

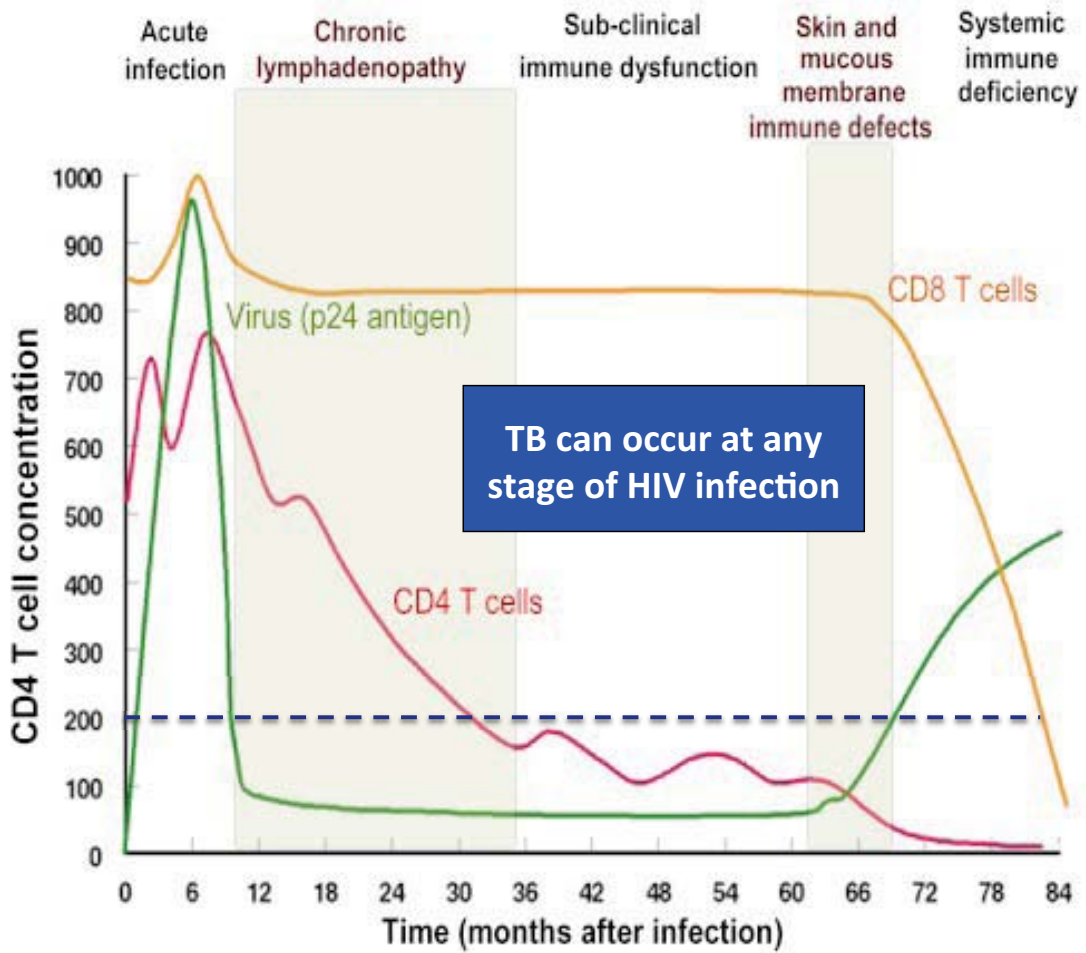
HIV-TB合併感染病人的抗結核藥物治療

洪健清

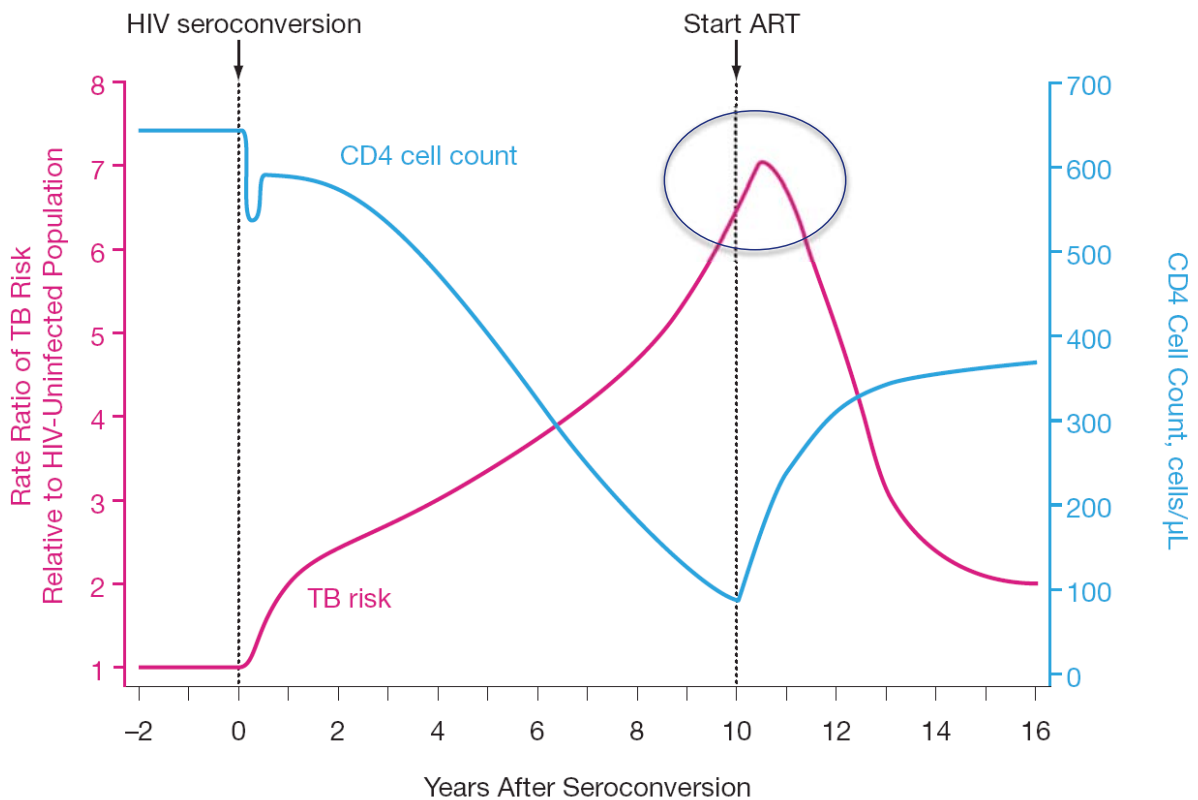
台大醫院 內科部 感染科

Disclosures

- I have received honoraria for speaking at educational events or consulting from:
 - AbbVie, Bristol-Myers Squibb, Gilead Sciences, Janssen, and ViiV
- I have received research funding from
 - Bristol-Myers Squibb, Gilead Sciences, Janssen, Merck, and ViiV



Impact of HIV on risk of TB



Single-tablet regimens for treatment of HIV infection

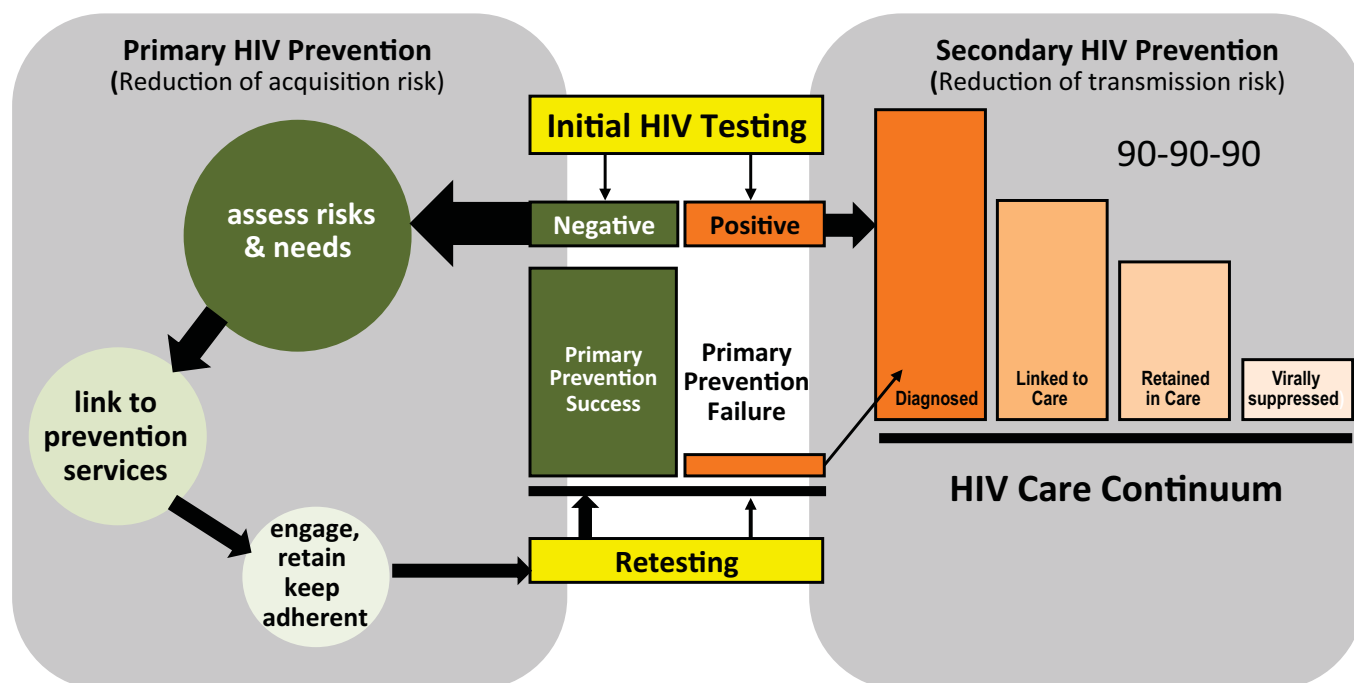


	Atripla (TDF/FTC/ EFV)	Complera (TDF/FTC/ RPV)	Triumeq (ABC/3TC/ DTG)	Genvoya (TAF/FTC/ Cobi/EVG)	Biktarvy (TAF/FTC/ BIC)	Symtuza (TAF/FTC/ Cobi/DRV)
D/C Rate	8-14%	2.4-4%	1.3-4%	0-1.3%	0-1.6%	1.9%
Caveats	Premorbid psychiatric	VL <100,000	HLA-B5701 Co-infection	Drug-Drug-interactions	Long-term data	Drug-drug interactions

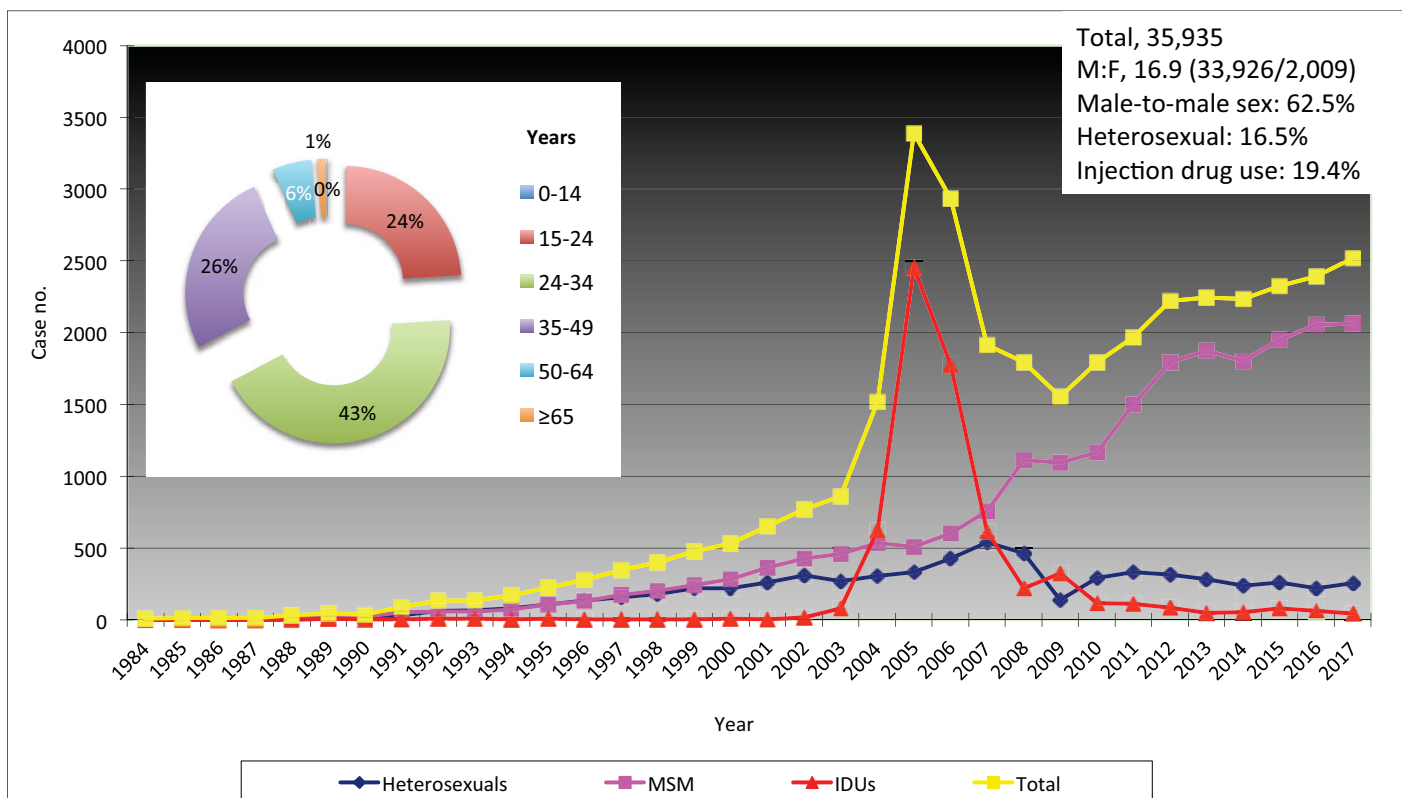
How to end HIV epidemic in fast track?

Pre-exposure prophylaxis (PrEP)

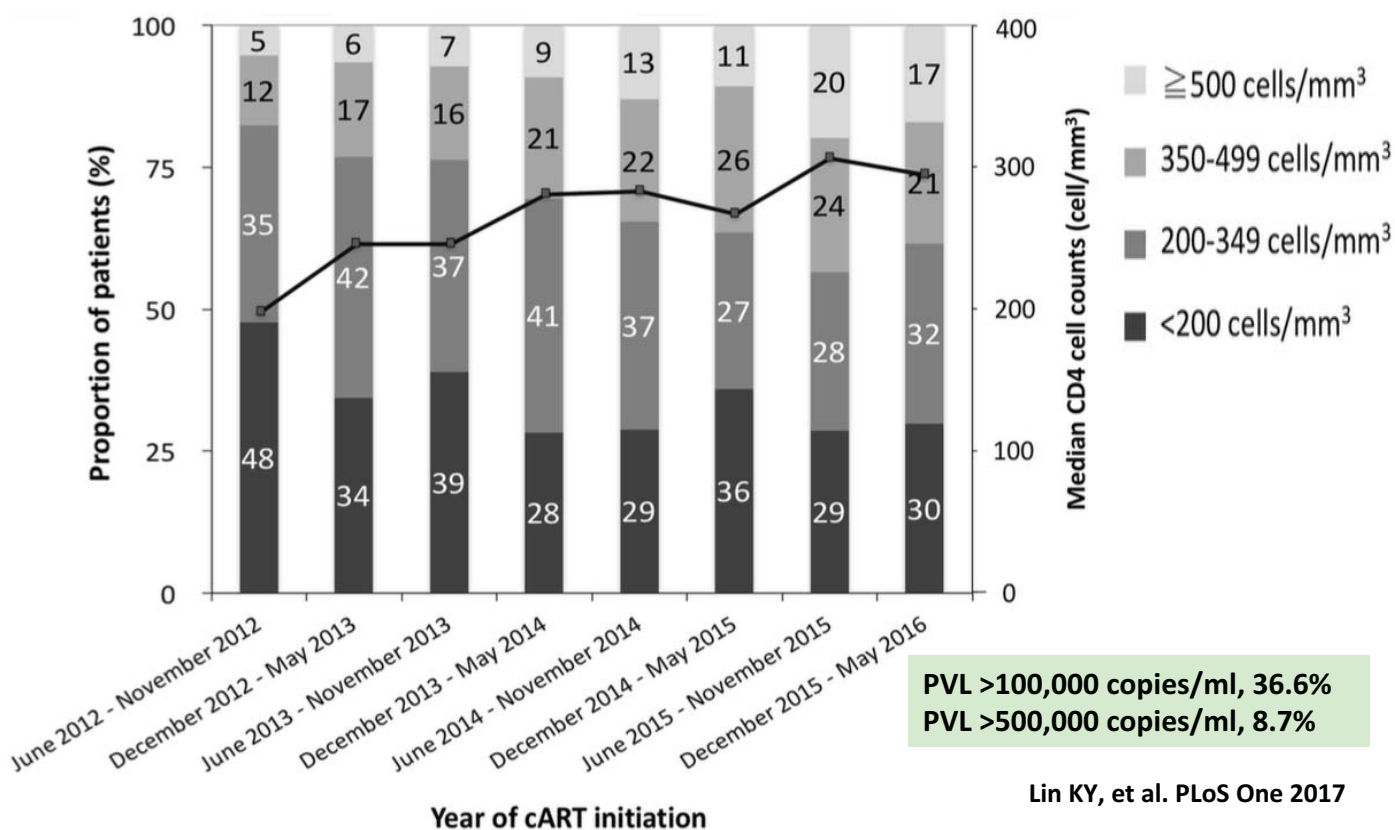
Treat-all: treatment as prevention



HIV epidemiology in Taiwan, 1984-2017



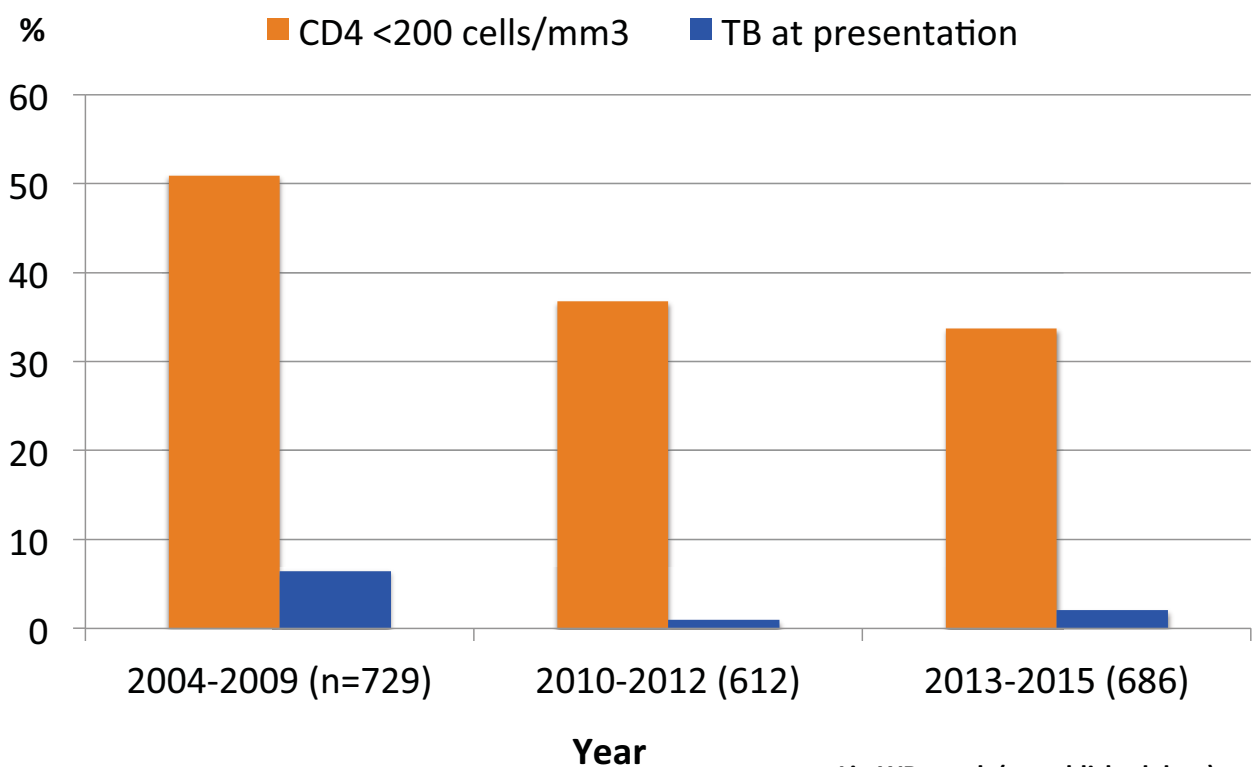
Trends of late presentation for HIV care in Taiwan



HIV infection vs TB

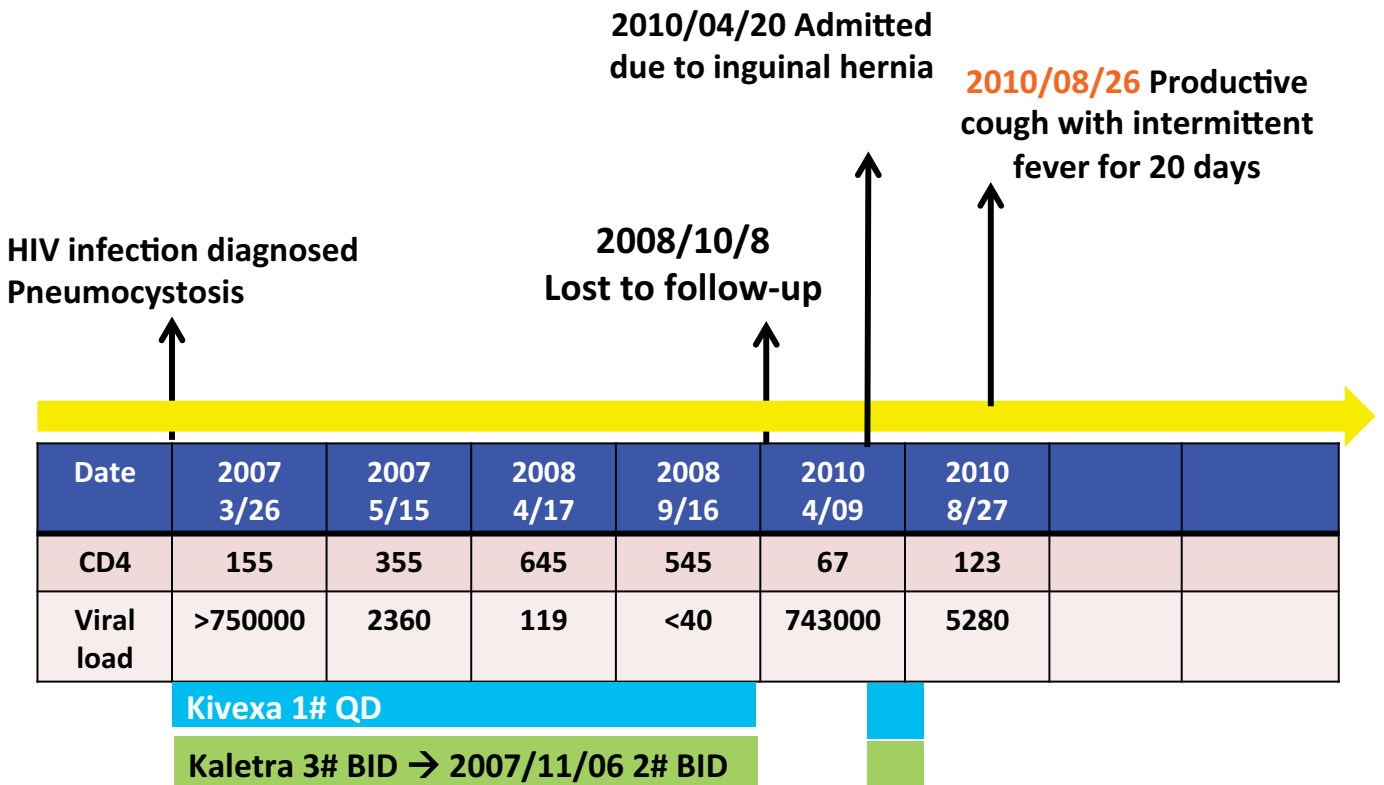
特徵	愛滋病毒感染	結核病
台灣每年新診斷數 (2016)	2,396 (10.2/100,000)	10,328 (43.9/100,00)
主要傳染途徑	性行為、共用針器	呼吸道飛沫
感染發病者組成	年輕男性，尤其低CD4	年長、免疫系統缺損
社會和醫療環境的汙名與歧視	很高	高
懷疑引發檢測的閾值	高	低
篩檢工具的敏感度特異性	非常高 (Combo)	不高 (TST, IGRA)
確認診斷工具的敏感度	非常高 (viral load)	高?
藥物治療原則	三合一	四合一後二合一
可以合併的治療藥物種類	多種	有限
台灣現有每日單顆藥物	四種可以選擇	?
督治或都治計畫	無	有
治療時間	終身	六到十二個月
治癒率	0%	很高
影響平均存活餘命	延遲診斷影響存活	延遲診斷影響存活
藥物預防	預防感染 (PrEP, PEP)	預防發病(IPT)

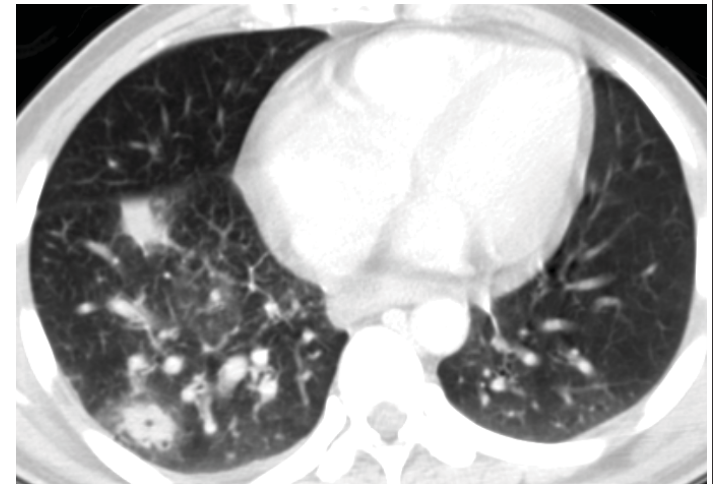
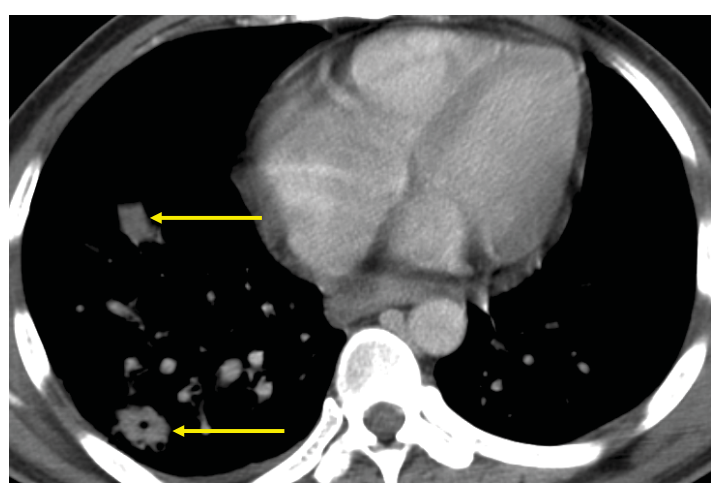
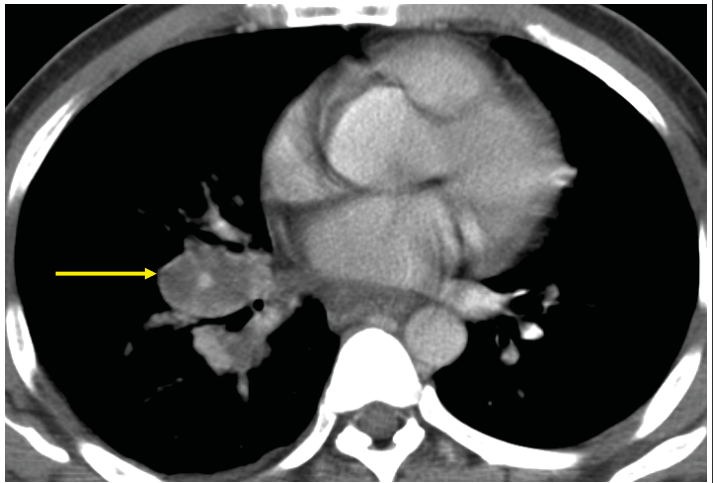
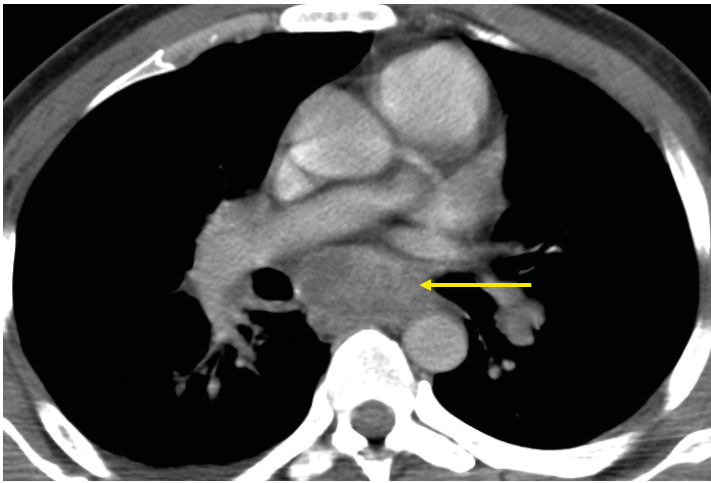
Rate of TB at HIV diagnosis at NTUH, 2004-2015



愛滋病患的結核病治療

	建議	說明
結核治療藥物種類	HERZ	*和非愛滋病毒感染者一樣，種類和劑量無異; 如果有抗藥結核，處置亦然 **需要考慮愛滋病毒藥物治療種類，留心藥物交互作用; 基本上先以完治結核病為優先考量 ***轉介處理愛滋病毒治療有經驗的醫院和醫師
結核病治療時間	至少六個月	*和非愛滋病毒感染者一樣，中樞神經等結核需要時間必須延長 **為降低復發風險，務必要儘早提供有效的抗愛滋病毒藥物治療 ***有限的文獻顯示，較長的治療時間(九個月)，可能可以降低復發風險
治療藥物副作用	可能增加	*抗愛滋病毒藥物可能有重疊的副作用(過敏、發燒、皮疹、肝功能異常)





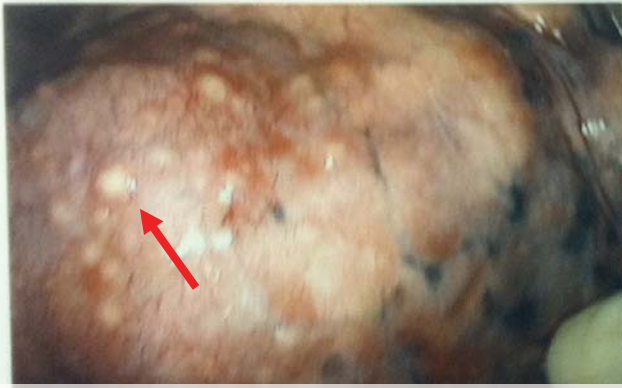
Laboratory investigations

Bacterial	Fungal	Mycobacterial	Others
<ul style="list-style-type: none">• S/C: <i>K. pneumoniae</i> 1+• B/C (-) (II/II)• U/C (-)	<ul style="list-style-type: none">• Aspergillus antigen (-)• Cryptococcal antigen (-)	<ul style="list-style-type: none">• Sputum AFS (-) (III/III)• Blood AFS (-)	<ul style="list-style-type: none">• Chlamydia antigen (-)• <i>Mycoplasma pneumoniae</i> IgM (-)• Legionella urinary antigen (-)• Influenza A+B rapid test (-)

S/C: sputum culture; B/C: blood culture; U/C: urine culture
AFS: acid-fast stain

No response to antibiotics...

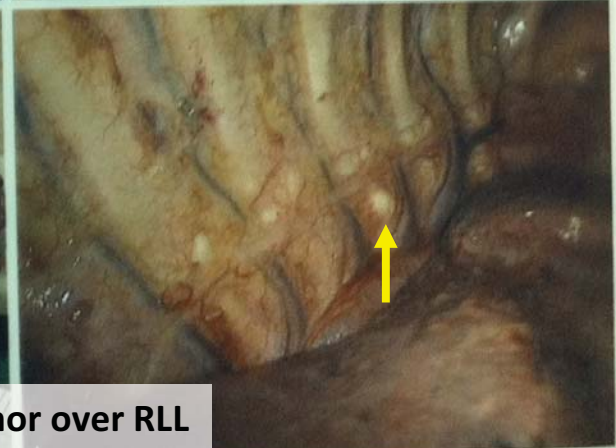
- On 2010/09/08, he underwent video-assisted thoracoscopic surgery (VATS) of the nodules at the right lower lobe nodules and lymphadenopathies.



Some papule-like lesions over lung surface



One 2.5*2.5 cm, yellowish, necrotic tumor over RLL



Some whitish nodules over pleura

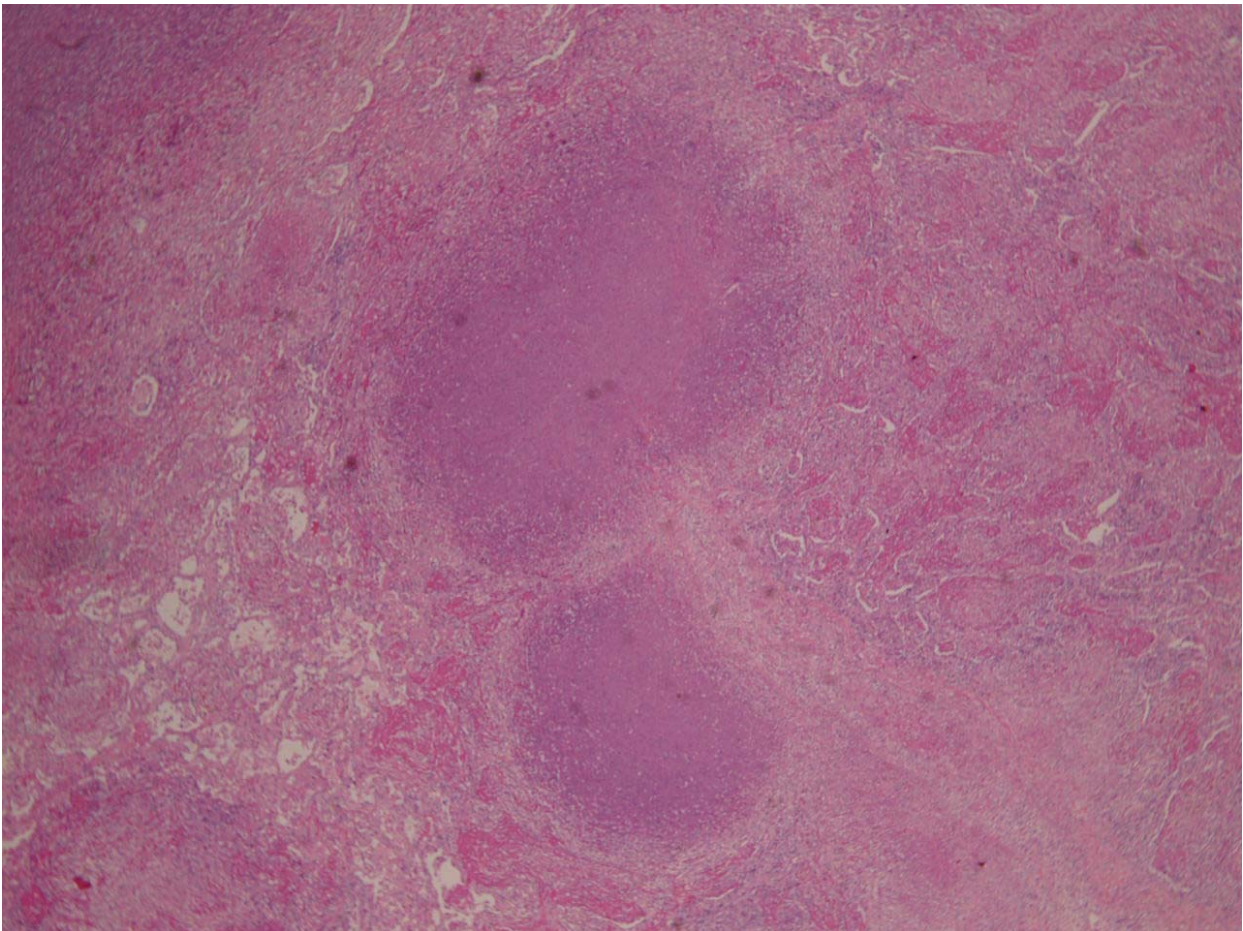


1966/02/15
05E3-08-01

Massive whitish pus from subcarinal lymph nodes

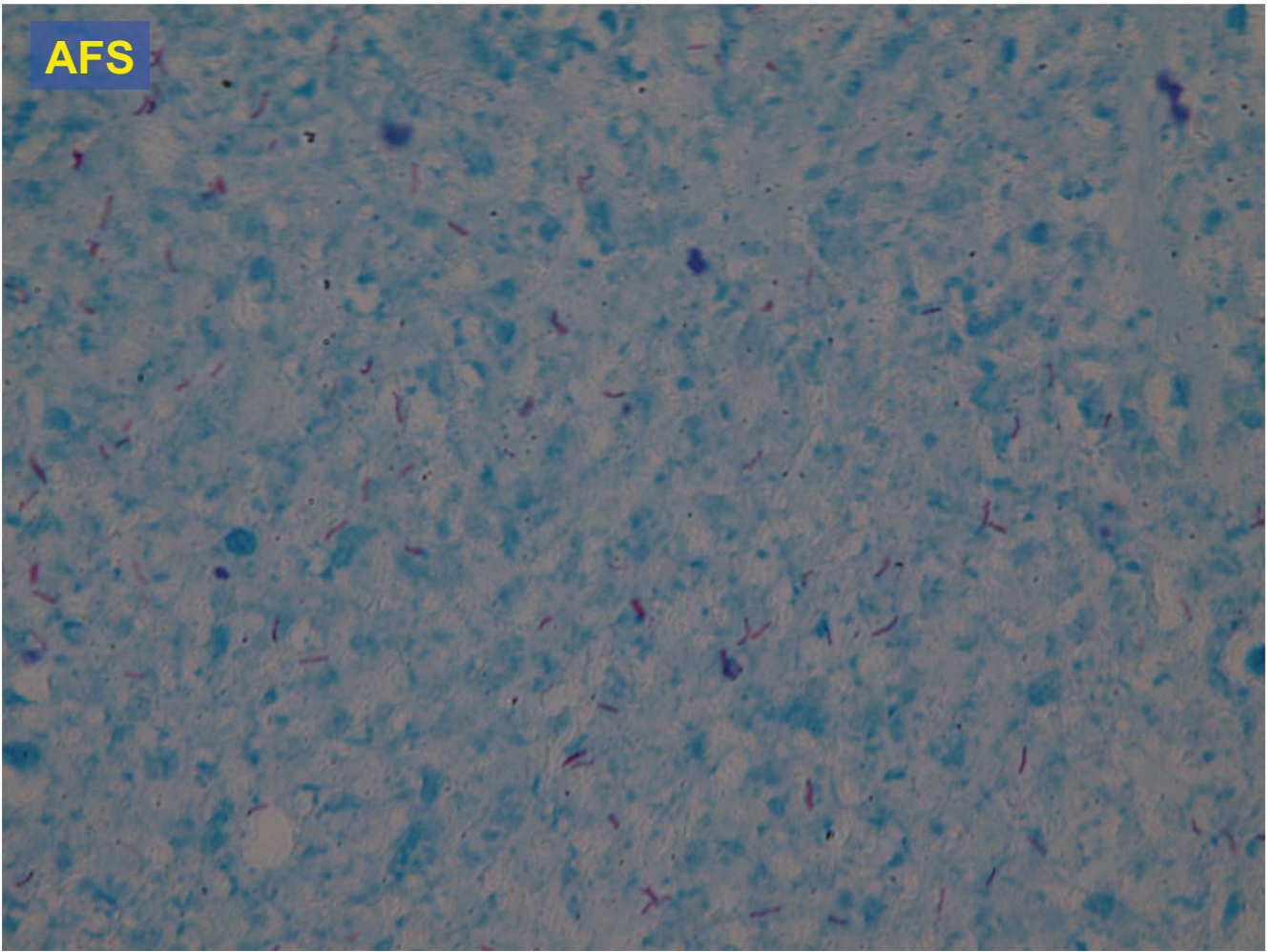
Examinations of surgical specimens

- Pathology of the biopsy: mycobacterial infection
 - Extensive caseating necrotizing granulomatous inflammation
 - Acid-fast smear(AFS) of the sub-carinal lymph nodes: 3+
 - AFS of the right lower lung (RLL) lesion: 3+



Caseating necrotizing granulomatous inflammation

AFS



Results of mycobacterial cultures

Sputum	Blood	Lung mass	Sub-carinal lymph nodes
(2010/08/26, 2010/08/30, 2010/09/09)	(2010/08/30)	(2010/09/09)	(2010/09/09)
<ul style="list-style-type: none">• AFS (-) (IV/IV)• M/C: <i>Mycobacterium tuberculosis</i> (IV/IV) (2010/10/01)	<ul style="list-style-type: none">• AFS (-)• M/C: <i>M. tuberculosis</i> (2010/10/06)	<ul style="list-style-type: none">• AFS (3+) (2010/09/10)• M/C: <i>M. tuberculosis</i> (2010/10/01)	<ul style="list-style-type: none">• AFS (3+) (2010/09/10)• M/C: <i>M. tuberculosis</i> (2010/10/01)

M/C: mycobacterial culture

Susceptibility of the *M. tuberculosis* isolate

Antibiotics tested

INH1: INH 0.2	S
INH2: INH 1.0	S
RIF: RIF 1.0	S
EMB1: EMB 5.0	S
EMB2: EMB 10.0	S
SM1: SM 2.0	S
SM2: SM 10.0	S
EA: Ethionamide	S
PAS:	S
p-Aminosalicylic	S
OFX: Ofloxacin	S
Ri: Rifabutin	S

INH: isoniazid; RIF: rifampin; EMB: ethambutol; SM: streptomycin

Discharged and transferred to 虎尾分院

DOTS

	9/9	9/16	9/29	10/15	10/26	11/2	11/16	12/14	12/28	1/11	2/10	3/10	3/24
藥物 天數	NA	NA	NA	NA	10	14	28	14	14	30	28	14	28
INH	3	3	3	3	3	3	3	3					
RIF	4	4	4	4	4	4	4	4	4	4	4	4	4
EMB	2.5	2.5	2.5	2.5	2.5	2	2	2	2	2	2	2	2
PZA	3	3	3	3	3	3			3	3	3	3	3
	8/26	8/30	9/9			11/14	11/15	11/16	12/30	1/23	1/24	2/10	
S/C	-/TB*2	-/TB	-/TB			-/	+/-	-/	+/-	-/	-/	-/	-/

Ascending numbness of bilateral feet after taking anti-TB drugs

NCV : compatible with motor and sensory polyneuropathy

→DC isoniazid

2011/4/21 lost to follow-up

公衛護士表示：個案有全程 on DOTs，2011/4/21後即北上，找不到人了
2011/4/21，CDC病審完治。全部服藥七個月又12天

A new episode of fever....

-
- 2011/08 Right inguinal redness, swelling, local heat and pain
 - Accompanied by fever and chills
 - Mild productive cough with whitish sputum
 - No diarrhea, no abdominal pain , no dysuria
 - 2011/08/23 OPD of surgery
 - Cephalexin for cellulitis
 - Progression with pus formation
 - 2011/09/05 Emergency Department of NTUH

HIV Summary

- HIV risk group, bisexual (+)
- Co-infections, HBV(-); HCV(-), Syphilis(+)
- Last available HIV status, plasma HIV RNA load (PVL): <40 copies/ml; CD4, 344 (2011/3/10)
- Antiretroviral therapy, interrupted thereafter

Physical examination

- BH, 162 cm, BW, 55 kg
- Temp, 39°C ; pulse rate, 119 beats/min; respiration rate, 20 breaths/min
BP, 94/67 mmHg
- Pain score, 2/10
- General appearance, not ill-looking
- Consciousness, clear and oriented

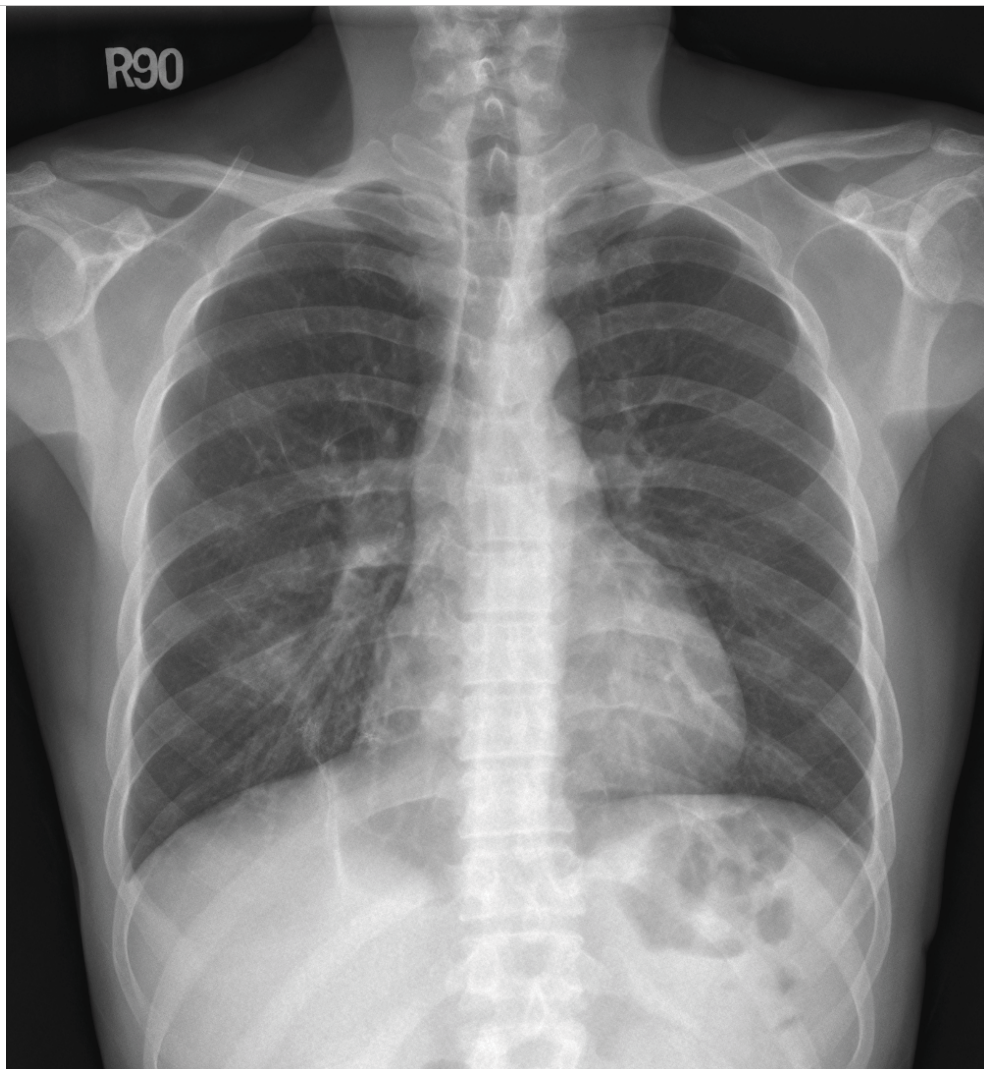
Physical examination

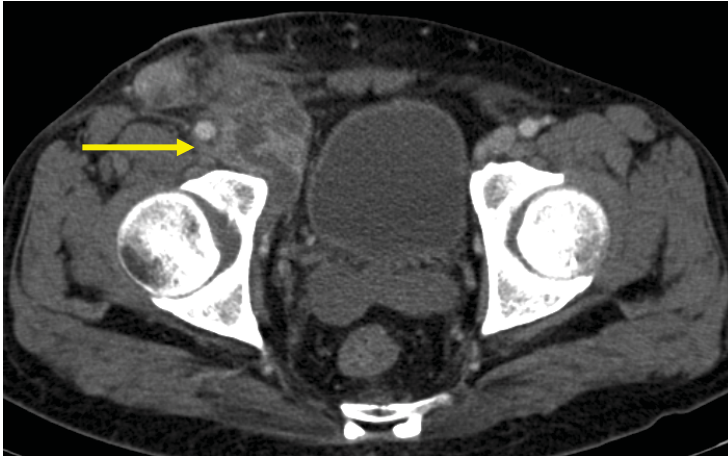
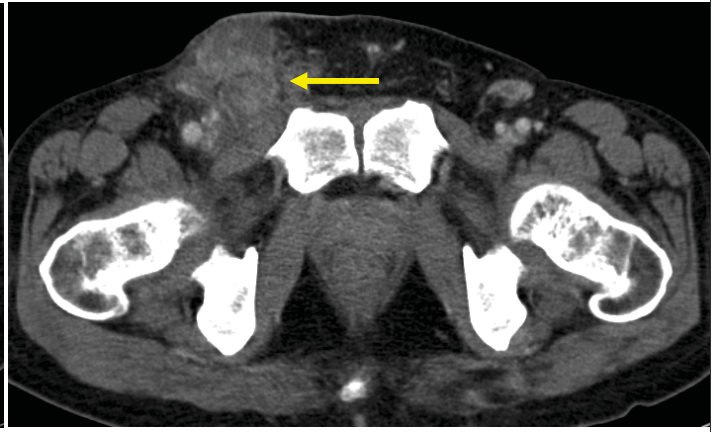
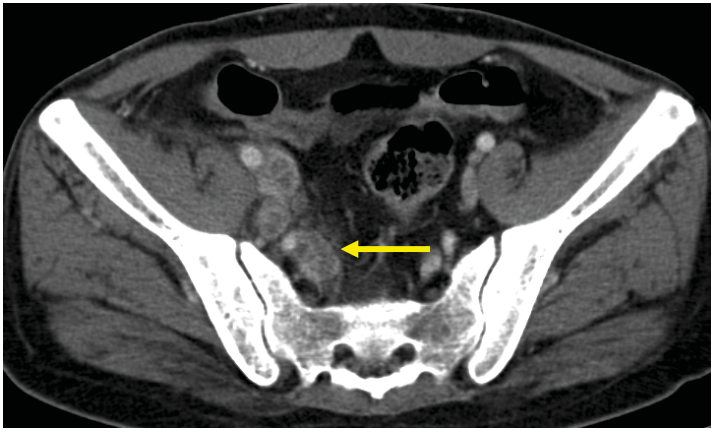
- Extremities, freely movable; no pitting edema
- Right inguinal erythematous swelling with central ulceration and pus discharge, which was warm, soft and tender

WBC (K/ μL)	RBC (M/ μL)	HB (g/dL)	HCT (%)	MCV (fL)	MCHC (g/ dL)	PLT (K/μL)
9.68	3.44	9.9	29.7	86.3	33.3	117.0
Band (%)	Seg (%)	Eos. (%)	Baso. (%)	Mono. (%)	Lym. (%)	Aty.Lym. (%)
15	75	0	0	6	4	0

UN (mg/ dL)	CRE (mg/ dL)	Na (mmole/L)	K (mmole/ L)	T-BIL (mg/ dL)	AST (U/L)	CRP (mg/ dL)
12	0.79	135	4.1	0.97	38	19.8

HIV viral load (copies/mL)	CD4 count (/μL)	Ferritin (ng/mL)	Iron (μg/dL)	TIBC (μg/dL)	Fe/TIBC (%)
1,530,000	39	336	42	279	15%



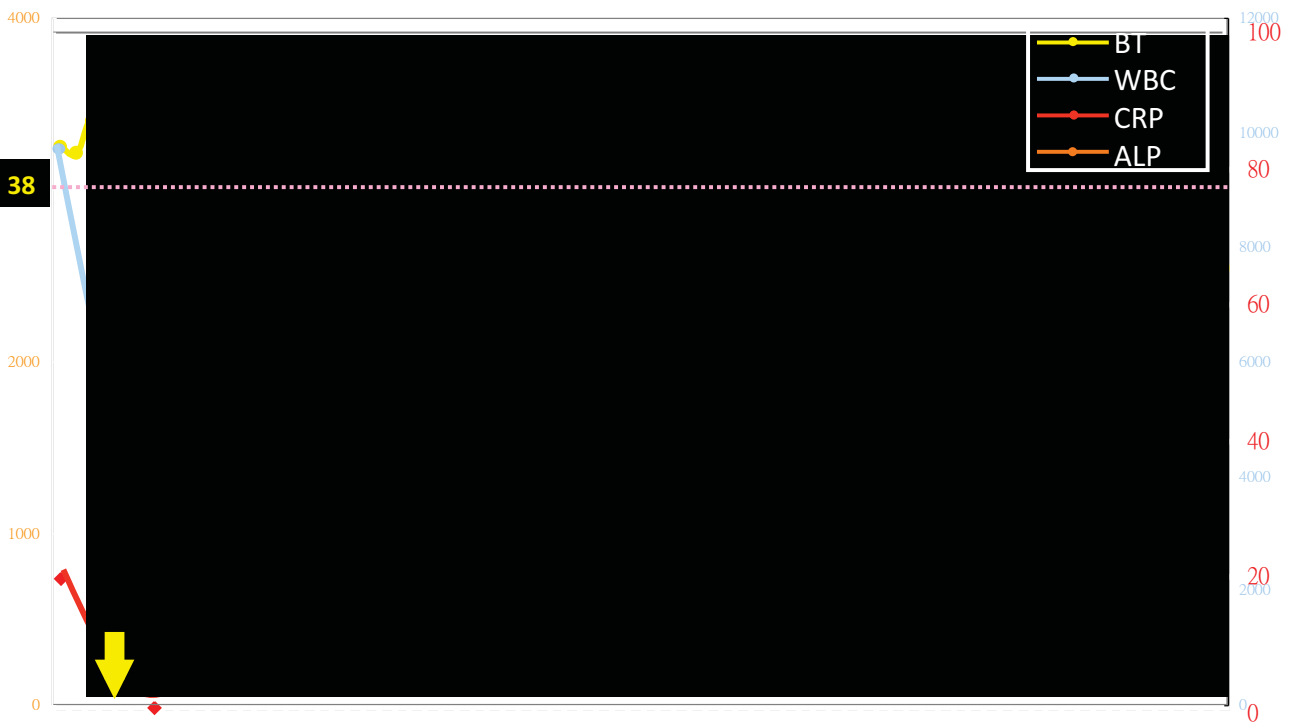


- Multiple nodular lesions with central low density
- Right common iliac region → right pelvic sidewall → right inguinal region
- Suspected necrotic lymphadenopathy or abscess

Results of laboratory investigations

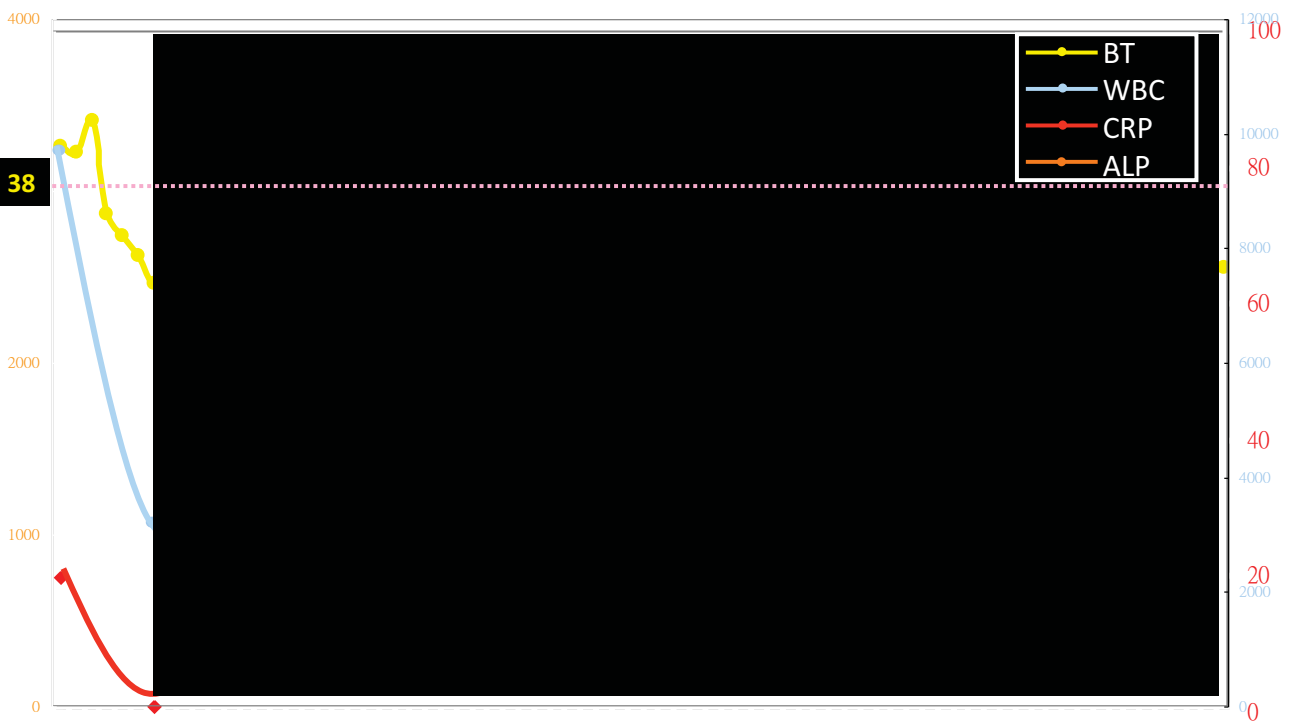
	9/5	9/6	9/9
Sputum	• AFS (-)		
Blood	• B/C (-) (II/II)		
Others	• U/A: no pyuria	• Right inguinal pus: AFS (2+)	• Lymph node aspiration: AFS (-); TB PCR (+)

B/C: bacterial culture; U/A: urine analysis; PCR: polymerase chain reaction



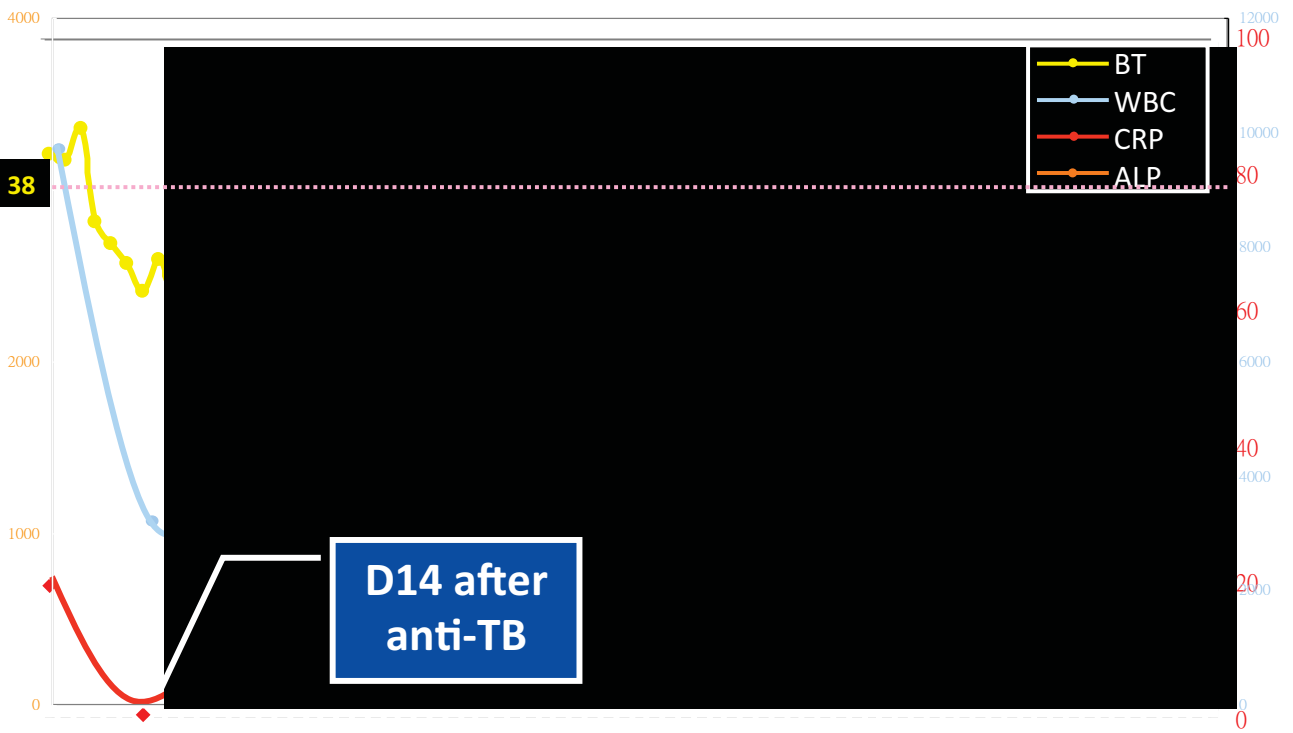
ERZ+S+Mox

E: ethambutol; R: rifampin; Z: pyrazinamide; S: streptomycin; Mox: moxifloxacin



Unasyn

ERZ+S+Mox

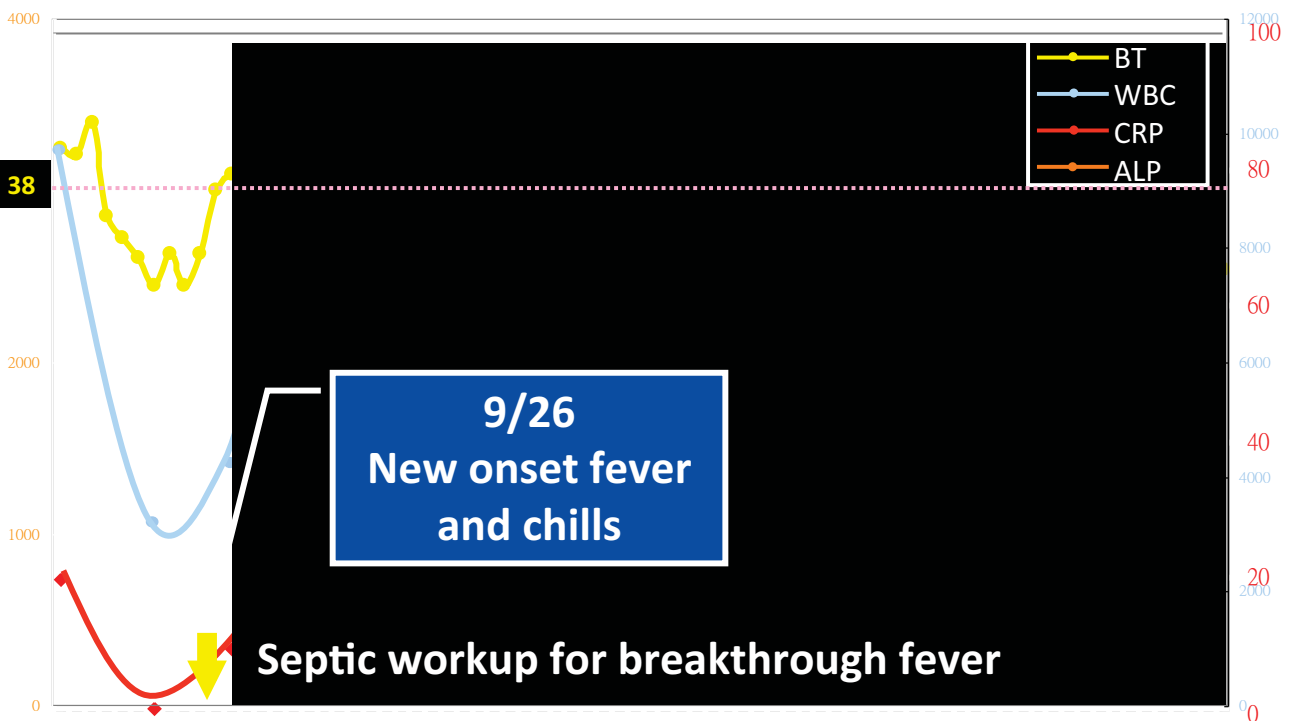


Unasyn

ERZ+S+Mox

EFV + (ABC/3TC)

EFV, efavirenz; ABC, abacavir; 3TC, lamivudine



Unasyn

ERZ+S+Mox

EFV+ (ABC/3TC)

Symptoms

- Spiking fever with chills
 - Mild exertional dyspnea during fever
- General weakness and malaise
- Poor appetite
- No upper airway symptoms
- No cough
- No dysuria, urinary frequency, urinary urgency
- No abdominal pain, diarrhea

Physical examination

- No oral ulcer, oral thrush
- Bilateral clear breath sound
- Tachycardia during fever; no murmur
- No abdominal tenderness; impalpable liver and spleen
- No skin rash
- Right inguinal wound, no pus discharge, but still erythematous
 - Local tenderness (+)

Differential diagnosis

- Progression of tuberculosis
 - Antimicrobial resistance
 - Non-adherence
 - Drug interaction
 - Drug malabsorption
 - Chronic diarrhea
 - Wasting syndrome
- Drug hypersensitivity
- Development of a new opportunistic infection
- Immune reconstitution inflammatory syndrome (IRIS)

Drug-drug interaction?

MICROMEDEX® 2.0 | 移動

我的訂閱 | MICROMEDEX 開道 | 登出 | 說明

工具: 藥物相互作用 | Trissel's™2 IV 相容性 | 藥物鑑定 | Tox 和藥物產品查找 | 藥物比較 | RED BOOK Online® | 計算器 | CareNotes® | NeoFax® / Pediatrics

輸入一个或多个搜索条件

SEARCH

範例搜尋

Drug Interaction Results



← 修改相互作用

列印

細化方式: 藥物: All 嚴重性: All 文件: All 類型: All

跳轉到: 藥物-藥物 (2) | 複方 (0) | 過敏症狀 (0) | 食物 (2) | 乙醇 (0) | 實驗室 (6) | 抽煙 (0) | 懷孕 (6) | 哺乳期 (6)

Drug-Drug 相互作用 (2)

藥物:	嚴重性:	文件:	綜述:
EFAVIRENZ [Systemic] – RIFAMPIN [Systemic]	 Major	Excellent	Concurrent use of EFAVIRENZ and RIFAMPIN may result in decreased serum efavirenz concentrations.
PYRAZINAMIDE [Systemic] – RIFAMPIN [Systemic]	 Major	Good	Concurrent use of PYRAZINAMIDE and RIFAMPIN may result in severe hepatic injury.

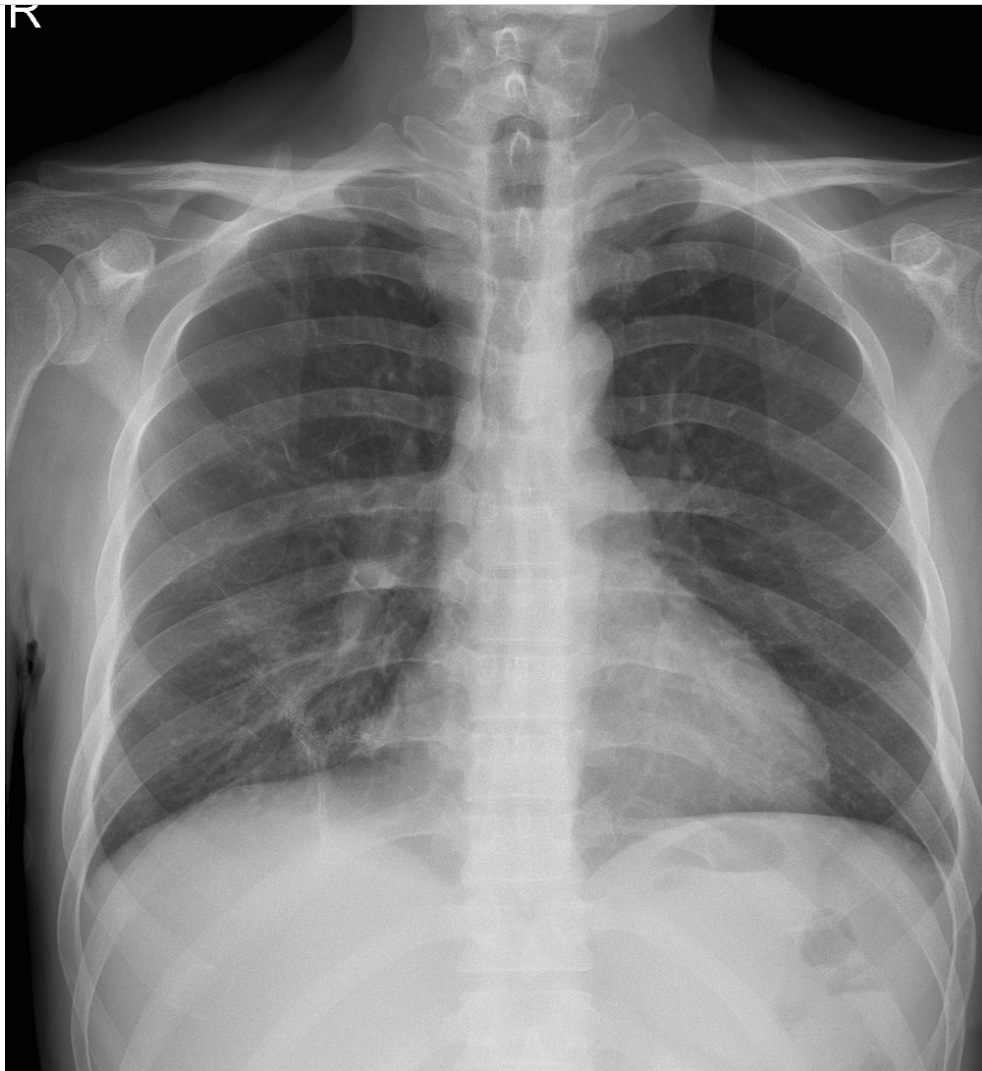
MICROMEDEX 2.0

Drug-drug interactions

- Concurrent use of efavirenz and rifampin may result in decreased serum efavirenz concentrations
 - Efavirenz ↓26%

Drug hypersensitivity?

- Usual causes:
 - Cotrimoxazole
 - Rifampin
 - Abacavir
 - Nevirapine
 - ...



WBC (K/ μ L)	Band (%)	Seg (%)	Eos. (%)	Baso. (%)	Mono. (%)	Lym. (%)
4.25	0.0	82.0	0.7	0.2	8.9	8.2

UN (mg/dL)	CRE (mg/dL)	T-BIL (mg/dL)	AST (U/L)	ALT (U/L)	CRP (mg/dL)	
9.3	0.8	0.80	34	17	9.76	

RBC (/HPL)	WBC (/HPL)	Epith cell (/HPF)	Nitrite	Cast (/LPF)	Bacteria	
2-5	2-5	-	-	-	-	

Results of laboratory investigations

	9/16	9/26 (Breakthrough fever)	10/2 (Repeated septic workup for persistent fever)	10/12 (Right inguinal abscess rupture with pus discharge)
Sputum	• AFS (-) (II/II)	No sputum	No sputum	
Blood		• B/C (-) (II/II) • AFS (-) • F/C (-)	• B/C (-) (II/II) • AFS (-) • F/C (-)	
Others		• U/A: no pyuria	• U/A: no pyuria	• Pus of right inguinal wound: – B/C (-) • Pus of RLQ abdomen: – B/C (-)

Investigations for other infections

- CMV viral load, 1580 copies/mL
- RPR, 1:2 (+); TPHA, 1: 640 (+)
- Aspergillus antigen: negative (0.135)
- Cryptococcal antigen: negative
- IHA, 1:1024 (+)
- Stool protozoa: negative

CMV: Cytomegalovirus; RPR: rapid plasma reagin;
TPHA: Treponema pallidum hemagglutination test; IHA: Indirect hemagglutination

CMV infection?

- CMV viremia is common in asymptomatic person with low CD4 count (50-100 cells/ μ L)
- CMV disease should be diagnosed in the appropriate clinical setting
 - No blurred vision → retinitis not likely
 - No gastrointestinal symptoms → esophagitis, gastroenteritis, colitis not likely
 - No airway symptoms → pneumonitis not likely
 - No CNS symptoms → CNS infection not likely

AIDS Therapy. Raphael Dolin, 3rd Ed.

Invasive amebiasis?

- He received IV metronidazole for amebiasis in Sep. 2010 (IHA: 1:512(+))
 - IHA may remain positive for > 10 years
- 2011/09/13
 - Stool pus cell, negative
 - Stool occult blood, 2+
 - Stool protozoa, negative
- 2011/10/12
 - Stool amebic antigen, negative II/II

Table 1. Sensitivity of Tests for the Diagnosis of Amebiasis.*

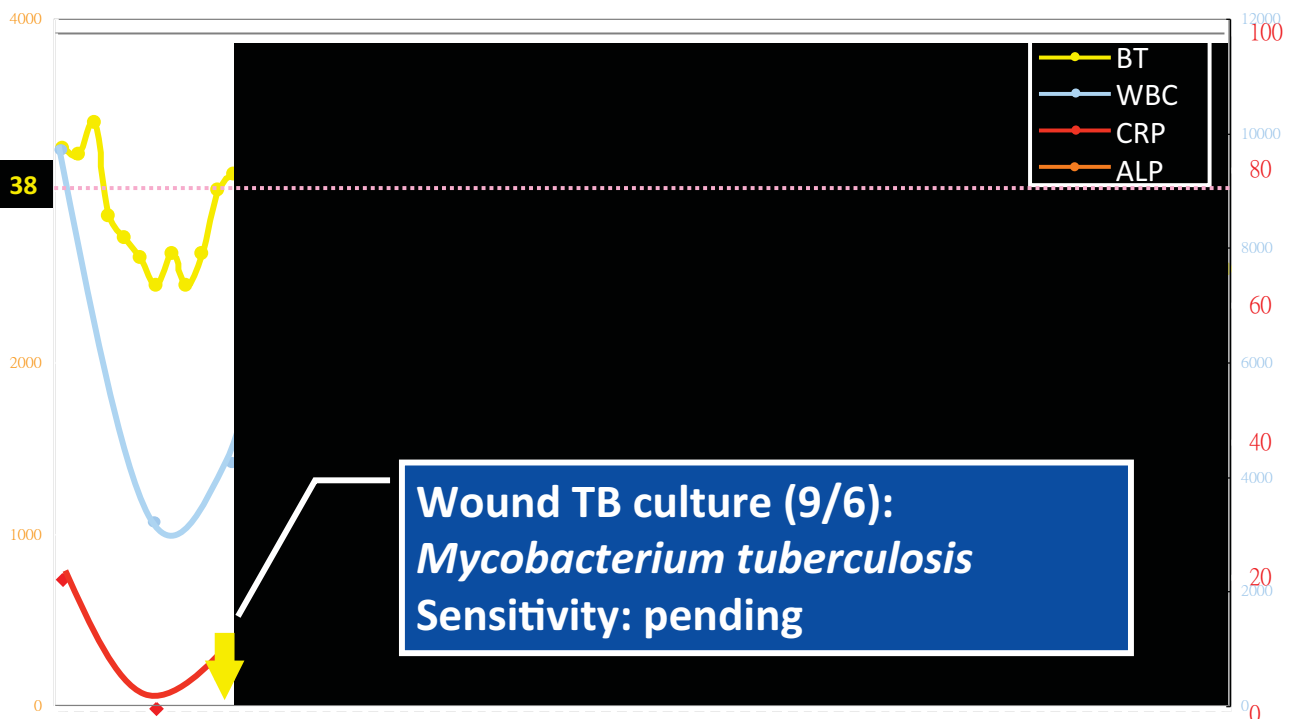
Test	Colitis	Liver Abscess
		<i>percent</i>
Microscopy		
Stool	25–60	10–40
Abscess fluid	NA	≤20
Antigen detection		
Stool	90	~40
Serum	65 (early)	~100 (before treatment)
Abscess fluid	NA	~40
Indirect hemagglutination (antibody)		
Serum obtained during acute illness	70	70–80
Serum obtained during convalescence	>90	>90

Invasive amebiasis?

- Amebic colitis is not likely
- Amebic liver abscess can't be ruled out

Differential diagnosis

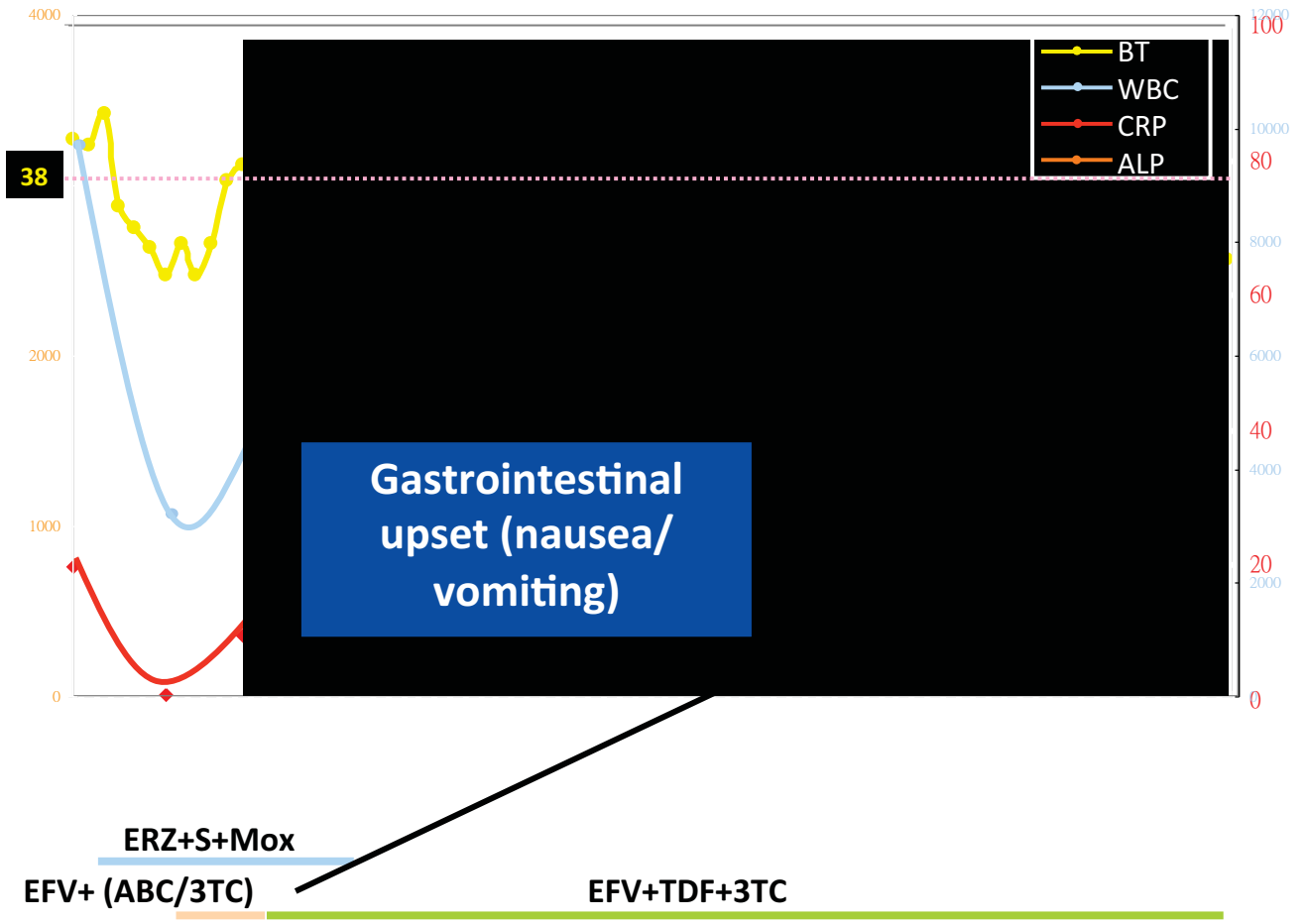
- Progression of tuberculosis
 - Antimicrobial resistance
 - Non-adherence
 - Drug interaction
 - Drug malabsorption
 - Chronic diarrhea
 - Wasting syndrome
- Drug hypersensitivity
- Development of a new opportunistic infection
- Immune reconstitution inflammatory syndrome



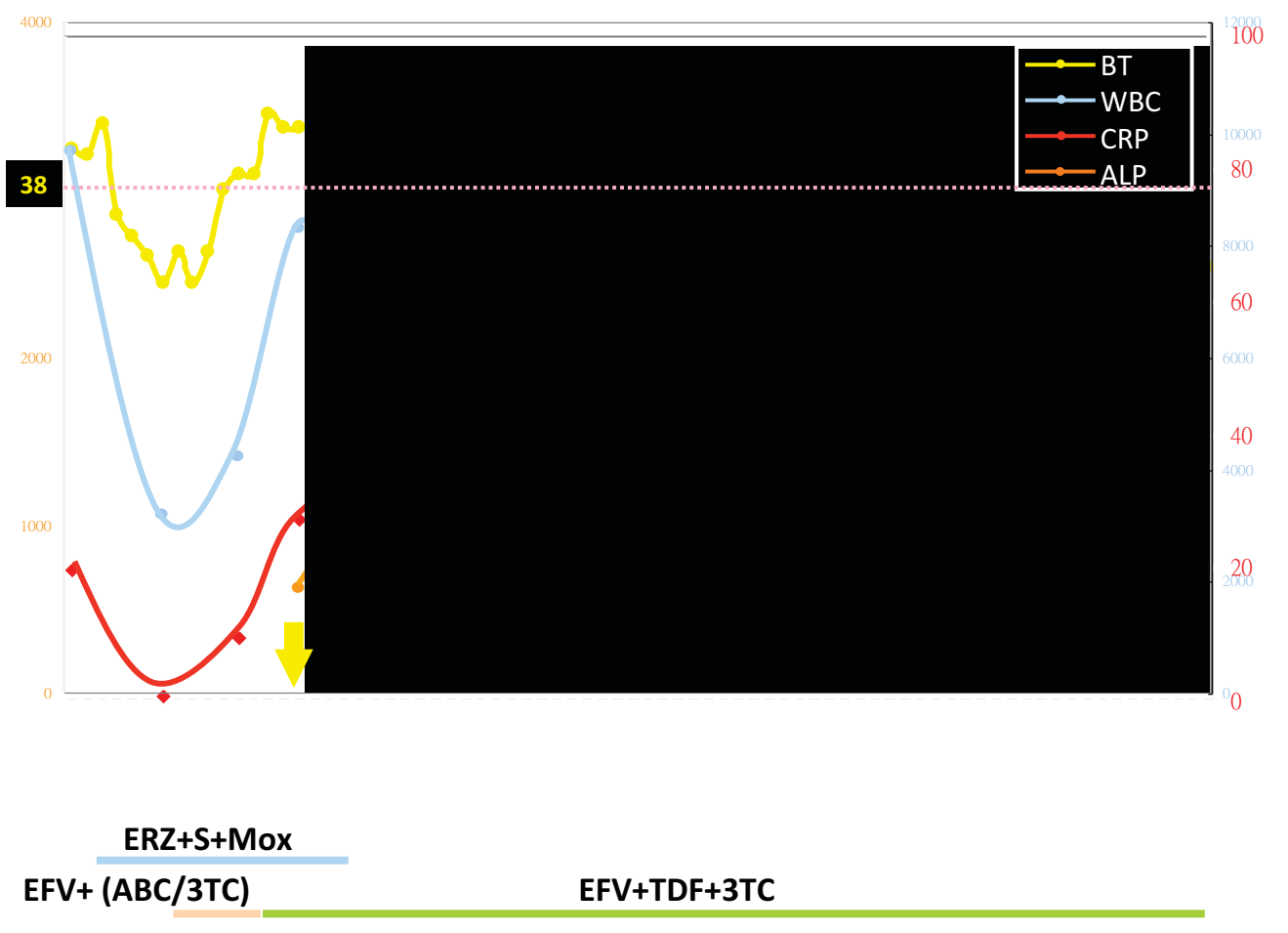
Unasyn

ERZ + S + Mox

EFV+ (ABC/3TC)



TDF: tenofovir disoproxil fumarate



Chest radiography



R40

2011/10/02



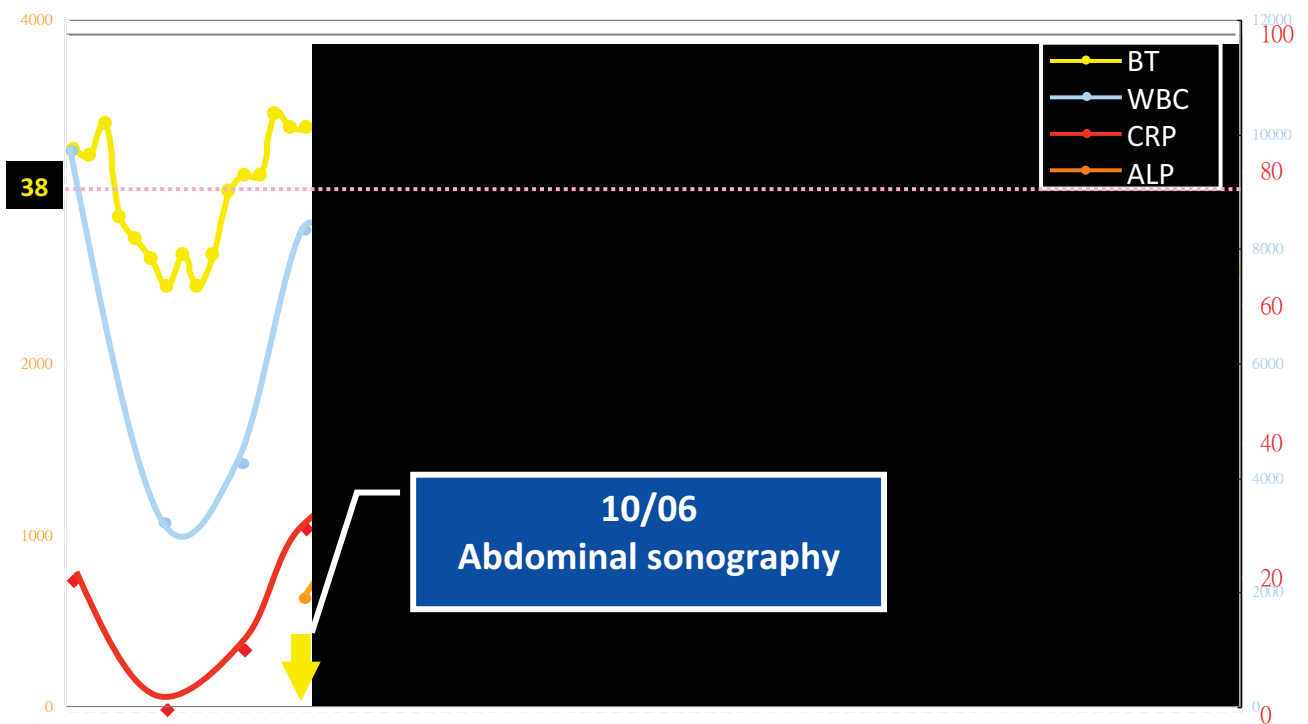
R

2011/09/27

Lab data

WBC (K/ μ L)	Band (%)	Seg (%)	Eos. (%)	Baso. (%)	Mono. (%)	Lym. (%)
8.33	0.0	84.5	0.1	0.1	10.0	5.3

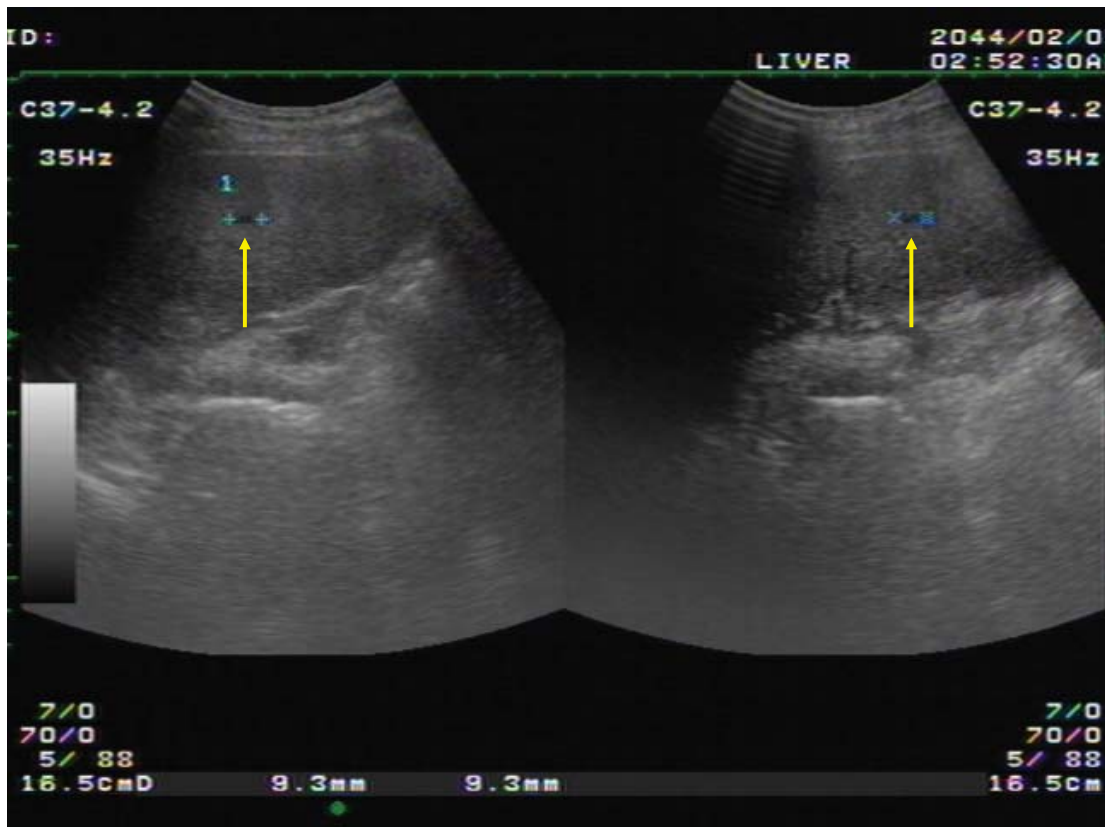
BUN (mg/dL)	CRE (mg/dL)	T-BIL (mg/dL)	AST (U/L)	ALT (U/L)	ALP (U/L)	GGT (U/L)
11	0.88	1.30	28	8	632	496
LDH (U/L)	CRP (mg/dL)					
582	27.3					



ERZ+S+Mox

EFV+ (ABC/3TC)

EFV+TDF+3TC



Spleen index, 6.2 x 5.3 cm

Several hypoechoic lesions scattered inside the spleen

The size ranged from 0.3 cm to 0.9 cm in diameter

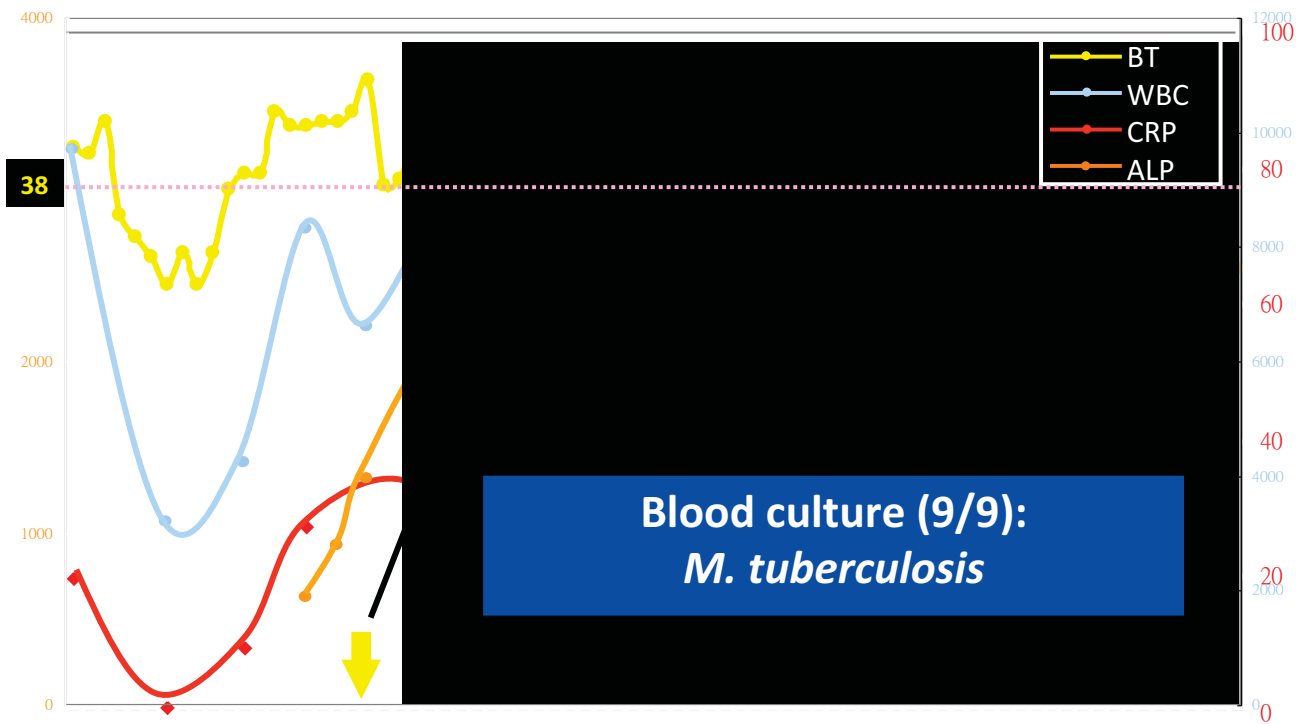
Results of laboratory investigations

	9/16	9/26 (Breakthrough fever)	10/2 (Repeated septic workup for persistent fever)	10/12 (Right inguinal abscess rupture with pus discharge)
Sputum	• AFS (-) (II/II)	No sputum	No sputum	
Blood		• B/C (-) (II/II) • AFS (-) • F/C (-)	• B/C (-) (II/II) • AFS (-) • F/C (-)	
Others		• U/A: no pyuria • Aspergillus Ag (serum) (-) • Cryptococcus Ag (serum) (-)	• U/A: no pyuria	• Pus of right inguinal wound: – B/C (-) • Pus of RLQ abdomen: – B/C (-)



Unasyn
 ERZ+S+Mox
 EFV+ (ABC/3TC)
 Regular acetaminophen

EFV+TDF+3TC

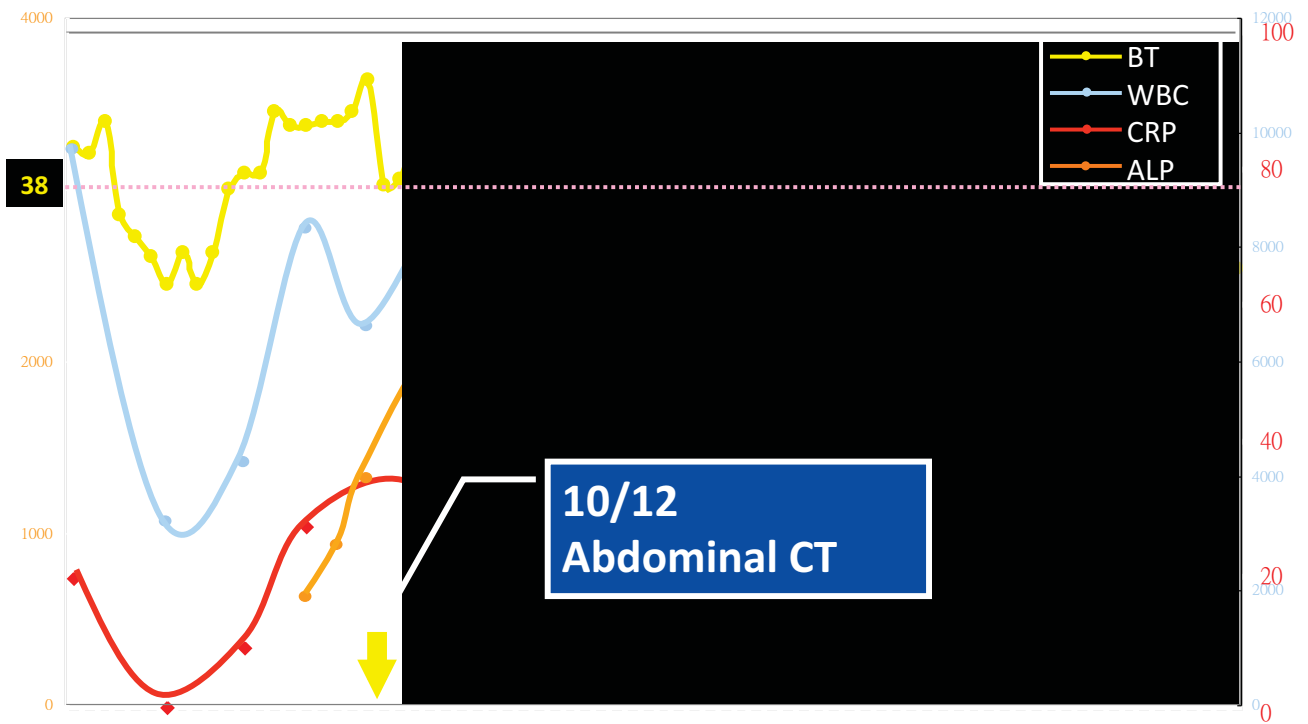


ERZ+S+Mox
 EFV+ (ABC/3TC) EFV+TDF+3TC
 Regular acetaminophen

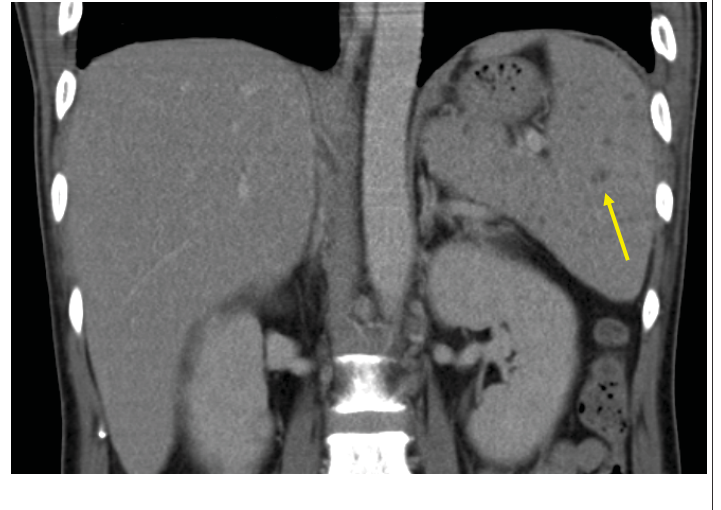
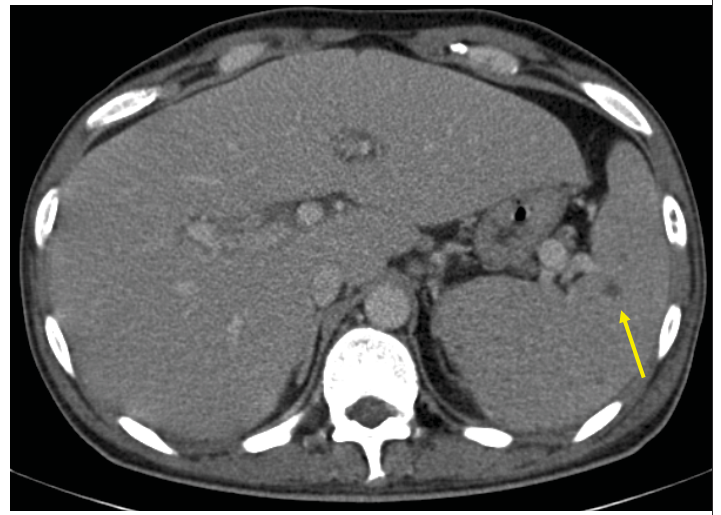
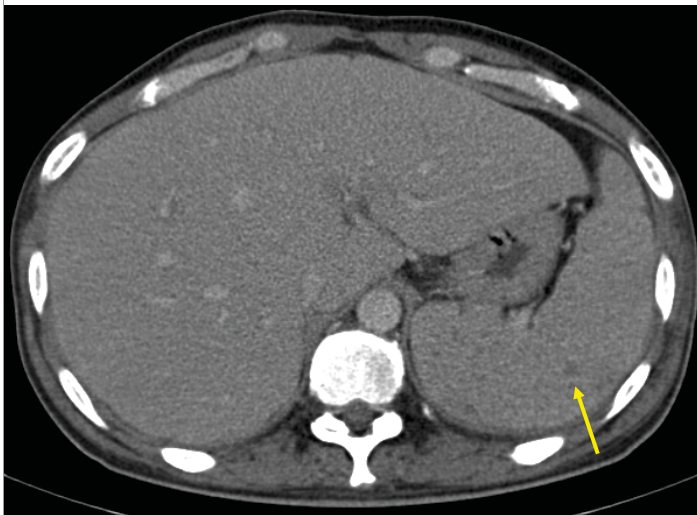
Susceptibility of *M. tuberculosis* isolate (9/6 pus specimen from the right inguinal region)

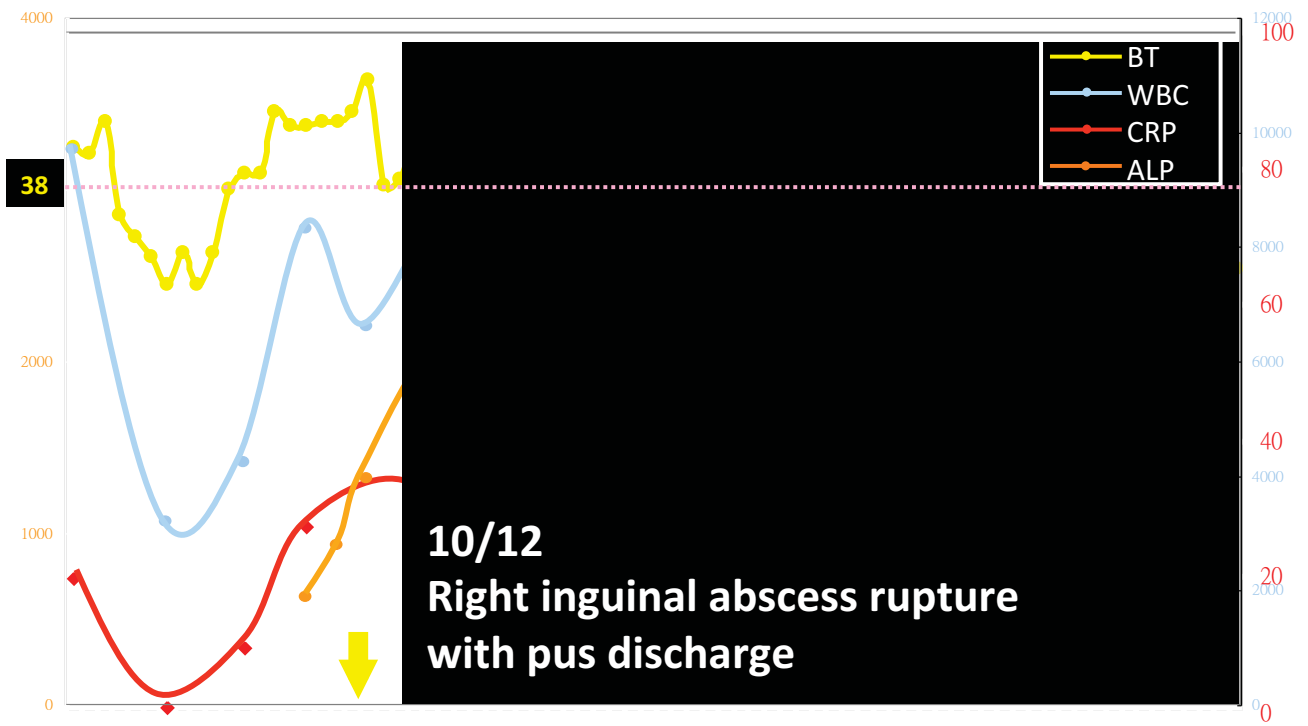
Antibiotic tested

INH1: INH 0.2	S
INH2: INH 1.0	S
RIF: RIF 1.0	S
EMB1: EMB 5.0	S
EMB2: EMB 10.0	S
SM1: SM 2.0	S
SM2: SM 10.0	S
EA: Ethionamide	S
PAS:	S
p-Aminosalicylic	S
OFX: Ofloxacin	S
Ri: Rifabutin	S



ERZ+S+Mox
HERZ
EFV+(ABC+3TC)
EFV+TDF+3TC
Regular acetaminophen
H: isoniazid





ERZ+S+Mox
 EFV+(ABC+3TC)

HERZ
 EFV+TDF+3TC

Regular acetaminophen





Results of laboratory investigations

	9/16	9/26 (Breakthrough fever)	10/2 (Repeated septic workup for persistent fever)	10/12 (Right inguinal abscess rupture with pus discharge)
Sputum	• AFS (-) (II/II)	No sputum	No sputum	
Blood		• B/C (-) (II/II) • AFS (-) • F/C (-)	• B/C (-) (II/II) • AFS (-) • F/C (-)	
Others		• U/A: no pyuria • Aspergillus Ag (serum) (-) • Cryptococcus Ag (serum) (-)	• U/A: no pyuria	• Pus of right inguinal wound: – B/C (-) • Pus of RLQ abdomen: – B/C (-)

RLQ, right lower quadrant

Results of laboratory investigations

	9/5	9/6	9/9
Sputum	<ul style="list-style-type: none"> • AFS (-) • M/C (-) 		
Blood	<ul style="list-style-type: none"> • B/C (-) (II/II) 		<ul style="list-style-type: none"> • AFS (-), <i>M. tuberculosis</i> • F/C (-)
Others	<ul style="list-style-type: none"> • U/A: no pyuria 	<ul style="list-style-type: none"> • Right inguinal pus: AFS (2+), <i>M. tuberculosis</i> 	<ul style="list-style-type: none"> • Lymph node aspiration: <ul style="list-style-type: none"> – B/C (-) – AFS (-), TB PCR (+) <i>M. tuberculosis</i> – F/C (-) • OI survey: negative

OI: opportunistic infection

Results of laboratory investigations

	9/16	9/26 (Breakthrough fever)	10/2 (Repeated septic workup for persistent fever)	10/12 (Right inguinal abscess rupture with pus discharge)
Sputum	<ul style="list-style-type: none"> • AFS (-) (II/II) • <i>M. tuberculosis</i> (I/II) 	No sputum	No sputum	
Blood		<ul style="list-style-type: none"> • B/C (-) (II/II) • AFS (-) • F/C (-) 	<ul style="list-style-type: none"> • B/C (-) (II/II) • AFS (-) • F/C (-) 	
Others		<ul style="list-style-type: none"> • U/A: no pyuria • Aspergillus Ag (serum) (-) • Cryptococcus Ag (serum)(-) 	<ul style="list-style-type: none"> • U/A: no pyuria 	<ul style="list-style-type: none"> • Pus of right inguinal wound: <ul style="list-style-type: none"> – B/C (-) • Pus of RLQ abdomen: <ul style="list-style-type: none"> – B/C (-)

Tuberculosis-related immune reconstitution inflammatory syndrome (IRIS)

Case definition for tuberculosis-associated IRIS

- **Antecedents** (before starting of ART)
 - Diagnosis of tuberculosis
 - Initial response to tuberculosis treatment

Case definition for tuberculosis-associated IRIS

- **Clinical criteria**

- Within 3 months of ART initiation
- One major criterion or 2 minor clinical criteria:
 - *Major criteria*
 - New or enlarging lymph nodes, cold abscesses, or other focal tissue involvement
 - New or worsening radiological features of tuberculosis
 - New or worsening CNS tuberculosis
 - New or worsening serositis
 - *Minor criteria*
 - New or worsening constitutional symptoms such as fever, night sweats, or weight loss
 - New or worsening respiratory symptoms
 - New or worsening abdominal pain accompanied by peritonitis, hepatomegaly, splenomegaly, or abdominal adenopathy

Clin Infect Dis 2008;8:516-23.

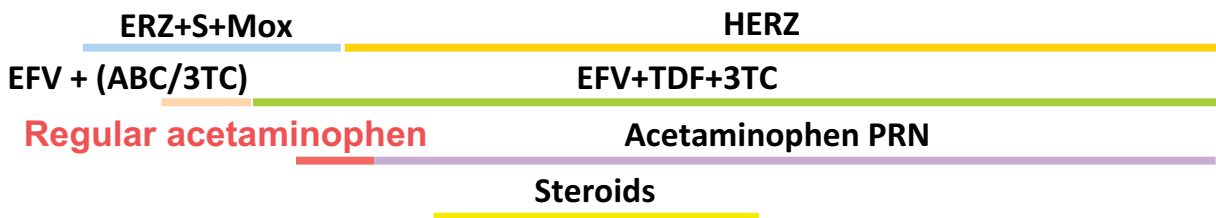
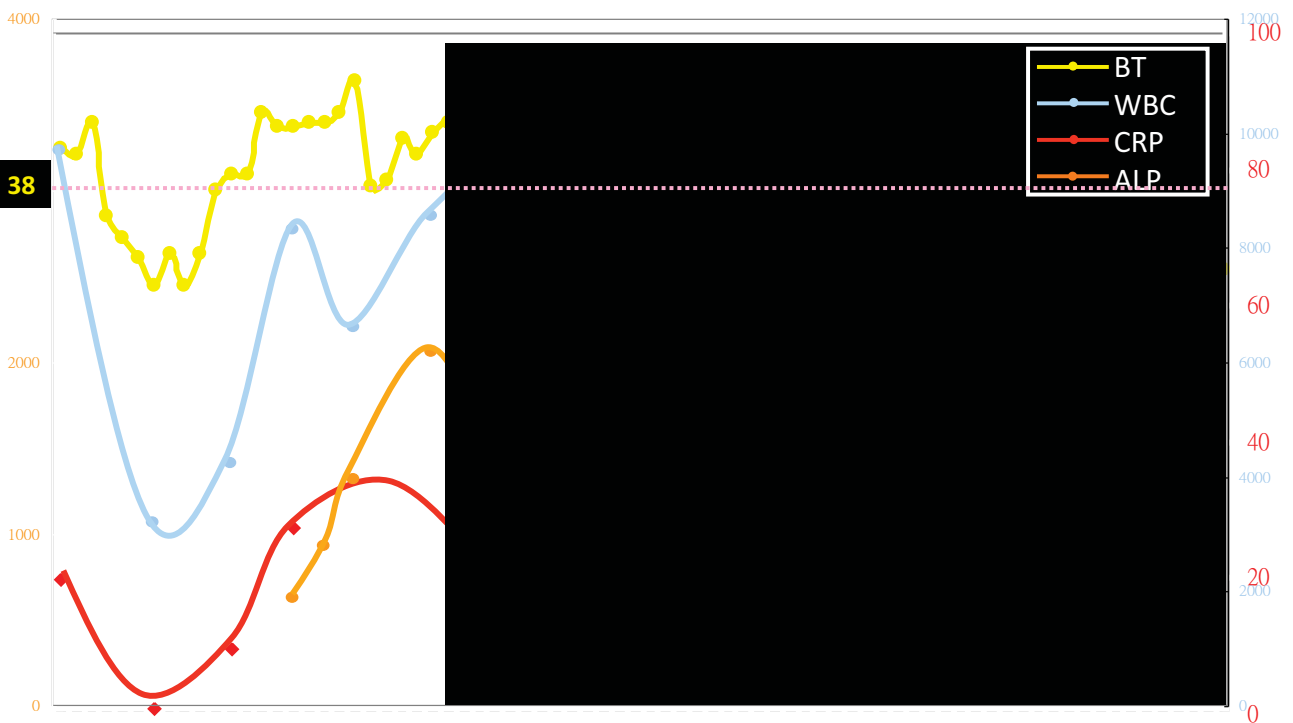
Case definition for tuberculosis-associated IRIS

- **Exclusion of alternative causes**

- Failure of tuberculosis treatment (non-compliance or resistance)
- Other opportunistic infection or neoplasm
- Drug toxicity or reaction

Clin Infect Dis 2008; 8: 516–23.

Tuberculosis-related IRIS

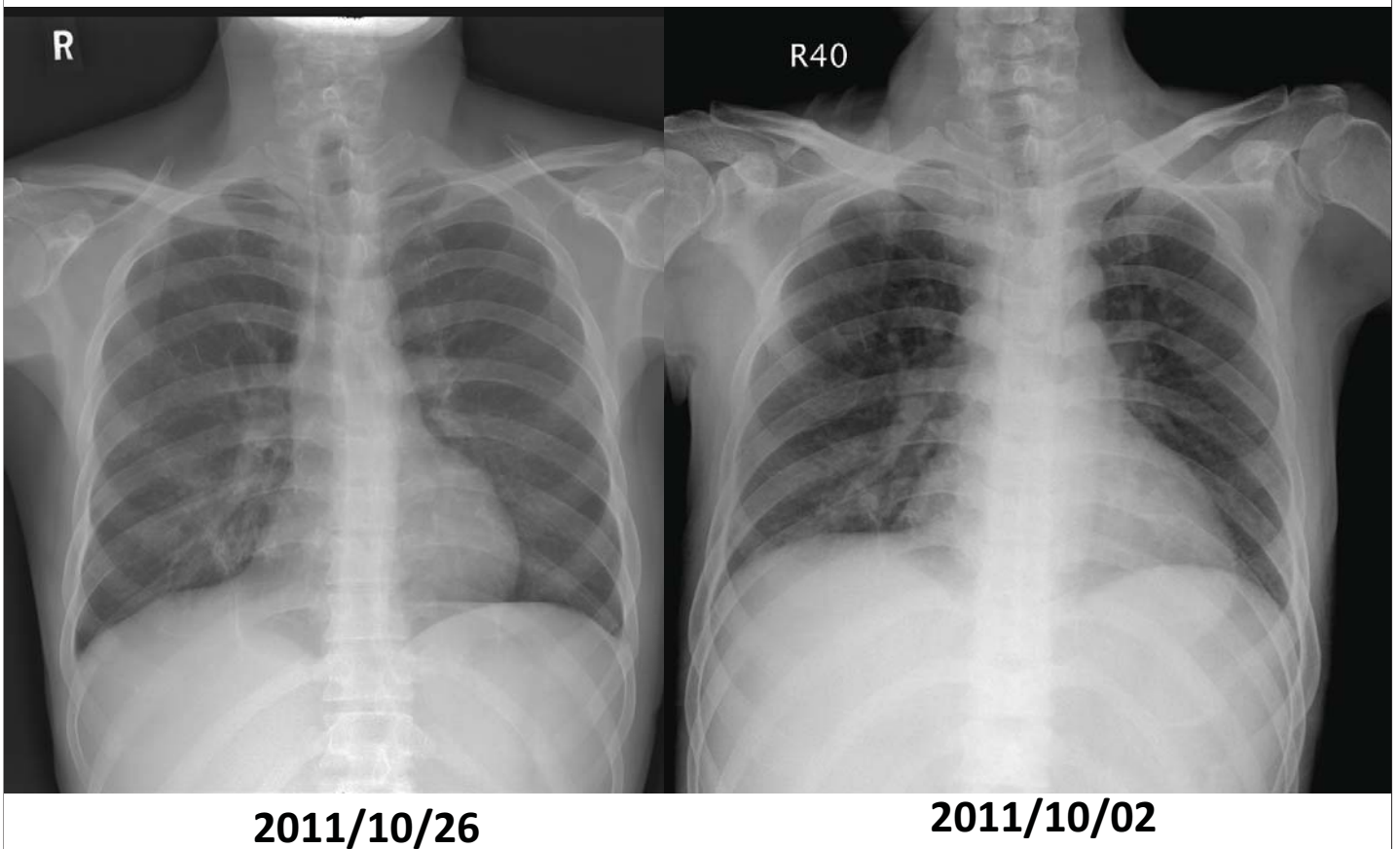


Symptoms

- Fever with chills
- No airway, GI or GU symptoms
- Unchanged right inguinal wound, with decreased discharge

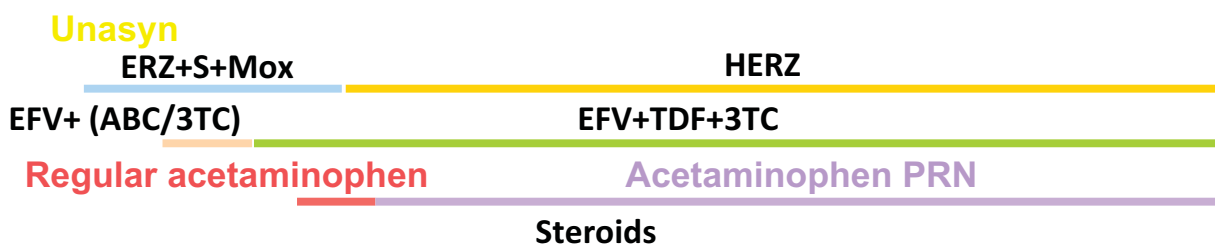
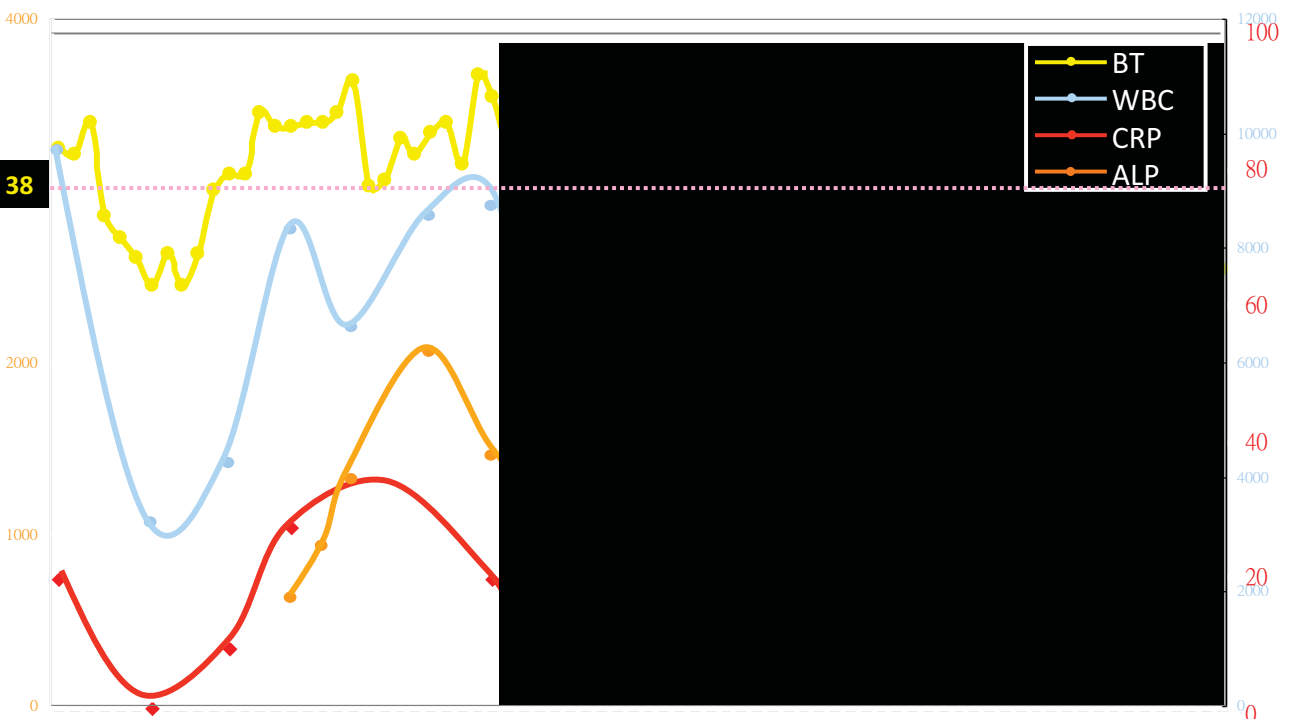
GI, gastrointestinal; GU, genitourinary

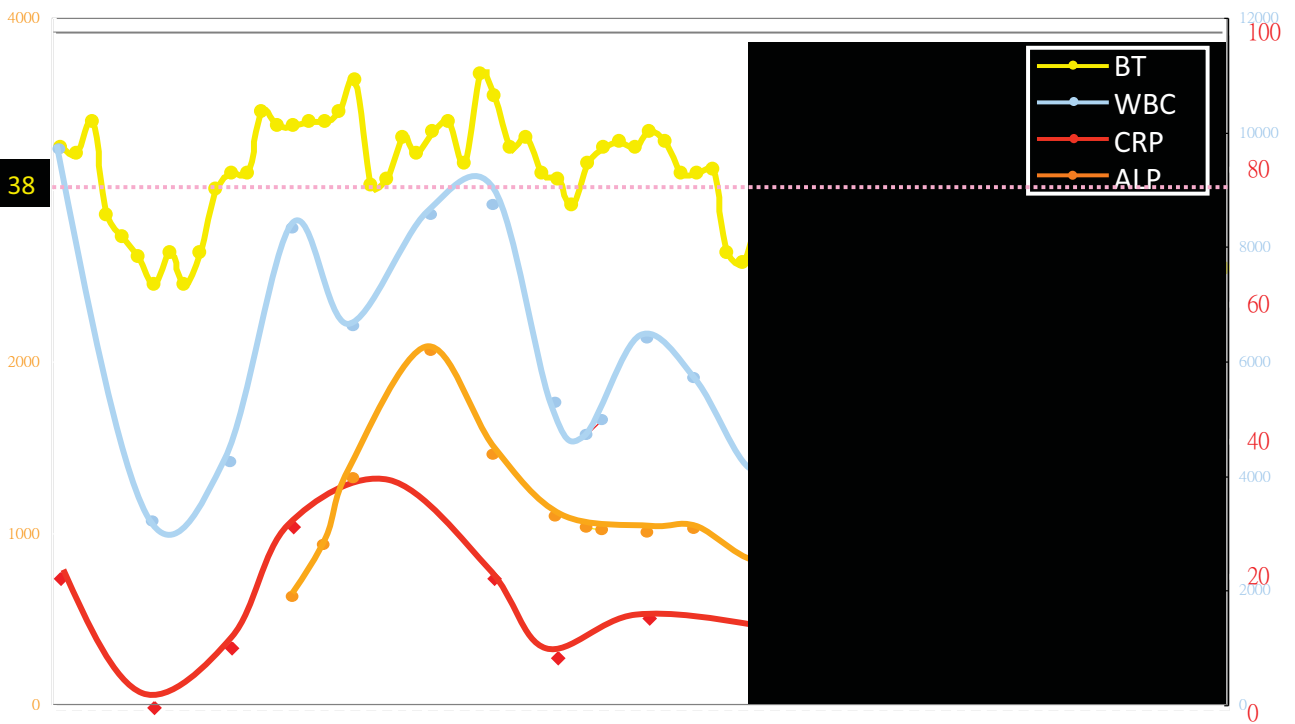
CXR



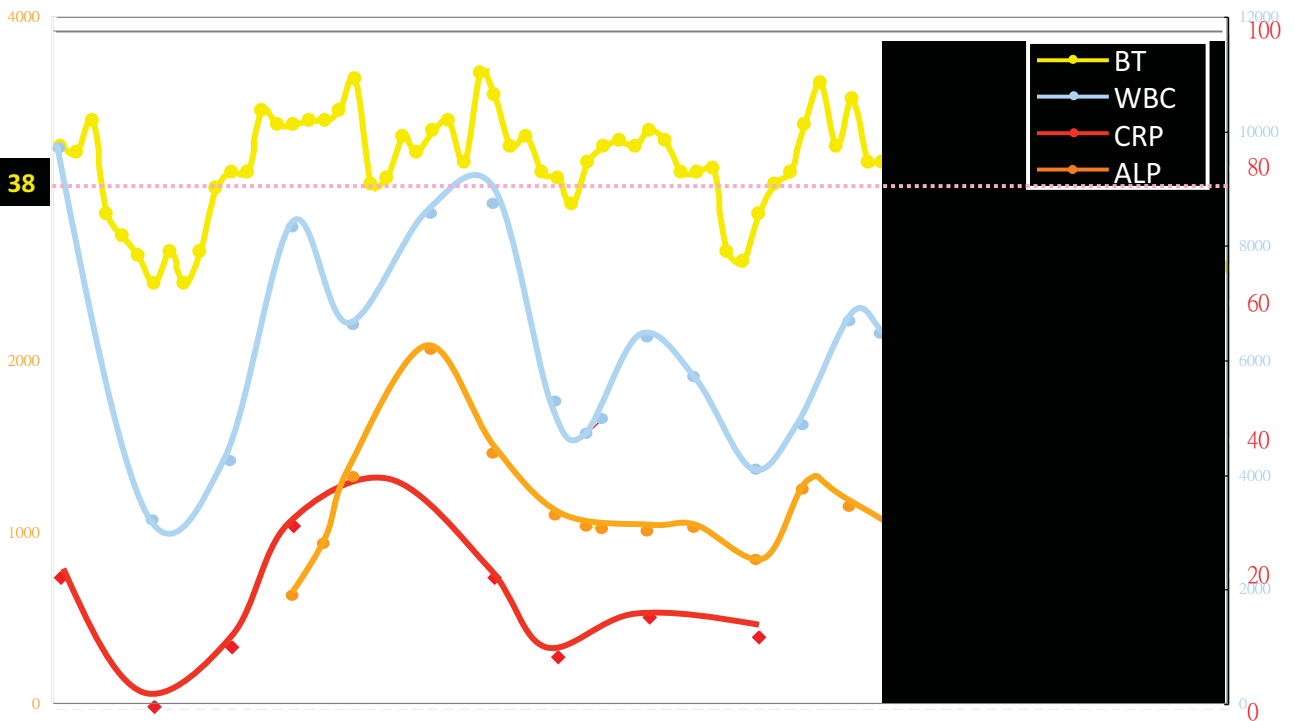
Results of laboratory investigations

	9/16	9/26 (Breakthrough fever)	10/2 (Repeated septic workup for persistent fever)	10/12 (Right inguinal abscess rupture with pus discharge)	10/26
Sputum	• AFS (-) (II/II) <i>M. tuberculosis</i> (I/II)	No sputum	No sputum		No sputum
Blood		• B/C (-) (II/II) • AFS (-), M/C (-) • F/C (-)	• B/C (-) (II/II) • AFS (-), M/C (-) • F/C (-)		• B/C(-)(I/I)
Others		• U/A: no pyuria • Aspergillus Ag (serum) (-) • Cryptococcus Ag (serum) (-)	• U/A: no pyuria	• Pus of right inguinal wound: – B/C (-) • Pus of RLQ abdomen: – B/C (-)	

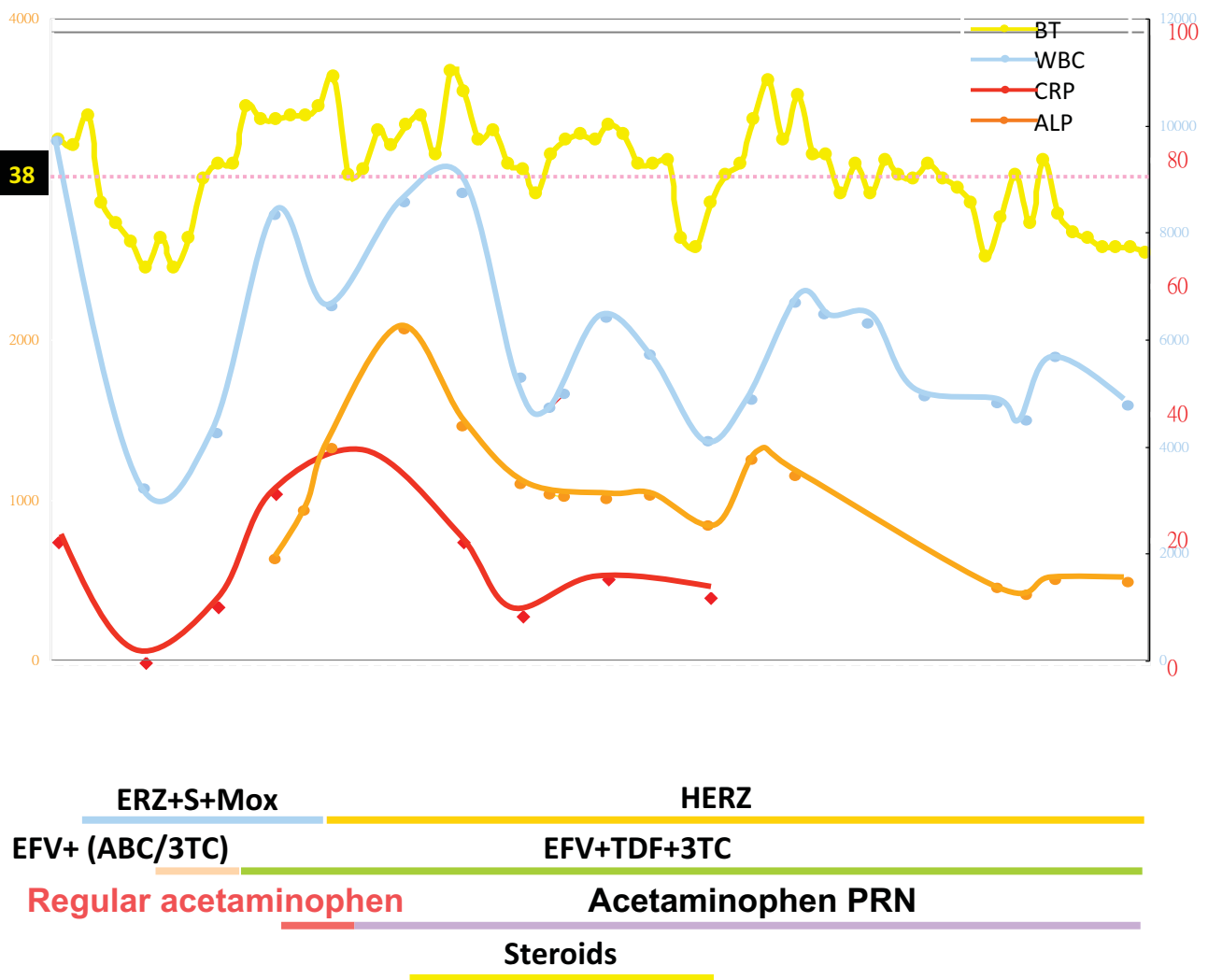




Unasyn
 ERZ+S+Mox
 EFV+ (ABC/3TC)
 Regular acetaminophen
 HERZ
 EFV+TDF+3TC
 Acetaminophen PRN
 Steroid



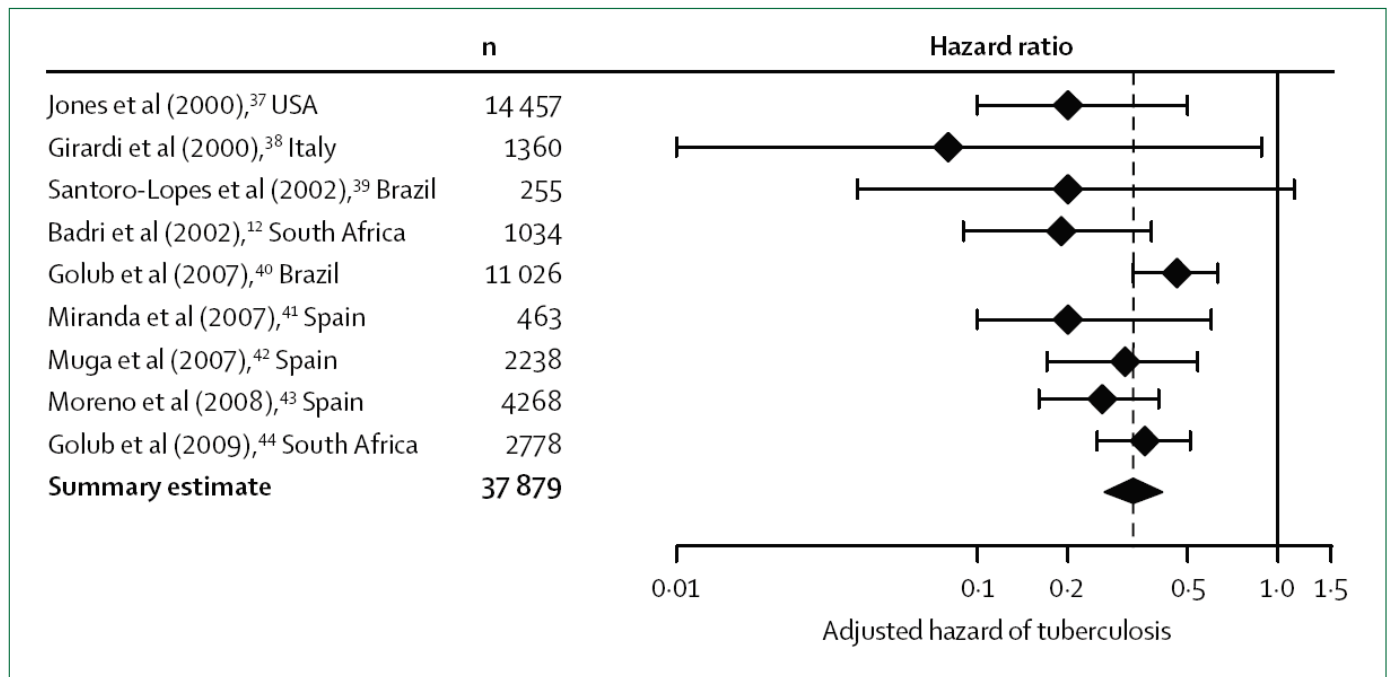
Unasyn
 ERZ+S+Mox
 EFV+ (ABC/3TC)
 Regular acetaminophen
 HERZ
 EFV+TDF+3TC
 Acetaminophen PRN
 Steroid



Final diagnosis

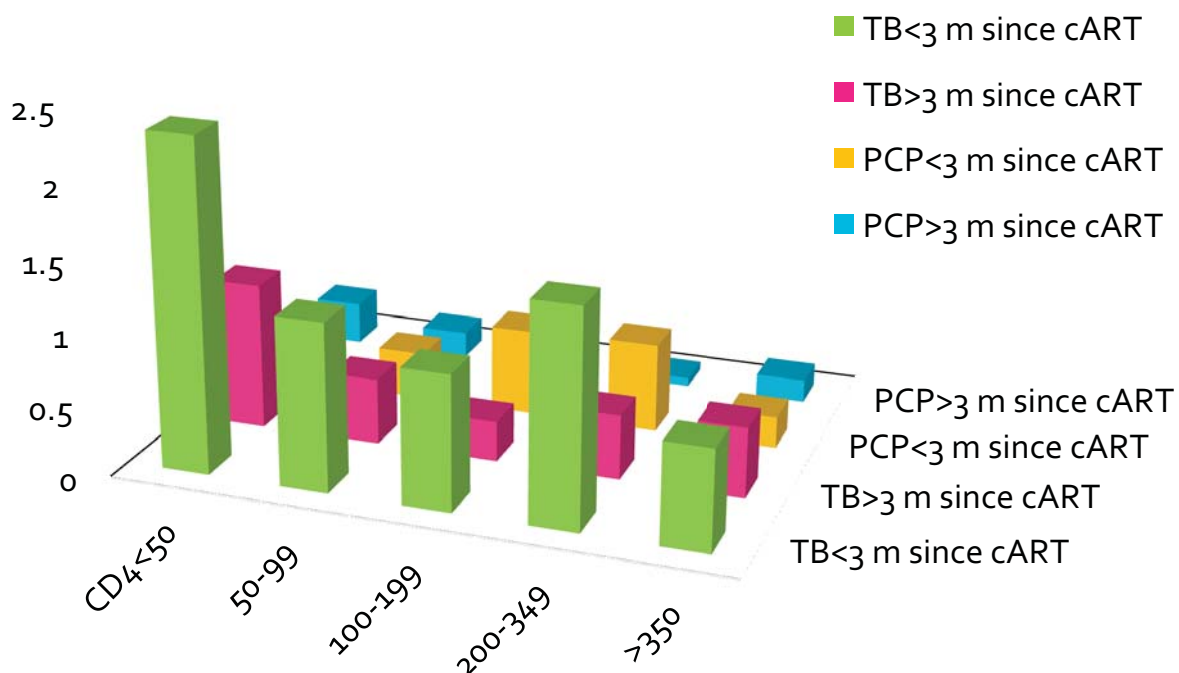
- Recurrent disseminated tuberculosis, suspected relapse, with lung, blood, lymph nodes, and suspected liver and spleen involvement
- Human immunodeficiency virus infection with acquired immunodeficiency syndrome, on highly active antiretroviral therapy
- TB-related immune reconstitution inflammatory syndrome with inguinal and pelvic lymphadenitis, resulting in skin rupture and pus formation

Combination antiretroviral therapy (CART) prevents TB in HIV-infected patients



Lancet Infect Dis 2010;10:489-98.

Decrease of TB incidence by antiretroviral therapy among HIV-positive patients in high-income countries



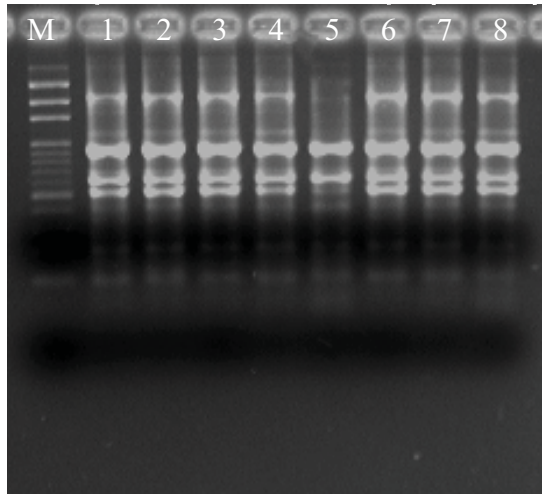
HIV-CAUSAL Collaboration. Clin Infect Dis 2012;54:1364-72.

Take-home messages

- HIV infection increases both risk and recurrence of tuberculosis
- Antiretroviral therapy prevent tuberculosis and its recurrence in HIV-infected patients
- A longer duration of anti-TB treatment than recommended may be needed in HIV-infected patients

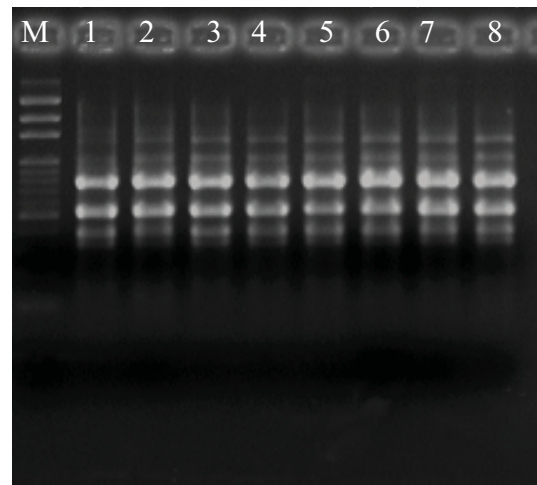
Relapse or Reinfection?

DRE-PCR Typing



Primer : IS1, IS2+Mtb1

1. Log no. 0005102
2. Log no. 0005073
3. Log no. 0005072
4. Log no. 0003925
5. Log no. 0003964
6. Log no. 0003963
7. Log no. 1008569
8. Log no. 1008655



Primer : IS1, IS2+Mtb2

DRE: double repetitive element

Common issues raised

- Treatment of TB in HIV-infected patients
 - Immune reconstitution inflammatory syndrome
 - Duration of anti-TB treatment
 - The role of combination of antiretroviral therapy
 - Dialogue between health care providers and public health team members
 - Relapse vs. re-infection
- How to prevent TB in HIV-infected patients
 - Treatment of *M. tuberculosis* infection
 - Combination antiretroviral therapy

愛滋病患的結核病治療

	建議	說明
結核治療藥物種類	HERZ	*和非愛滋病毒感染者一樣，種類和劑量無異; 如果有抗藥結核，處置亦然 **需要考慮愛滋病毒藥物治療種類，留心藥物交互作用; 基本上先以完治結核病為優先考量 ***轉介處理愛滋病毒治療有經驗的醫院和醫師
結核病治療時間	至少六個月	*和非愛滋病毒感染者一樣，中樞神經等結核需要時間必須延長 **為降低復發風險，務必要儘早提供有效的抗愛滋病毒藥物治療 ***有限的文獻顯示，較長的治療時間(九個月)，可能可以降低復發風險
治療藥物副作用	可能增加	*抗愛滋病毒藥物可能有重疊的副作用(過敏、發燒、皮疹、肝功能異常)

謝 謝