall or spinal cord infarction, as well as renal impairment and allergic reactions to the contrast dye.



Chronic Pulmonary Aspergillosis (CPA)

CPA – Corticosteroids / IFN- γ

Patients with underlying diseases

- sarcoidosis, rheumatoid arthritis, COPD, ABPA or asthma may be dependent on corticosteroids
- Prednisolone 5–30 mg/day may carefully be considered for symptom control only if are adequately treated with antifungals

Interferon (IFN)- γ deficiency

- Impaired production of IFN- γ and IL-12 necessary to produce IFN- γ
- IFN- γ substitution (Adjunctive therapy) with 50–60 μ g subcutaneously, three times weekly
- Clinical improvement



Chronic Pulmonary Aspergillosis (CPA)

CPA – Follow up

After resection surgery of *Aspergillus* nodule

1. Single and completely excised aspergilloma

The patient does not require antifungal therapy unless immunocompromised

2. A single nodule not completely resected

Quantitative *Aspergillus* IgG serology, inflammatory markers and radiology at 3-monthly intervals to determine if antifungal therapy required

3. Multiple nodules

Antifungals ➔ reduction in size of most or all nodules over time

An increase in size may represent another disease process, such as a malignancy

4. Close radiological follow-up (initially 3 monthly)

To ensure there has been no progression

5. In all cases, corticosteroid exposure should be minimised