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BVIKM/SBMIC
November 8th, 2012

PNEUMONIA IN A PRESUMED IMMUNOCOMPETENT PATIENT

Men, 54 years

<u>Emergency room on end october 2009</u>

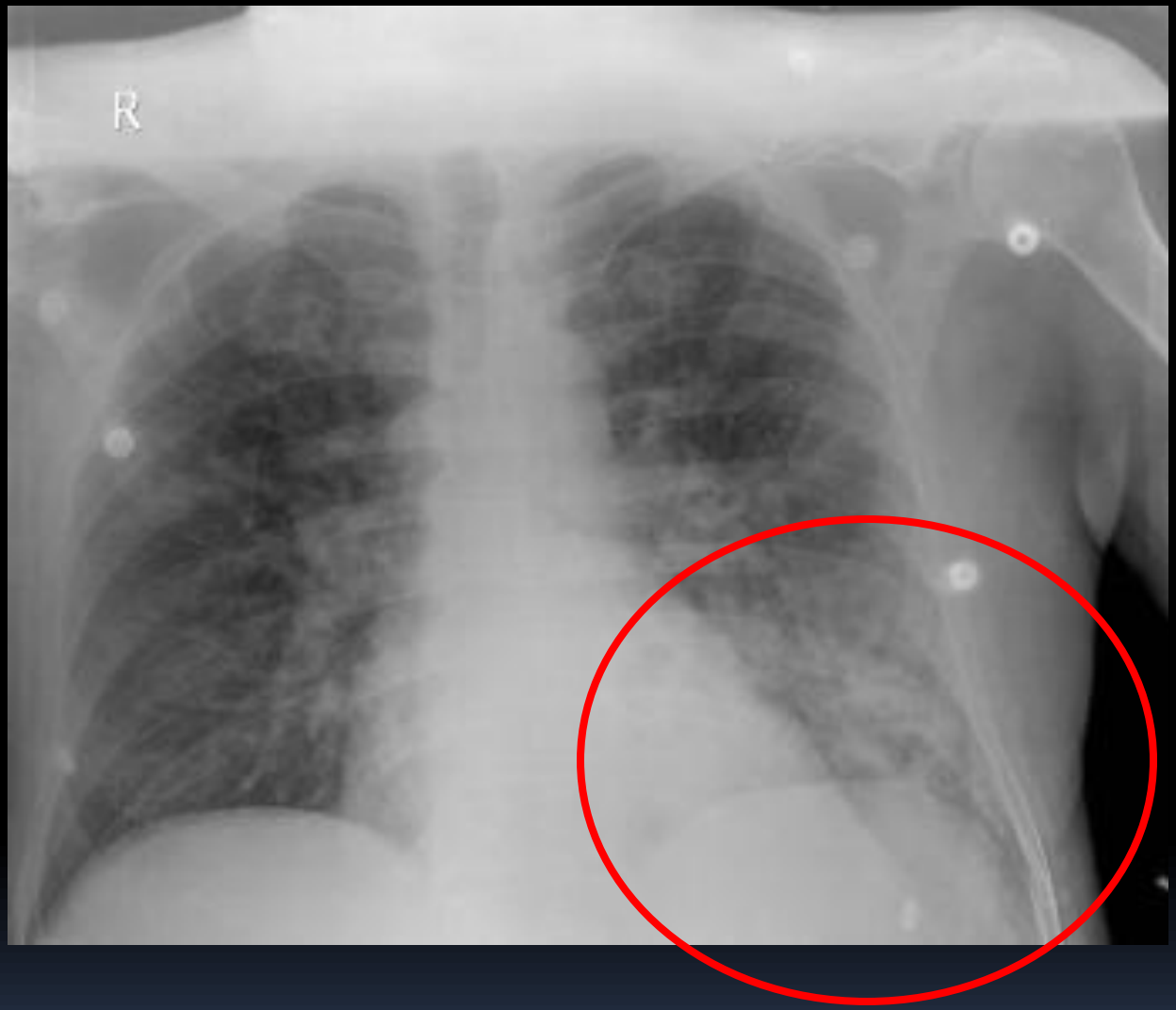
- Sent by his family doctor for Influenza A H1N1?
- Viral syndrom, cough, fever →39° (7j)
  - No improvment with oral antibiotics
  - Hallucination for 2 days
  - Lost 8 kg since 1 month

- From Poland, in Belgium since 2009
- Building worker, 5 beers/day, smoker (34 PY).

- Physical examination:
  - Restless, difficult to examine
  - 38°C
  - SAO2 91%

- Blood test:
  - Whites cells 10700, 83% PN
  - CRP: 218 mg/dL
  - K+:2.6mEq/L
  - plateletts: 131.000
  - Moderate liver tests abnormalities

- 2 Blood cultures



1. Pneumonia
2. Alcohol withdrawal syndrom

Start Amoxicilline + Clavulanate 1g qd

Evolution

- Unfavorable
- Fever →39,5°; hypoxemia PaO2=55 mm Hg
- CRP: 360 mg/dL after 4 days of ABtherapy

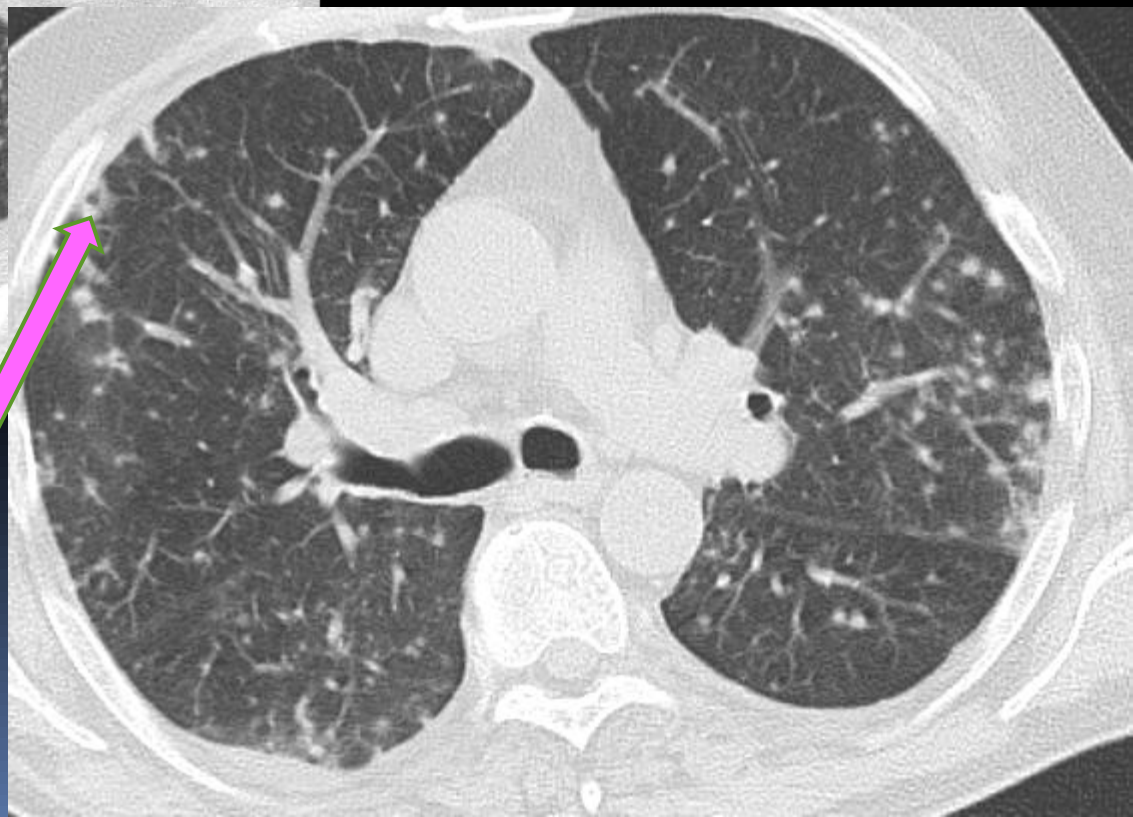
  - Repeated blood cultures remain negative
  - Nasopharyngal swabs:
    - Rapid Ag detection for Influenza, RSV, adénovirus –
    - Viral culture – repeatdly
  - Urine culture -
  - Sputum (saliva): levures (candida albicans)
- shift **Piperacillin+Tazobactam** 4X4 g/j
- Mouth candidosis R/**fluconazole**
- Type II diabetes (HbA1c 6.2%) R/ **glucophage**

What diagnostic prodecure would you rank first?

1. Skin test for tuberculosis
2. Serum Aspergillus antigen (galactomannan test)
3. Chest CT and bronchoalveolar lavage
4. Transbronchic biospsies

Thorax CT

Mediastinal adenopathies. Pneumonia of the left inferior pulmonary lobe and pleural reaction. Numerous nodulary infiltrates with blurred limits in the 2 lungs, in particular in the periphery zone. Nodular lesions some with excavation.



Among the diagnoses proposed by the radiologist, which one is your choice?

1. Mycobacterial infection
2. Invasive aspergillosis
3. Actinomycosis
4. Coccidioidomycosis

Investigations (1)

- *Legionella* urinary antigen detection negative twice
- Serologies are negative for
  - Mycoplasma, Q fever
  - HIV, Hepatitis A, B and C, CMV.
  - *Chlamydophila* are elevated IgG and IgA anti LPs but controls remain stable so not in favour of acute infection
- Fan and ANCA are negative. **RF =65 (<14 UI/ml)**
- Nasopharyngal swabs:
  - PCR for influenza A- and H1N1
  - Viral culture negative

Investigations (2)

- Sputum cultures:
  - BK: direct exam negative (4X)
  - rares colonies de *Candida albicans* (5X)
  - *Aspergillus fumigatus* (Nov 6 : 4 colonies; Nov 12: 1 colony)
- Serum cryptococcal Ag and Galctomannan (2x) : negative
- Broncho-alveolar lavage (2X):
  - BK DE and PCR are negative
  - Mould cultures are negative
  - Galactomannan ag detection= 0,12.
- Transbronchic Biopsies nov 9th and dec 1st: unspecific lymphocytic infiltrate, bronchiolitis

Stop Piperacillin+Tazobactam after 7 days : CRP ↓ 66 mg/dL

Start treatment against tuberculosis mid nov

What is the PPV of BAL Galactomannan in non-neutropenic patients with Aspergillosis?

1. <25%
2. 25-50%
3. 50-75%
4. >75%

What is the PPV of BAL Galactomannan in non-neutropenic patients with Aspergillosis?

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Use of Bronchoalveolar Lavage To Detect Galactomannan for Diagnosis of Pulmonary Aspergillosis among Nonimmunocompromised Hosts▽

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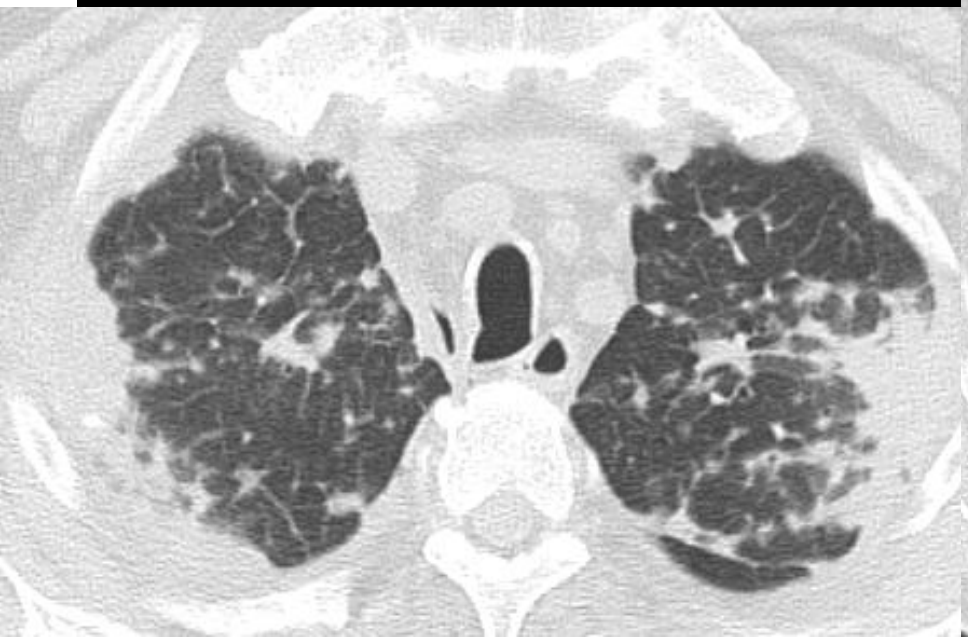
73 patients: 6 aspergillosis

BAL	GL ≥ 0.5	GL ≥ 1
Sensitivity	100%	100%
Specificity	77%	88%
NPV	100%	100%
PPV	29%	43%

Evolution: end of November

- Low grade fever: 37.5-38 °C
  Mild leucocytosis: 12,000 /µL (75% of PMN)
  Mild inflammatory syndrom: 60-80 mg/dL
- Repeated chest CT: worsened
- PET Scan: Lung bilateral captation unspecific



Evolution: end of November

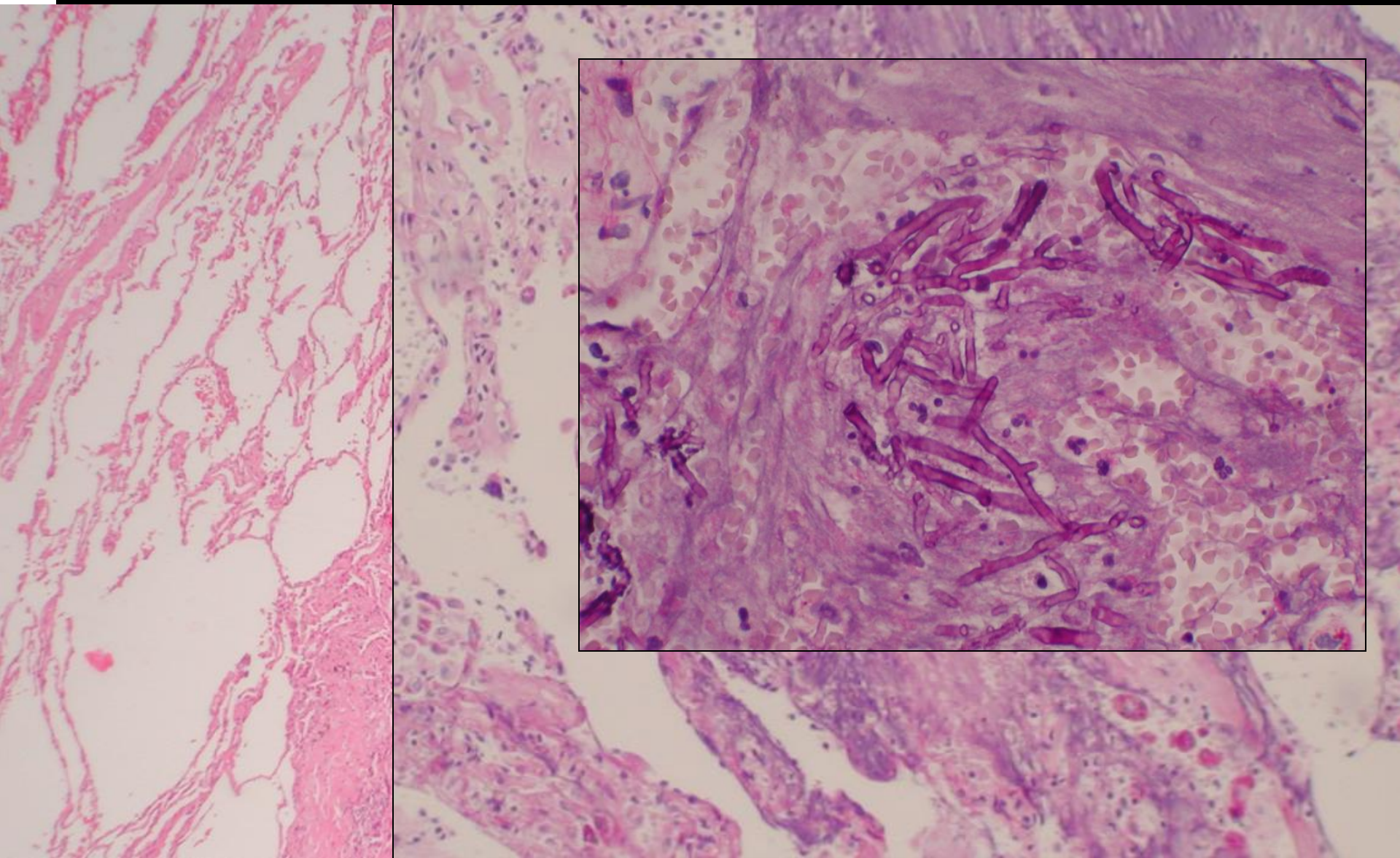
- Stop antituberculous therapy after 3 weeks
- **Vibramycin** (serologic results for *Chlamydophila*)

- Slow reaction:
  - Brain CT : maxillary sinusitis
  - Lumbar puncture: protein are slightly increased

- ? Cirrhosis (albumine 2.6, INR 1.5) but liver CT normal

- Hyperγglobulinemia M + IgG Kappa monoclonality
  - Free λ and κ ↑ (urine)
  - β 2 microglobuline↑
  - Bone marrow aspirate is normal

Thoracoscopy + pulmonary biopsies on december 7th:



Multiple lung foci of infection with pus. No lymphoma. No tuberculosis. Special colotration (PAS, Zielh and Grocott) show aspergillus within granulation tissu.

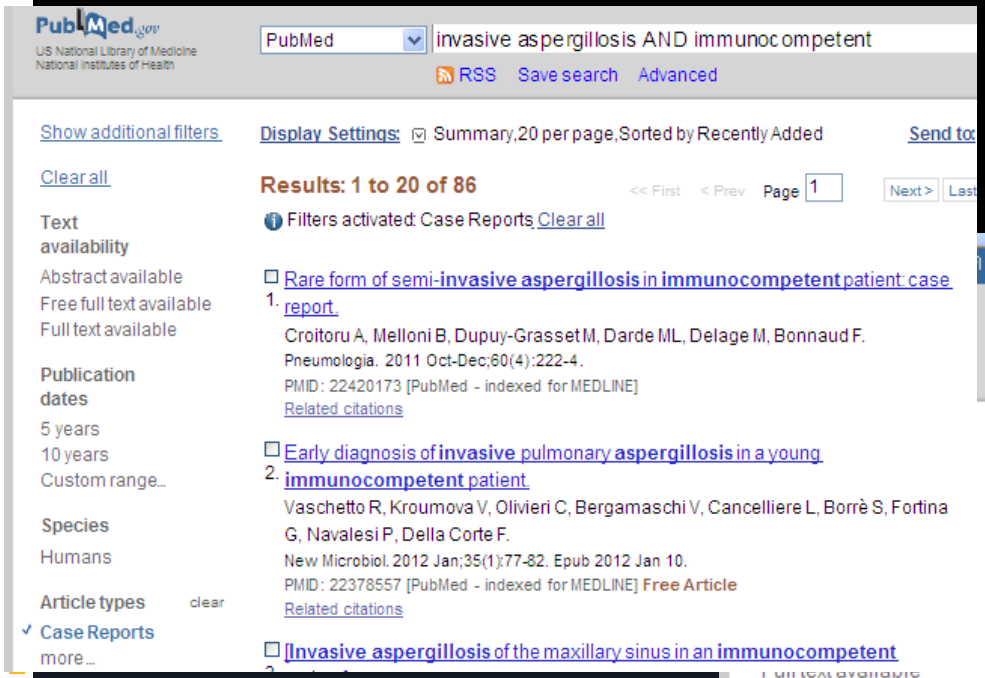
- *Start **MERONEM** 2g X3 for nosocomial lung infection (fever and inflammation) after surgery*

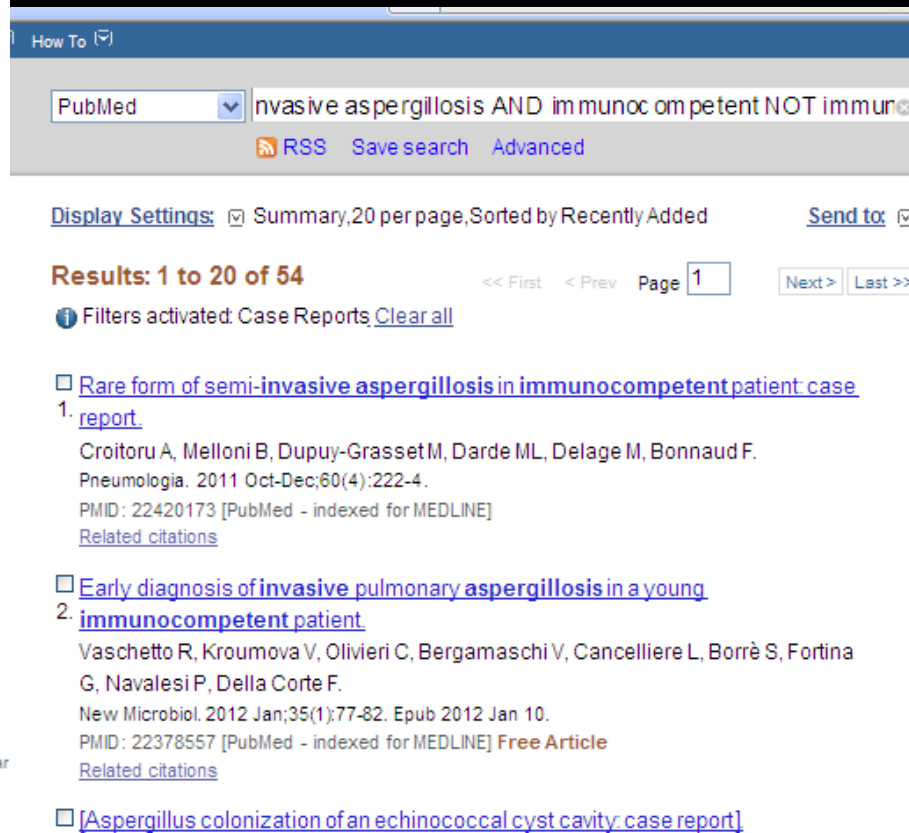
- *Start **Amphotericine B** 50 mg IV x1 for 3 weeks*
  *Shift in **Voriconazole** 350 mg x2/day/ 9 weeks*

Are case-report papers on invasive aspergilloses in immunocompetent patients rare?

1. <10
2. 10-30
3. 30-50
4. >50

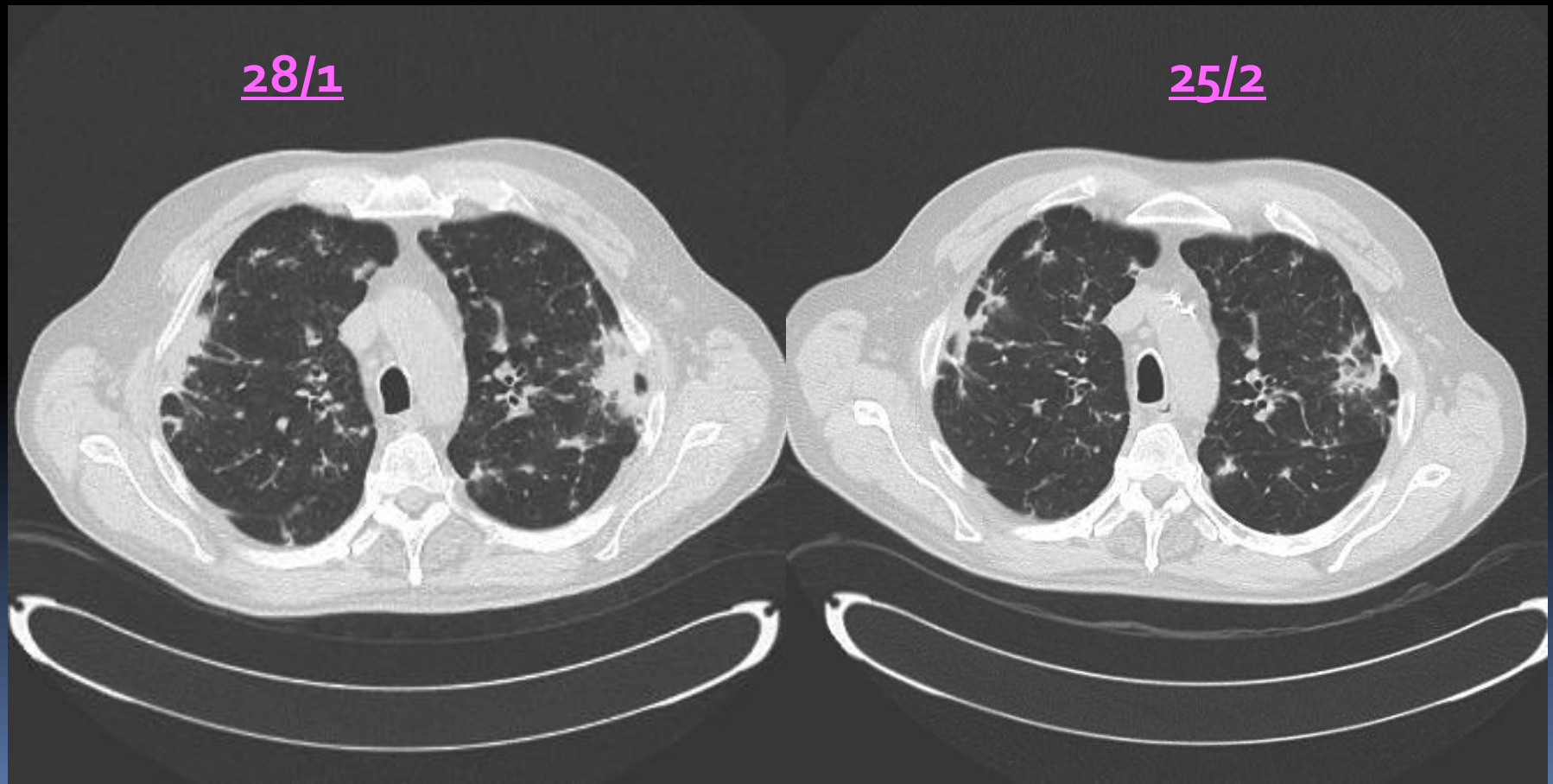
Are case-report papers on invasive aspergilloses in immunocompetent patients rare?





EVOLUTION

- Clinically: rapidly better (no fever, +4kg)
- Lab: GB 11300, PN 70%, CRP= 40
- CT:



Conclusion

1. Invasive pulmonary aspergillosis (favoured by viral infection?)
2. Maxillary sinusitis
3. Several mild immune defects
   - Mild diabetes II
   - Alcoholic liver dysfunction
   - Monoclonal gammopathy
4. Bacterial lung infections

Could there be a link between Influenza infection and Invasive Aspergillosis?

1. Yes but only in immuno**compromised** patients
2. Yes but only in immuno**competent** patients
3. Yes in **both** immuno- compromised and competent patients
4. No

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Invasive Aspergillosis after Pandemic (H1N1) 2009

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Abstract

Go to:

We report 2 patients with invasive aspergillosis after infection with pandemic (H1N1) 2009. Influenza viruses are known to cause immunologic defects and impair ciliary clearance. These defects, combined with high-dose corticosteroids prescribed during influenza-associated adult respiratory distress syndrome, may be novel risk factors predisposing otherwise immunocompetent patients to invasive aspergillosis.