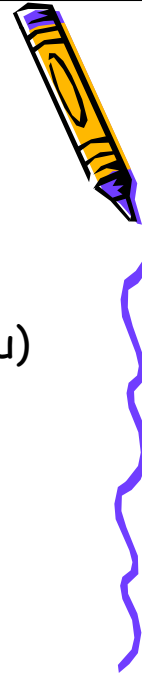


06/04/2008

- 44 year old Indian man
- Living in Hong Kong
- Regular travel to China (Guangzhou)
- Non smoker
- Chronic drinker (16u / wk for 20 years)



Past Medical History

- DM on diet control
- Liver cirrhosis (alcoholic) Childs B
 - HbSAg and anti HCV negative
- Pancytopenia
 - BMA: trilineage hyperplasia with moderate, mature looking plasmacytosis
 - No monoclonal antibody
 - USG 2/2008- hepatosplenomegaly



Presenting History

- 2 week history of fever
- Morning peak
- Cough with daily blood stained sputum
- Occasional epistaxis (previously seen by ENT – non – specific)
- Progressive abdominal distension for 2 weeks
- Diffuse abdominal pain – worse with movement and eating
- B/O normal with no GIB



Clinical Findings

- Temp 38.2 C
- BP 149/72 p 100
- SaO2 97% on RA

- Bilateral basal crepitations
- Abdominal ascites
- Jaundice



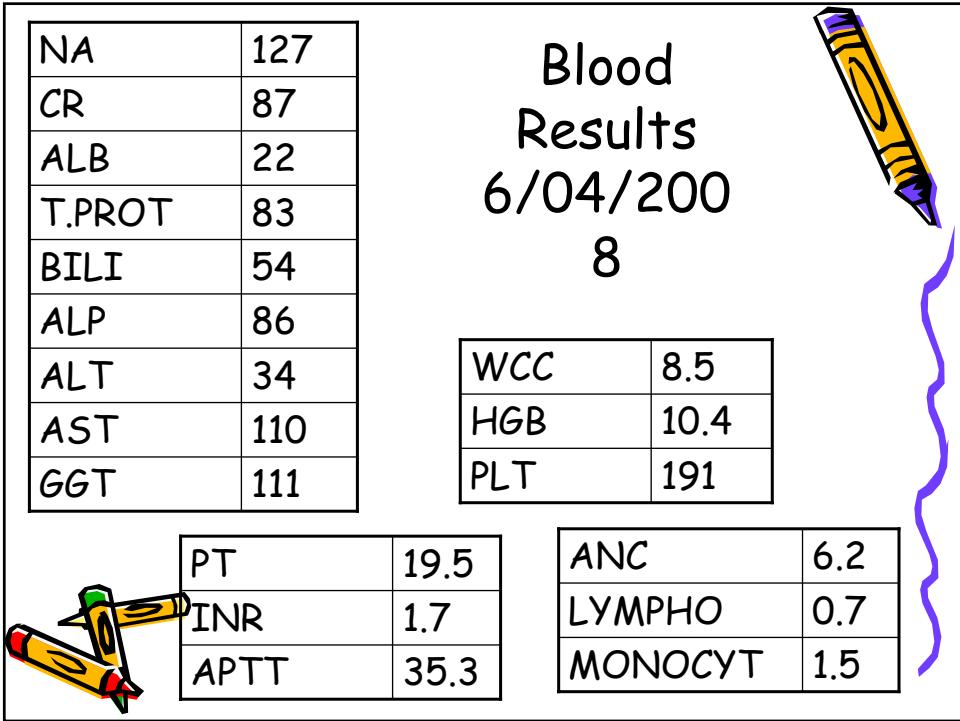
NA	127
CR	87
ALB	22
T.PROT	83
BILI	54
ALP	86
ALT	34
AST	110
GGT	111

Blood Results
6/04/2008


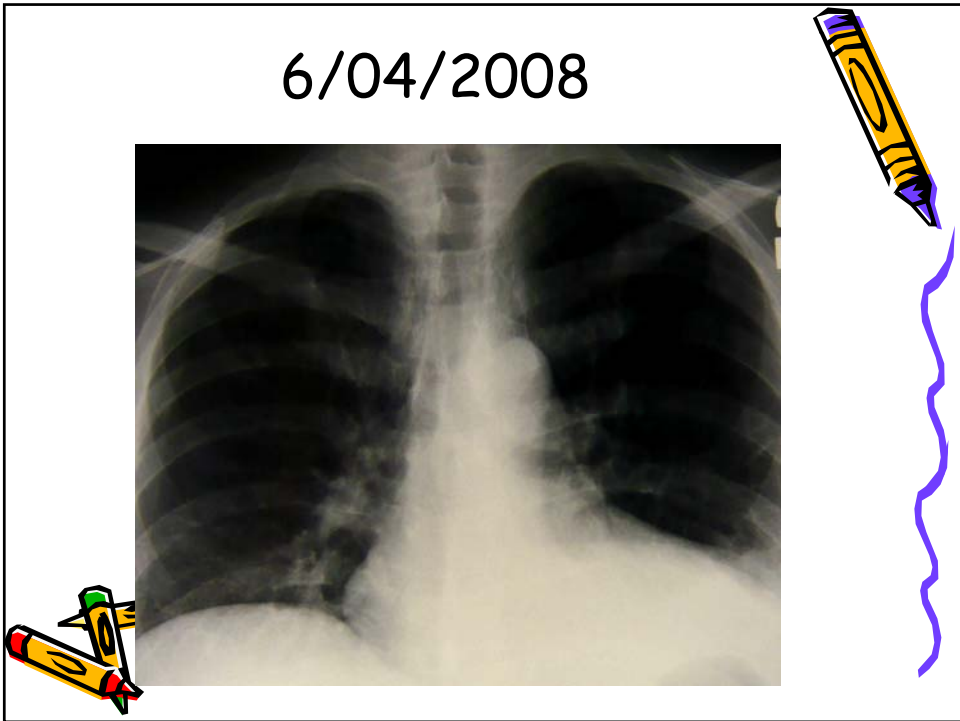
WCC	8.5
HGB	10.4
PLT	191

PT	19.5
INR	1.7
APTT	35.3

ANC	6.2
LYMPHO	0.7
MONOCYT	1.5



6/04/2008

Working Diagnosis

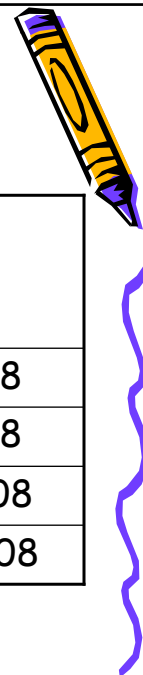
- Spontaneous bacterial peritonitis

Total cell count $1086 \times 10^6/L$
Red cell +
Neutrophil 79%
Lymphocyte 16%
Mononuclear 5%



Treatment

ANTIBIOTIC	START DATE	FINISH DATE
Zinacef	7/04/08	7/04/2008
Meropenam	7/04/08	9/04/2008
Claforan	9/04/08	11/04/2008
Meropenam	11/04/2008	17/04/2008



Peritoneal tapping

Date	7/04	10/04	11/04	15/04	16/04
Total Cell Count	1086	1100	1650	1158	1375




- Still persistent fever
- Suggestions??






- CT Abdomen: 11/04/2008
- Enlarged, lobulated liver
- Splenomegaly 15cm
- Gross ascites
- Left renal stone
- Left basal atelectasis and pleural effusion



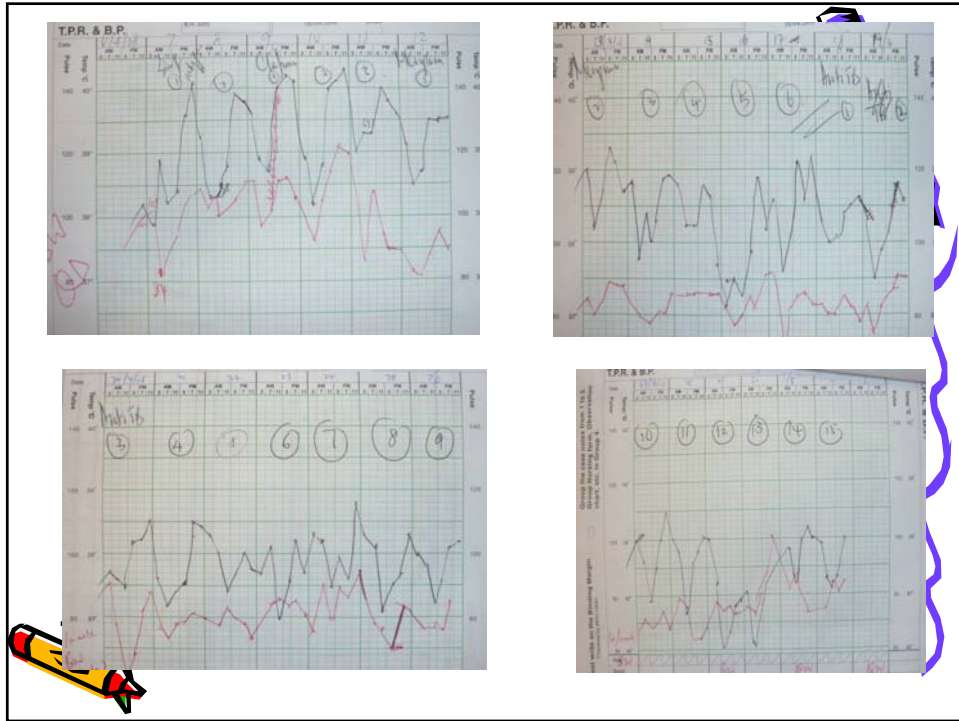
- 
- Developed tarry stool on 14/4/08
 - OGD – 15/04/2008 - bleeding varicities with banding done
 - OGD - 29/04/08 – no further bleeding, banding done



Persistent fever

- 
- Sputum – MSSA
 - Blood
 - Anti HIV 1 & 2 - negative
 - Typhoid two titre <1:50
 - Weil felix <1:20
 - B. pseudomallei IgG/IgM negative
 - Malaria screen negative
 - Peritoneal fluid
 - CNS

MTB PCR -ve x 4, +ve 12/04/2008





Started HLE on
17/04/2008



Date	21/04	23/04	30/04
Total Cell Count	820	440	1000

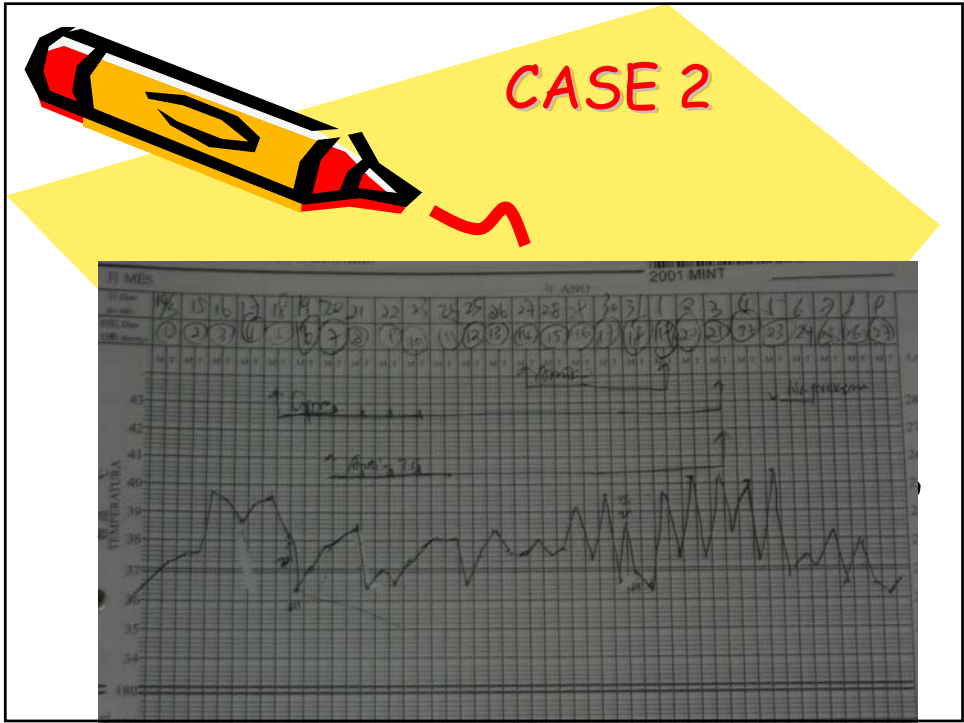
What now?





Drug	Start date	Stop date
HLE	17/04/08	8/05/08
Amikin	2/05/08	
IV HRMox	8/05/08	15/05/08
HREMOx	15/05/08	current

- 
- 
- Anti TB treatment continued
 - Culture confirmed mycobacterium species
 - Fever finally settled after one month of treatment and the patient was discharged



-
- Ms CIP
 - 30 year old female
 - NSND
 - Good past health
-

- 3/08
- Progressive abdominal distension for one month
- Fever
- Mild weight loss

Examination:

- Pale
- Poor nutritional status




Results

- | | |
|----------------------|----------------------------------|
| • CBP | Hb 10.3, normocytic, lymphopenia |
| • R/LFT | Normal |
| • Alb | 34 |
| • LDH | 906 |
| • CEA / AFP / Ca19.9 | Normal |
| • Ca125 | 1090 U/ml (<24.8 U/ml) |
| • Ca 15.3 | 28.2 U/ml (<23.4 U/ml) |
| • Ferritin | 727ng / ml |
| • ESR | 40 – 80 |
| • Normal Ig pattern | |
| • Haptoglobin | 301mg/dl (36 – 195 mg / dl) |
| • Mantoux test | 5mm |





- CT Abdomen and Pelvis


- Abdominal ascites but no organomegaly / mass
 - Enlarged mediastinal lymph nodes
 - Minimal bilateral pleural effusion
 - Multiple small patchy bilateral lung infiltrate
- 



- **Ascitic tapping**

- Lymphocyte predominant
- Culture, AFB smear & cytology - negative

- **Bronchoscopy**

- No endobronchial lesion
 - Cultures, AFB Smear & Cytology - negative
- 



- **ECHO:**

- No vegetations
- Good contractility
- Calcified posterior pericardium with restrictive pattern

- **Gynaecology**

- Normal examination
- USG pelvis 17/03/08 – normal except for ascites



What now?

Treatment

- Empirical antibiotics – no response
- 20/3 – 3/04 -> TB treatment
 - Week 1 – fever down
 - Week 2 – high swinging fever 40 deg.
 - Chills and rigors
 - Poor appetite
 - TB treatment stopped
 - CT – increasing thickness of peritoneum



Uncertain Diagnosis

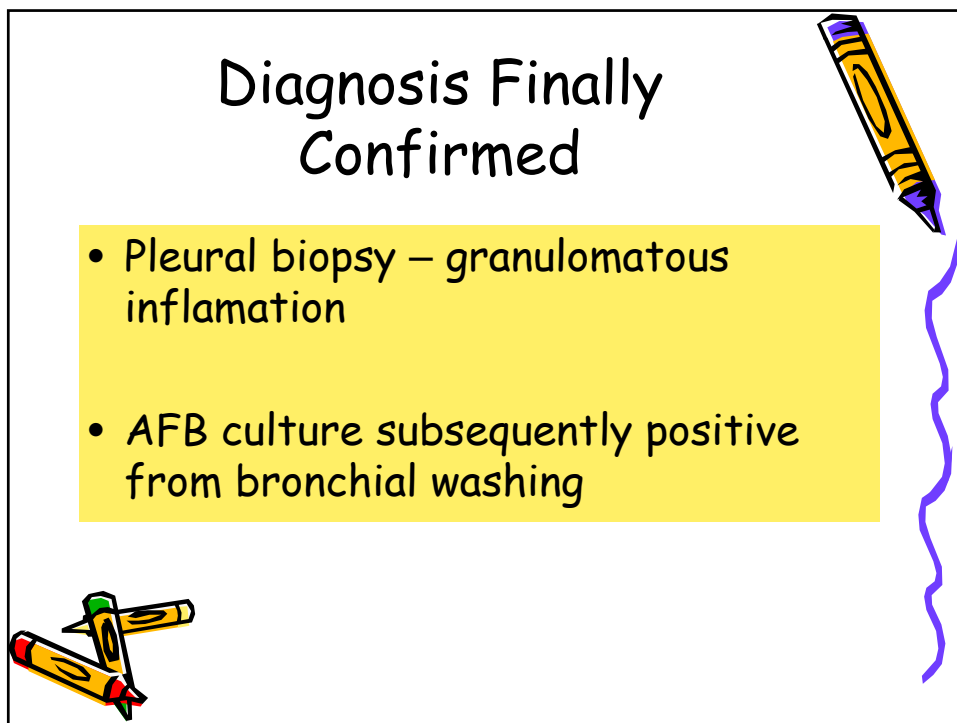
- Referred to GH – CTSU for further investigation
- ECHO – Mild pericardial thickening, no evidence of constrictive pericarditis or pericardial effusion





Diagnosis Finally Confirmed

- Pleural biopsy – granulomatous inflammation
- AFB culture subsequently positive from bronchial washing



Subsequent treatment

- 21/04/08 - HRZE
- 21/04 – 9/05 Prednisolone 45mg daily
- 10/05 – Prednisolone 40mg daily
- Patient returned to Macau
- FU CA125 on 15/5/08 – 196.4 U/mL

Ca-25 in TB Peritonitis

Elevated CA 125

11 consecutive patients with TB peritonitis

vs.

20 healthy controls

“RESULTS: Serum CA 125 levels were found to be elevated in all patients with tuberculous peritonitis.

The mean level in the study group was 316.6 IU/ml, whereas the level was 13.8 IU/ml in the control group ($p < 0.0001$).

Serum CA 125 normalization showed a very close correlation with the response to antituberculous therapy”

PUBMED Abstract only.

[Savaslak E, Savas MC, Kadayifci A, Tatar G.](#) Elevated serum CA 125 concentration in patients with tuberculous peritonitis: a case-control study. Department of Internal Medicine, Hacettepe University Medical School, Ankara, Turkey.

- 23 patients with **malignant tumour**
- 27 patients with **TB**
- Ca-125 of pleural fluid calculated
- ROC curves done

-> Ca-125 in TB 159.1 +/- 214

-> Ca-125 in malignancy 2149.2 +/- 4513.6

- Authors suggest can use Ca-125 for differentiation between malignancy and TB.

Mycobacterial infections

R2310 Determination of the cut-off value of pleural fluid CA-125 in patients with pleural effusion, to identify the underlying cause (TB or malignancy)

S. Shokouhi, M. Samanabadi, L. Gachkar (Tehran, IR)

17th ECCMID/25th ICC, Abstracts accepted for publication only



Case reports



- A young female with an elevated Ca 125 of 1853U/ml
- She had recently moved from Mexico to USA
- *Mycobacterium* species – resistant to PZA – what is it ?

Diagnosis turned out to be *M. bovis* affecting the peritoneum.

Mycobacterium bovis Peritonitis
Mimicking Ovarian Cancer
in a Young Woman

Jason E. Stout,¹ Christopher W. Woods,¹ Angeles A. Alvarez,²
Andrew Berchuck,² and Carol Dukes Hamilton¹

¹Division of Infectious Diseases and International Health, Department of Medicine, and ²Division of Gynecologic Oncology, Department of Obstetrics and Gynecology, Duke University Medical Center, Durham, North Carolina

- 14 year old
- 3 week history of abdominal pain and weight loss
- Elevated Ca125
- Found level decreased from 918 U/ml to 76.6 U/ml after 5 months standard TB treatment.

The Turkish Journal of Pediatrics 2005; 47: 100-102 Letter

A case of tuberculous peritonitis with elevated CA 125

Murat Çakır, Embiya Dilber, Nilgün Yarıp, Ylke Mungan, Aypenur Ökten

Department of Pediatrics, Karadeniz Technical University Faculty of Medicine, Trabzon, Turkey



TB Peritonitis – The HK Experience: UCH

- TB peritonitis
- 33 patients with ESRF – 31 on CAPD
- 18 patients no ESRF
- Overall
 - 60% had abdominal pain
 - 50% had fever
- Patients on Dialysis
 - More acute presentation
 - Delayed diagnosis
 - Neutrophil predominant ascites
 - Seldom weight loss
 - None had intestinal obstruction or intraabdominal mass

• CID 2007;45:141 -145

Diagnostic Challenges of Tuberculosis Peritonitis in Patients With and Without End-Stage Renal Failure

Tai Nin Chan,¹ Vincent King San Leung,¹ Sunny Wong,¹ Sie Tong Lam,¹ Wai Hong Chan,¹ Ivy Sheung Ching Lok,² Wai Kwong Luk,³ Siu Ho Lam,³ and Yiu Wing Ho⁴
¹Department of Medicine and Geriatrics, ²Department of Pathology, and ³Department of Surgery, United Christian Hospital, Kowloon, and ⁴Department of Pathology, Tung Kwai O Hospital, Hong Kong, Hong Kong Special Administrative Region, People's Republic of China



Table 2. Clinical presentations of tuberculosis peritonitis among patients with and without end-stage renal failure (ESRF).

Feature	Patients without ESRF (n = 19)	Patients with ESRF (n = 33)	P
Asymptomatic	1 (5)	2 (6)	1.00
Duration of symptoms before presentation, median days (range)	12 (1–112)	6 (0–120)	.17
Acute onset (within 7 days after presentation)	5 (26)	19 (58)	.04
Time from initial presentation to diagnosis, median days (range)	18 (1–82)	32 (3–150)	.05
Symptom			
Abdominal pain	13 (68)	24 (73)	.74
Fever	9 (47)	18 (55)	.62
Weight loss	9 (47)	4 (12)	<.01
Night sweating	5 (26)	4 (12)	.26
Intestinal obstruction	3 (16)	0 (0)	.04
Diarrhea	3 (16)	6 (18)	1.00
Constipation	3 (16)	1 (3)	.13
Abdominal tenderness	11 (58)	21 (64)	.68
Ascites	10 (53)	32 (97)	<.01
Abdominal mass	3 (16)	0 (0)	.04
Splenomegaly	1 (5)	0 (0)	.37
Hepatomegaly	0 (0)	0 (0)	...

NOTE. Data are no. (%) of patients, unless otherwise indicated. Boldface type indicates statistical significance. CAPD, continuous ambulatory peritoneal dialysis.

Diagnostic Challenges of Tuberculosis Peritonitis in Patients With and Without End-Stage Renal Failure

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¹Department of Medicine and Geriatrics, ²Department of Pathology, and ³Department of Surgery, United Christian Hospital, Kowloon, and ⁴Department of Pathology, Sunny Kaan O Hospital, Hong Kong, Hong Kong Special Administrative Region, People's Republic of China

Table 3. Radiological and laboratory findings of tuberculosis (TB) peritonitis among patients with and without end-stage renal failure (ESRF).

Test, finding	Patients without ESRF (n = 19)	Patients with ESRF (n = 33)	P
Laboratory test			
Anemia (<13 g/dL)	16 (84)	29 (88)	.36
Neutrophilia (neutrophil count >7.5 × 10 ⁹ neutrophils/L)	5 (26)	11 (33)	.55
Lymphopenia (lymphocyte count <1.0 × 10 ⁹ lymphocytes/L)	13 (68)	27 (82)	.26
Thrombocytosis (platelet count >400 × 10 ⁹ platelets/L)	7 (37)	10 (30)	.74
Elevated erythrocyte sedimentation rate (>10 mm/h)	17 (90)	33 (100)	.13
Hypoalbuminemia (albumin level <36 g/L)	16 (84)	30 (91)	.15
Elevated serum lactate dehydrogenase level (>225 IU/L)	5 (26)	8 (24)	1.00
Chest radiograph			
Normal	12 (63)	25 (76)	.15
Pleural effusion	4 (21)	6 (18)	
Consolidation	3 (16)	0 (0)	
Diffuse miliary shadows	0 (0)	1 (3)	
Calcified granuloma	0 (0)	1 (3)	
Peritoneal fluid specimen analysis^a			
Color			
Straw-colored	9 (90)	5 (15)	<.001
Turbid	0 (0)	28 (85)	
Blood-stained	1 (10)	0 (0)	
Total WBC count, median cells/mm ³ (range)	460 (150–1400)	310 (10–4700)	.73
Lymphocyte predominant	8 (80)	1 (3)	<.01
Neutrophil predominant	0 (0)	20 (61)	
Monocyte predominant	1 (10)	1 (3)	
Equivocal	1 (10)	11 (33)	
Lactate dehydrogenase level, median IU/L (range)	290 (250–1750)	277 (265–1164)	.65
Positive AFB smear result	1 (10)	1 (3)	.08
Positive AFB culture result	9 (90)	33 (100)	1.00
Positive rapid AFB culture result	8 (80)	26 (79)	1.00
Positive result of PCR for <i>Mycobacterium tuberculosis</i> DNA ^b	1 (17)	3 (50)	.55

NOTE. Data are no. (%) of patients, unless otherwise indicated. Boldface type indicates statistical significance. AFB, acid-fast bacilli.

^a For 10 patients without ESRF.

^b For 6 patients with ESRF and 6 patients without ESRF.

PWH study

- Sixty patients (35 male and 25 female) in 12-year

- **Intercurrent Illness**

- Liver cirrhosis 38%
(Alcoholism 13%, Chronic Hep. B 27%, Hep C 2%)
- Renal failure of peritoneal dialysis 33%
- Diabetes mellitus 27%
- Underlying malignancy 18%
- Systemic corticosteroid therapy 10%
- AIDS 2%
- None of these 20%

- CID 2002:35

Tuberculous Peritonitis–Associated Mortality Is High among Patients Waiting for the Results of Mycobacterial Cultures of Ascitic Fluid Samples

Kai Ming Chen,¹ Viola Chi Ying Chen,¹ Lawrence Cheung Tsz Hang,¹ Shin Man Wong,¹ and Cheuk Cheu Szeto¹
¹Department of Medicine and Therapeutics and ²Microbiology, Prince of Wales Hospital, The Chinese University of Hong Kong, Shatin, New Territories, Hong Kong

Common symptoms

- Abdominal swelling 93%
- Abdominal pain 73%
- Fever 58%

- Intestinal obstruction 5%
- Worsening of hepatic encephalopathy 5%
- Syndrome of inappropriate antidiuretic hormone secretion (SIADH). 3%

- Mild to moderate normochromicnormocytic anemia
- Only 20 patients (33%) had old tuberculous scars visible on chest radiographs.

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- Noted:
 - Higher mortality if delayed diagnosis over 6 weeks
 - Difficulty in making a diagnosis due to slow culture of TB
- Mortality - 52%.
- Mortality 60% if treatment >30 days after presentation
- 26 of the 36 deaths occurred within the first 6 weeks after the initial presentation;

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Table 1. Comparison of patients who survived and patients who died of tuberculous peritonitis.

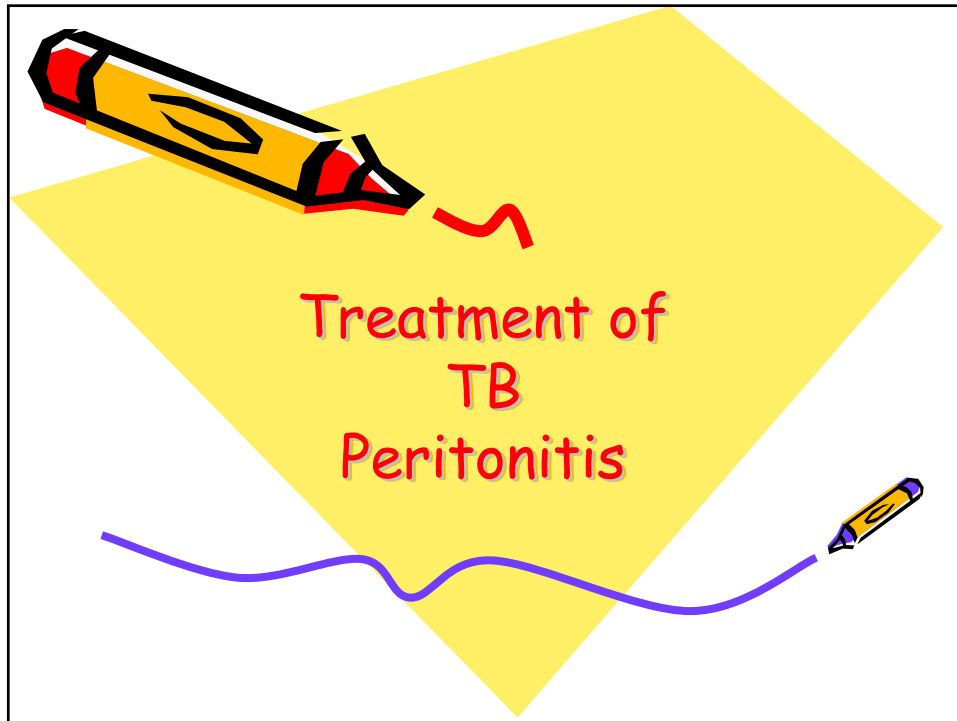
Variable	Patients who survived (n = 28)	Patients who died (n = 31)	P ^a
No. of male/no. of female patients	14/14	21/10	.20
Age, mean years ± SD	46 ± 17	60 ± 16	.001 ^b
Coexisting diseases or therapy received			
Diabetes mellitus	5 (18)	11 (35)	.11
Cirrhosis	6 (21)	16 (52)	.01
Alcoholism	6 (21)	2 (6)	.16 ^c
Renal failure on dialysis	10 (36)	8 (26)	.46
Malignancy	6 (21)	6 (19)	.33
Corticosteroid therapy	2 (7)	4 (13)	.44 ^c
Previous tuberculosis	3 (11)	2 (6)	.61 ^c
Concurrent tuberculosis			
Pulmonary	9 (32)	12 (39)	.54
Extrapulmonary	9 (32)	7 (23)	.45
Peritoneal biopsy performed	9 (32)	0 (0)	.001 ^c
Treatment initiated ≤6 weeks after presentation	20 (71)	8 (26)	.001

NOTE. Data are no. (%) of patients, unless otherwise indicated.
^a Determined by use of the χ^2 test, unless otherwise indicated.
^b Determined by use of Student's *t* test.
^c Determined by use of Fisher's exact test.

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Abdominal tuberculosis.

- A 6-month regimen is recommended for patients with peritoneal or intestinal tuberculosis treatments
- There is insufficient data to recommend adjunctive corticosteroid therapy in the treatment of tuberculous peritonitis



The American Thoracic Society, the Centers for Disease Control and Prevention, and the Infectious Disease Society of America. ATS/CDC/IDSA statement: treatment of tuberculosis. *Am J Respir Crit Care Med* 2003;167:603-62.