A YOUNG PATIENT WITH ACUTE LIVER FAILURE

Sara Tedeschi MD
Infectious Disease Unit – Policlinico S. Orsola-Malpighi, Bologna – Italy

CASE PRESENTATION

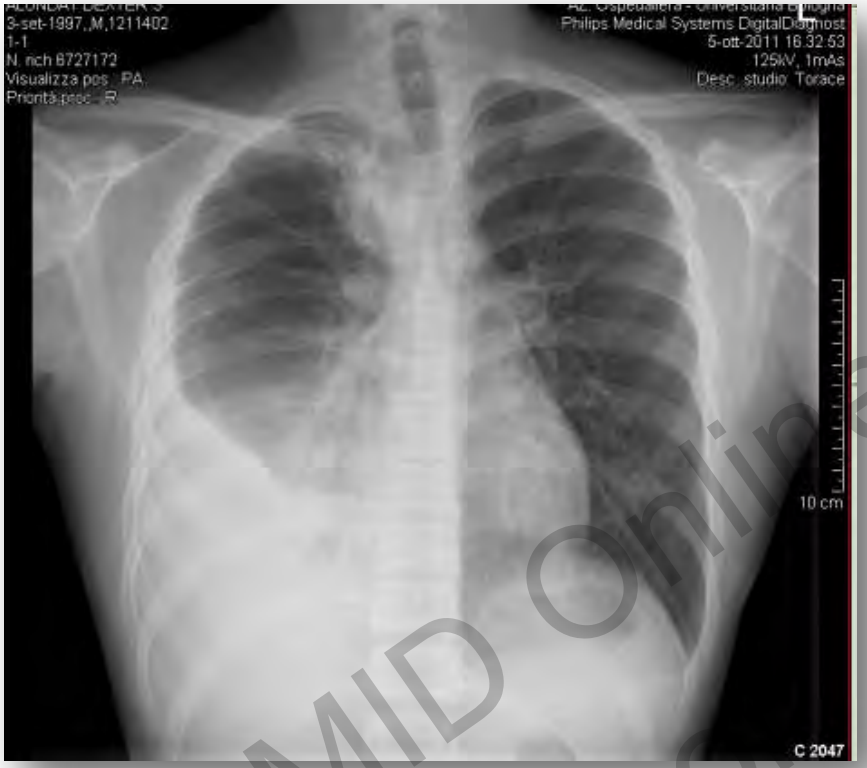
- 14-years-old boy of Philippine origin, living in Italy since 2003
- Body weight 62 Kg

- Past medical history: unremarkable

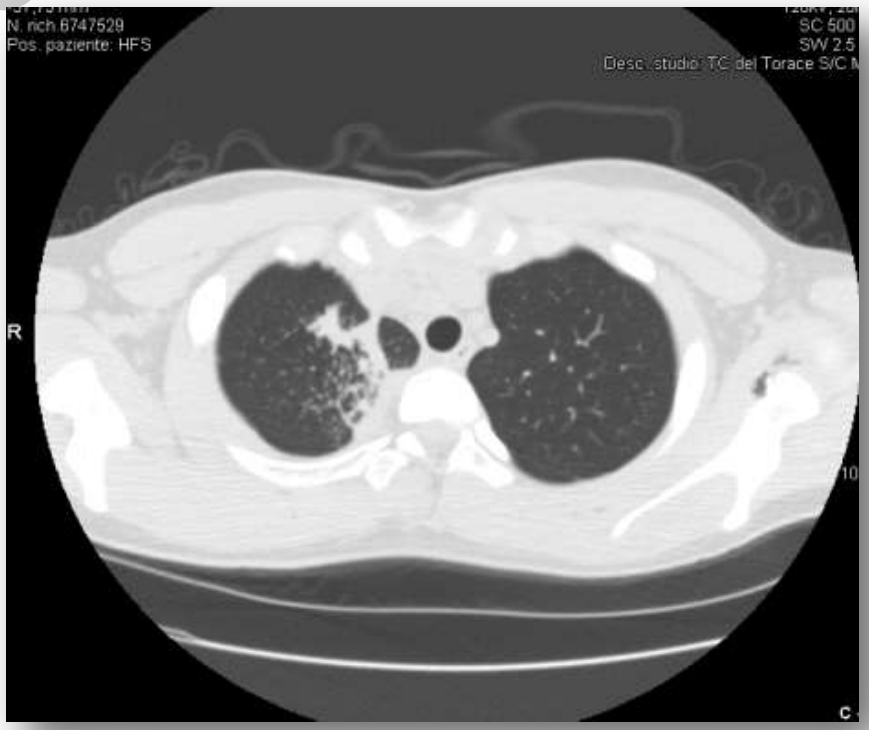
- Current symptoms: three months history of mild fever, weight loss and night sweats.

Radiology:

Chest X-Ray



Lung CT-Scan



Blood cell count and biochemistry:

	value	reference range
Leukocytes (n/mm^3)	9.100	4.200 - 9.000
Haemoglobin (g/dL)	13,4	13 - 16,5
Platelets (n/mm^3)	213.000	150.000 - 380.000
C reactive protein (mg/dL)	1,24	< 0,80
Creatinine (mg/dL)	0,63	0,50 - 1,20
AST (U/L)	12	< 38
ALT (U/L)	9	< 41

WHAT IS THE DIFFERENTIAL DIAGNOSIS?

Microbiology :

- *L. pneumophila* and *S. pneumoniae* urinary antigens: negative

- Tuberculin skin test: positive (induration Ø 20 mm)
- Quantiferon TB-Gold: positive (0.9 UI/mL)

- Sputum smear microscopy: negative
- Bronchoalveolar lavage:
    - microscopy : acid fast bacilli
    - GeneXpert: *Mycobacterium tuberculosis* complex, RIF susceptible

WHAT WOULD YOU DO NEXT?

DIAGNOSIS: PULMONARY TUBERCULOSIS

TREATMENT: STANDARD ANTI-TUBERCULAR REGIMEN

RIF 600 mg/day

INH 300 mg/day

ETB 1200 mg/day

PZH 1500 mg/day

Treatment of tuberculosis: guidelines – 4th ed. WHO/HTM/TB/2009.420

CLINICAL COURSE: + 2 WEEKS

Anti-tubercular treatment well tolerated

Normal laboratory findings

BAL culture: *M. tuberculosis* susceptible to all first-line antitubercular drugs

⇩

DISCHARGED FROM THE HOSPITAL

CLINICAL COURSE: + 3 WEEKS

Fever, **vomiting**, **diarrhoea** and folliculitic skin rash

Patient complied with medications, using paracetamol as anti-pyretic

RE- ADMISSION TO THE HOSPITAL

Laboratory findings:

	value	reference range
Leukocytes (n/mm^3)	20.960*	4.200 - 9.000
Haemoglobin (g/dL)	12,9	13 - 16,5
Platelets (n/mm^3)	135.000	150.000 - 380.000
C reactive protein (mg/dL)	3,4*	< 0,80
Creatinine (mg/dL)	0,77	0,50 - 1,20
AST (U/L)	585*	< 38
ALT (U/L)	558*	< 41
INR	2,64*	< 1,25
Total bilirubin (mg/dL)	3,26*	0,20 - 1,10
Albumin (g/dL)	2,9*	3,5 - 5,3

WHAT WOULD YOU DO NEXT ?

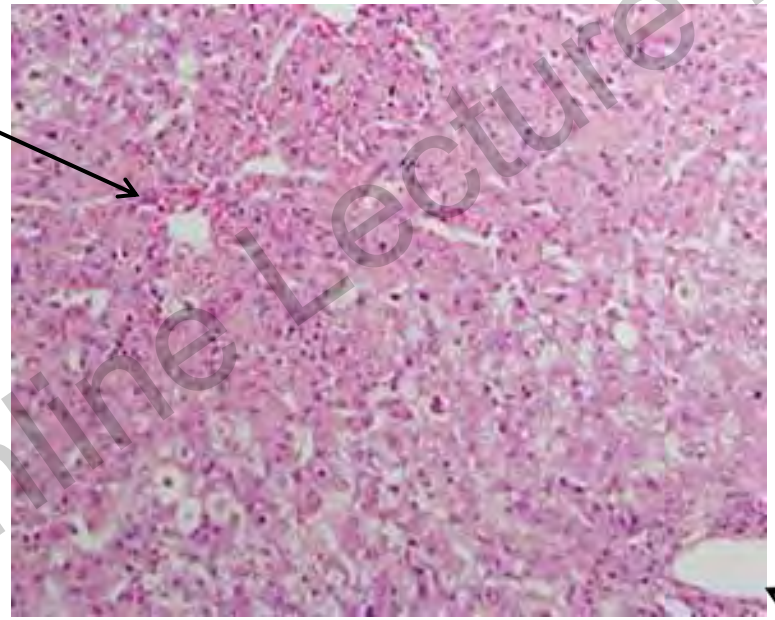
CLINICAL COURSE + 3 WEEKS: ACUTE LIVER FAILURE

1. STOP ANTI-TUBERCULAR TREATMENT

2. DIFFERENTIAL DIAGNOSIS
    - Viral hepatitis
    - Autoimmune hepatitis
    - Toxic hepatitis caused by paracetamol

CLINICAL COURSE + 3 WEEKS: ACUTE LIVER FAILURE

3. LIVER BIOPSY:

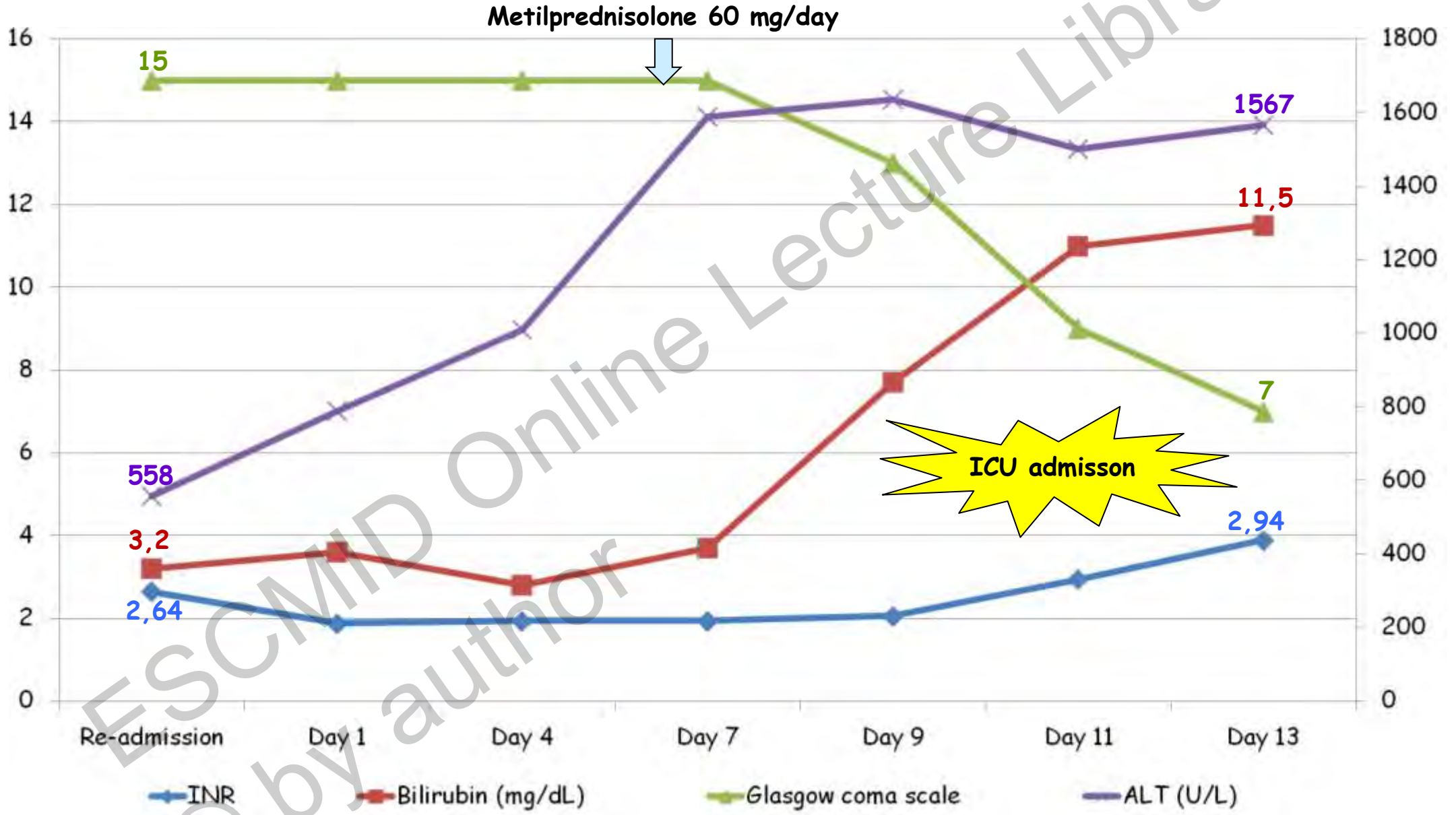


"extensive hepatocellular necrosis in zone 3 with ductular regeneration"

PRESUMPTIVE DIAGNOSIS OF DRUG INDUCED ACUTE LIVER FAILURE

TREATMENT: HIGH DOSE CORTICOSTEROIDS

CLINICAL COURSE: + 4 WEEKS



WHAT WOULD YOU DO NEXT ?

LIVER TRANSPLANTATION

Immunosuppressive regimen:

tacrolimus + micofenolate mofetil + prednisolone

WHAT ABOUT ANTITUBERCULAR TREATMENT ?

Immediate or delayed initiation ?

Standard or alternative regimen ?

CLINICAL COURSE: DAY + 1 FROM LIVER TRANSPLANT

ALTERNATIVE ANTITUBERCULAR REGIMEN:

ethambutol + moxifloxacin + linezolid

para-amino salicylate (PAS) added one month later

CLINICAL COURSE: + 6 MONTHS FROM LIVER TRANSPLANT

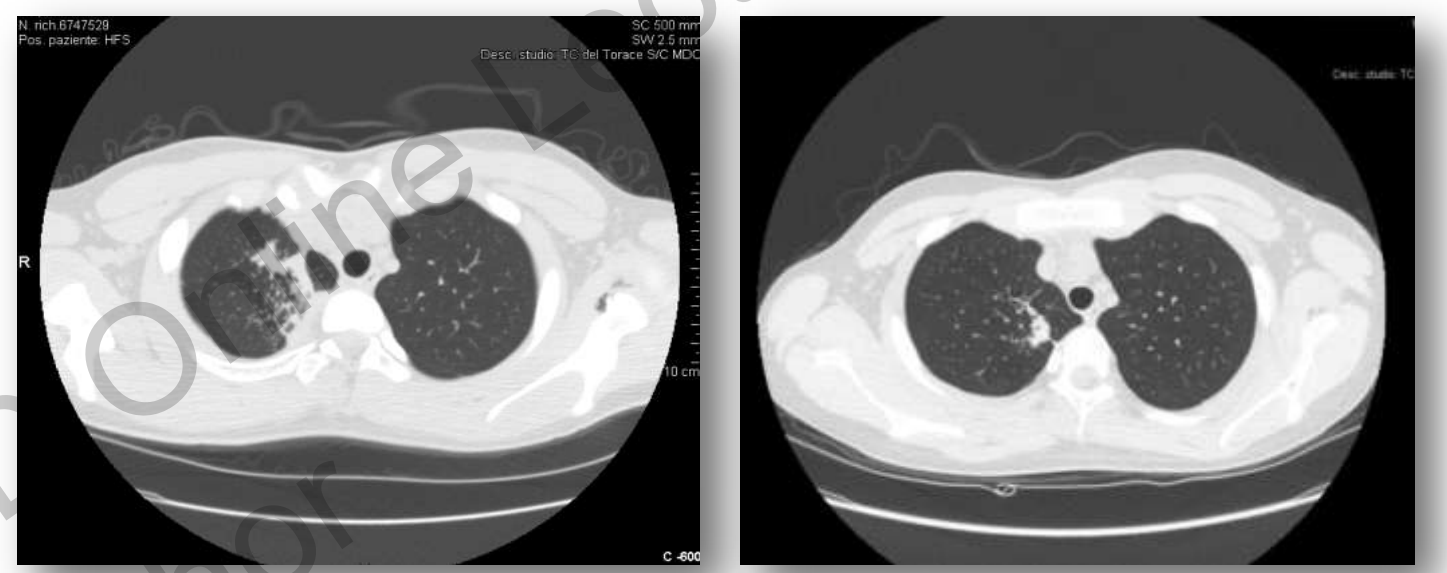
CURRENT TREATMENT:
ethambutol + moxifloxacin + linezolid + PAS
micofenolate mofetil + tacrolimus + prednisolone

- No rejection episodes or liver dysfunction

Baseline

Antitubercular treatment month 6

- Lung CT-scan



- Paresthesia

WHAT WOULD YOU DO NEXT ?

HOW LONG TO TREAT ?

CLINICAL COURSE: + 6 MONTHS FROM LIVER TRANSPLANT TO PRESENT

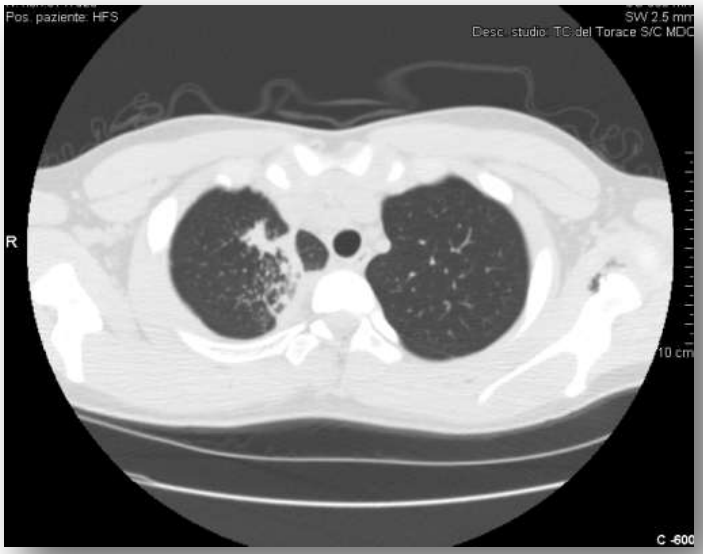
- Symptoms of peripheral neuropathy: switch from linezolid to terizidon (Isoxazole)

- Antitubercular treatment duration: 18 months (RIF-sparing regimen)

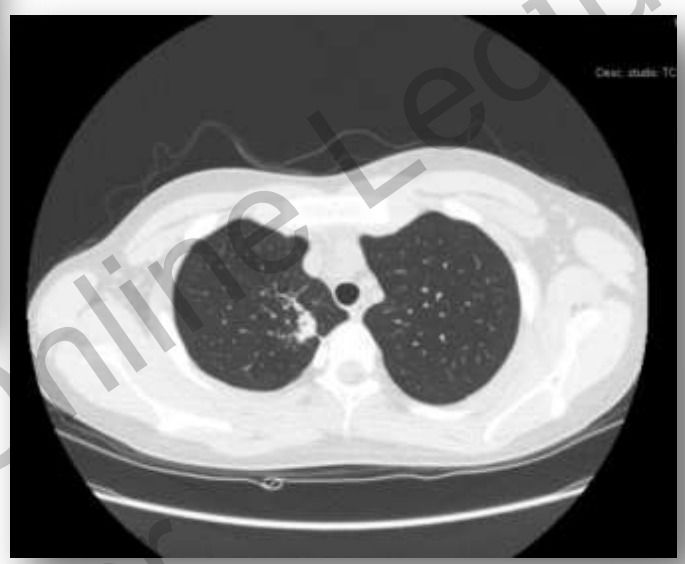
- No graft dysfunction or toxicity

CLINICAL COURSE: + 6 MONTHS FROM LIVER TRANSPLANT TO PRESENT

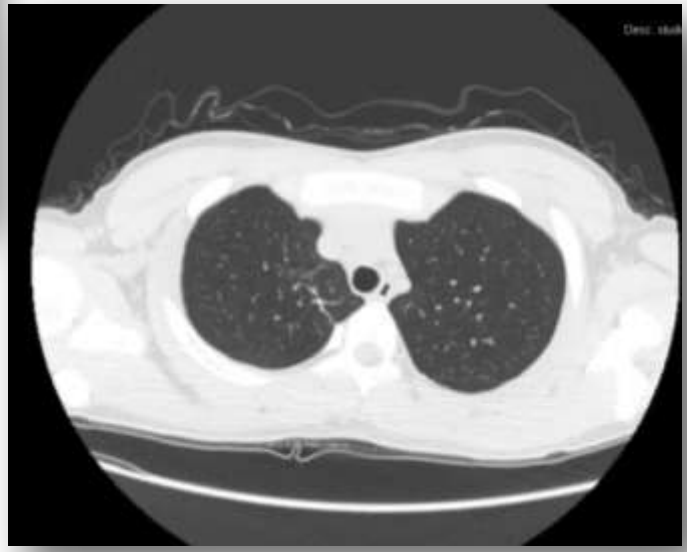
Baseline



Antitubercular tretament month 6



End of treatment



LIVER TRANSPLANTATION IN PATIENTS WITH PULMONARY TUBERCULOSIS: TAKE HOME MESSAGE

- Active tuberculosis is considered a contraindication for solid organ transplantation

BUT

- 6-month treatment may be too long for several patients on waiting list
- standard first-line antitubercular treatment is potentially hepatotoxic, not feasible in patients waiting for liver transplantation

- In specific life-threatening situations patients with active tuberculosis could undergo liver transplantation, using alternative antitubercular regimens.
- Recommended regimen after transplantation ?