



**A 16 yr old girl with pulmonary
infiltrations**

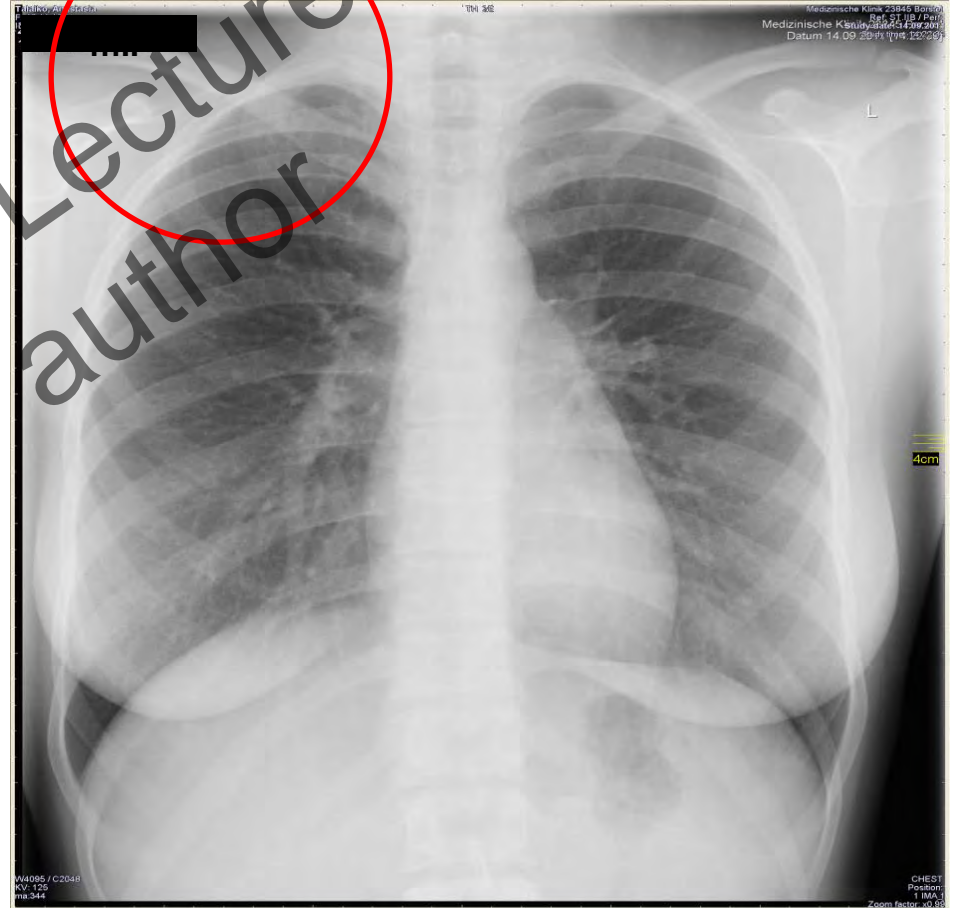
**Clinical case V
Clinical Grand Round, ECCMID 2013**

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A., female, 16 yrs

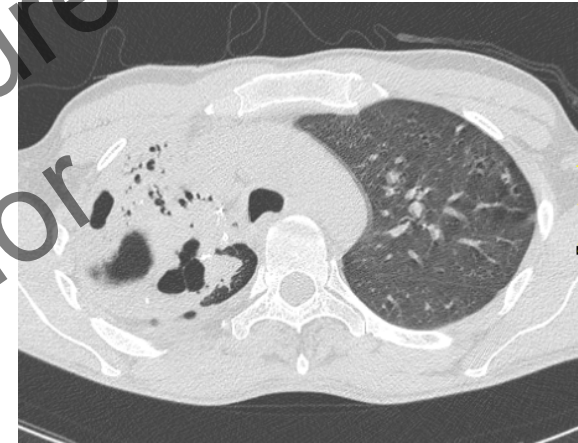
- Moved to Germany from Russia 4 yrs ago
- Good general health
- No pulmonary or extrapulmonary signs or symptoms
- Physical exam: NAD
- Lab: NAD



Family history: MDR to XDR

Both parents:

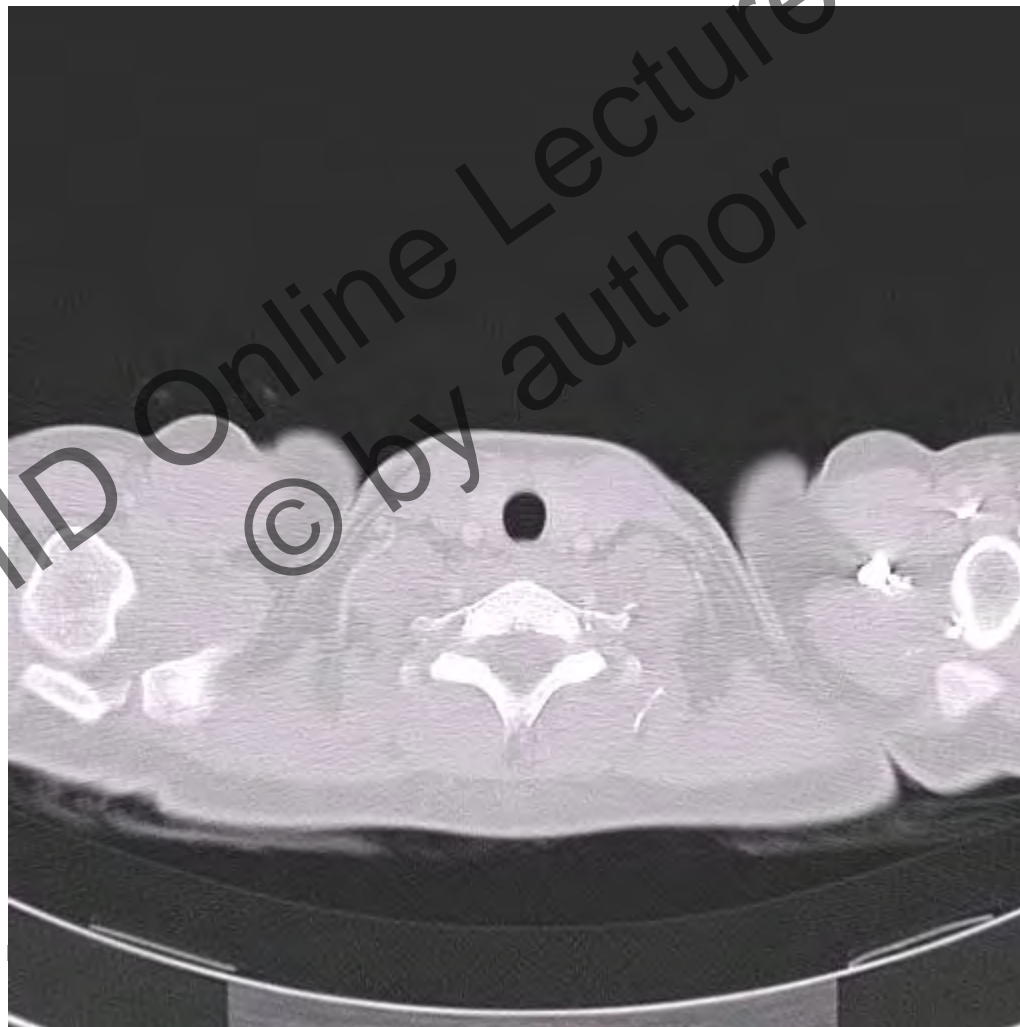
- 2007: diagnosed MDR-TB
- 2007-2011: intermittent insufficient treatment
- 2011: sputum smear +
- MDR → XDR



Own past medical history:

- 2007 Tuberculin skin test positive, x-ray: NAD
- 2007 - 2009: x2 6 months preventive treatment with two drugs, x-rays: NAD

CT scan on admission



Diagnostic results I

- Sputum smear: negative
- Sputum PCR: negative
- Sputum culture: negative
- Blood IGRA: **positive**

Bronchoscopy:

- Bronchial aspirate: smear, culture and PCR: negative
- BAL: smear, culture and PCR: negative
- BAL IGRA: **positive**
- Biopsy: smear, culture and PCR: negative

What next?

- TB-Treatment ? How ? → no proof yet, other diagnosis not yet excluded
- Wait and see ? → more convincing signs of activity and clear diagnosis
- Surgery of right upper lobe ? → Pat. panicking
- repeat bronchoscopy ? → ok!

Diagnostic results II

- sputum: smear, culture, PCR negative
- Blood IGRA / BAL IGRA: positive / **positive**
- Bronchial aspirate: smear, culture, PCR negative
- BAL I: smear, culture, PCR negative
- TBB I: smear, culture, PCR negative

Bronchoscopy No. II:

- BAL II: smear and culture negative
TB-PCR **positive** (GeneXpert: **resistant to Rifampicin**)
- Biopsy II: smear, culture, PCR negative
- Histology of biopsy II: no granulomas, no other inflammation

Treatment ?

	Father
Rifampicin	resistant
Isoniazid	resistant
Ethambutol	resistant
Pyrazinamid	resistant
Streptomycin	resistant
Capreomycin	resistant
Amikacin	resistant
Ofloxacin	resistant
Levofloxacin	resistant
Moxifloxacin	resistant
Protionamid	resistant
Cycloserin/Terizidon	Susceptible
PAS	Susceptible
Linezolid	resistant
Rifabutin	resistant

- No positive culture
→ no drug susceptibility test available
- Transmission from parents very probable

	Mother
Rifampicin	resistant
Isoniazid	resistant
Ethambutol	resistant
Pyrazinamid	resistant
Streptomycin	resistant
Capreomycin	resistant
Amikacin	Susceptible
Kanamycin	Susceptible
Ofloxacin	resistant
Levofloxacin	resistant
Moxifloxacin	resistant
Protionamid	resistant
Cycloserin/Terizidon	Susceptible
PAS	Susceptible
Linezolid	resistant
Rifabutin	resistant

Treatment of drug resistant TB (WHO 2008/2011)

Antituberculous drugs

Group I:

1st line drugs

Group II: injectible drugs

e.g. ampicillin, capreomycin

Group III: fluoroquinolones

e. g. levofloxacin

Group IV: oral 2nd line drugs

ethionamide, prothionamide,
cycloserine/terizidon, p-aminosalicylic acid

Group V: unclear efficacy

clofazimine, linezolid, amoxicillin/clavulanate,
thioacetone, clarithromycin, imipenem

Recommendations (MDR-TB)

- Use an injectible and a quinolone
- Combine at least 4 drugs
- Treatment with Group 5 drugs is recommended only if additional drugs are needed to sum to four
- Consider adding more drugs in extensive disease or uncertain effectiveness

Treatment

According to parents' drug susceptibility tests:

- Terizidone 750 mg o.d.
- p-aminosalicylic acid 13,5 g o.d. i.v.

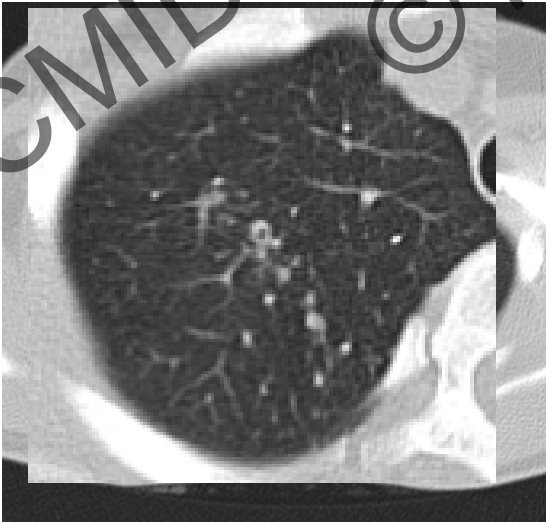
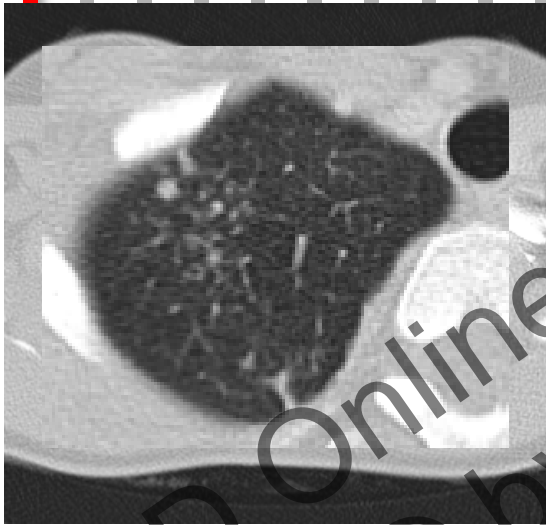
WHO Group 5:

- Meronpeneme 1g + Sulbactam 0,5 g t.d. i.v.
- Clofazimine 100 mg o.d.
- Pyrazinamide 2 g o.d.

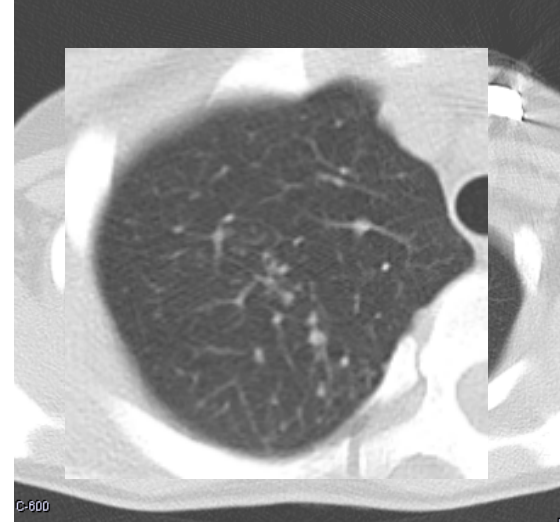
Clinical course



before
treatment:



after 2
months:



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Summary

- Admit patient to a specialized hospital
- Force repetitive diagnostics, if necessary
- Consider family history
- ... still, sometimes there is only high probability, no proof...

Thank you !

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the parents' drug susceptibility tests

	Father		Mother	
	02.01.2007	19.08.2011	05.05.2008	03.08.2011
Rifampicin	resistant	resistant	resistant	resistant
Isoniazid	resistant		resistant	
Ethambutol	resistant		resistant	
Pyrazinamid	resistant		resistant	
Streptomycin	resistant		resistant	
Capreomycin	Susceptible	resistant	Susceptible	resistant
Amikacin	Susceptible	resistant	Susceptible	susceptible
Kanamycin				Susceptible
Ofloxacin	Susceptible	resistant	Susceptible	resistant
Levofloxacin	Susceptible	resistant		resistant
Moxifloxacin		resistant		resistant
Protionamid	Susceptible		resistant	
Cycloserin/Terizidon	Susceptible	Susceptible	Susceptible	Susceptible
PAS	Susceptible	Susceptible	Susceptible	Susceptible
Linezolid	Susceptible		susceptible	resistant
Rifabutin	resistant		resistant	

