ER&Infection-combined Meeting

- Case ID: 1157xxxx
- Presented by R2 鄭凱文
- Supervised by VS 洪世文
- 2014/09/20

Patient Profile

- 54Y/o ♂
- 2014/xx/xx 09:XX
- E4V5M6
- T/P/R=38.8/118/16; BP = 115/63mmHg
- SpO2 = 95%
- 檢傷主訴：病人主訴為發燒/畏寒 3 天
- Triage = Ⅲ

Present Illness

- C.C: fever 3days
- Cough (+); sputum (+);
- RN (+); Sore throat (+);
- myalgia (+); headache (+);
- weight loss (-);
- TOCC: N?Y(wife)N

Past History

- NKA;
- asthma (-); COPD (-); smoking (+)

Physical Examination

- Clear;
- neck supple; injected throat;
- coarsed BS; wheezing (+);
- Abd.: soft; no guarding;
- Ext.: warm; CRT<2s;

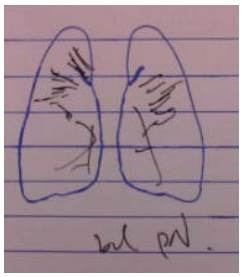
Impression

- Fever, favor flu, r/o pneumonia

Initial order (day 1, 09:38)

- Influenza test （自費）
- volna-K 1# po st
- CXR

CXR



- Imaging findings ：
  - Heart is not enlarged.
  - CXR shows infiltration in both upper lungs, pneumonia is suspected first.

XXX 醫師 (放診專醫字第 0??7 號)

Day 1, 09:50

- B/C*Ⅱ
- Crea., AST, Na, K
- WBC, D/C, Plt
- PCT (Neg)
- Sputum culture *2
- acid-fast stain（急）
- 戴口罩（已）
- IV on lock
- Curam 1.2g iv q8h+st
- Zithromax 2# po QD*3days + st
- Actein 1# po tid*3days
- Methon 1# po tid*3days

Lab data

生化	
AST	62U/L
Crea.	0.93mg/dL
.eGFR	84.67
Na	129mmol/L
K	3.7mmol/L

Hb, WBC, D/C, Plt	
Hb	14.4gm/dL
WBC	5.7x1000/μL
Differential count	
Seg.	83.0%
Lymph.	9.0%
Monocyte	2.0%
Eosionophil	0.0%
Basophil	0.0%
Atypical Lym	0.0%
Band	6.0%
Platelet	220x1000/μL

後續 order

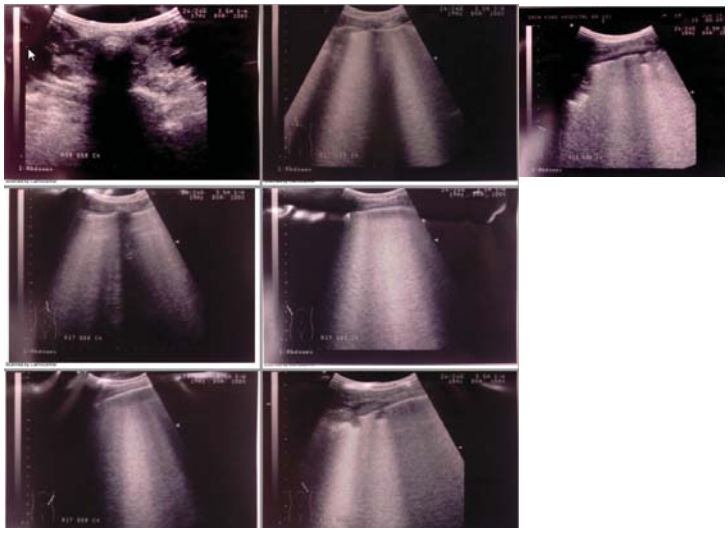
- Day 1, 11:28
  - 排 chest 床

    (chest man ：暫不需隔離)
- Day 1, 12:12
  - Consult Inf.
    - Urine: pneumococcus Ag & legionella Ag
    - blood: mycoplasma IgM & chlamydia IgM+IgG
- Day 1, 15:08
  - Recheck BT
  - volna-K 1# po st
- Day 1, 15:20
  - Combivent 1vial inh st
  - Keto 1amp iv st
- Day 1, 16:25
  - Combivent 1vial inh q8h
  - 轉 EC55

轉 EC 之後

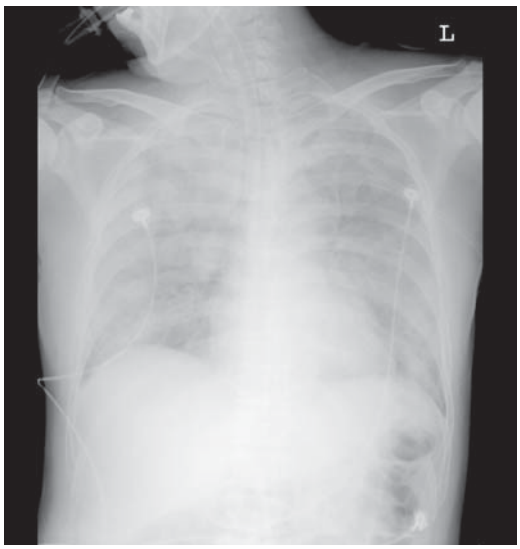
- Day 1, 18:25 O2 with Mask 6~10L/min
- Day 2, 10:00 Transamin 1amp iv st & q8h (∵ 有血痰)
- Day 2, 22:00
  - S: 還是很咳，痰仍有血絲。有 fever 。咳胸口會痛
  - O:
    - Consciousness: Clear;
    - Chest: Bil. Crackles; no wheezing;
    - Abd.: soft; no tender; no muscle guarding;
    - Ext.: no pitting edema;

- Day 3, 00:55
  - Progressive dyspnea;
  - high fever 39℃ ;
  - consciousness: stupor;
  - SpO2: 65~70%
  - chest: bil. Crackles
- Bedside echo:

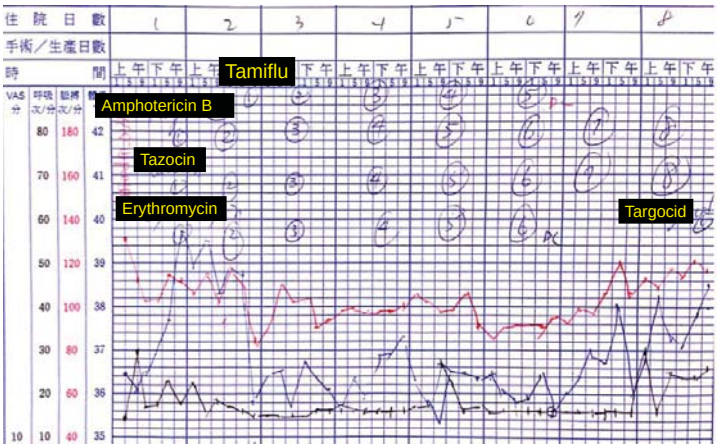


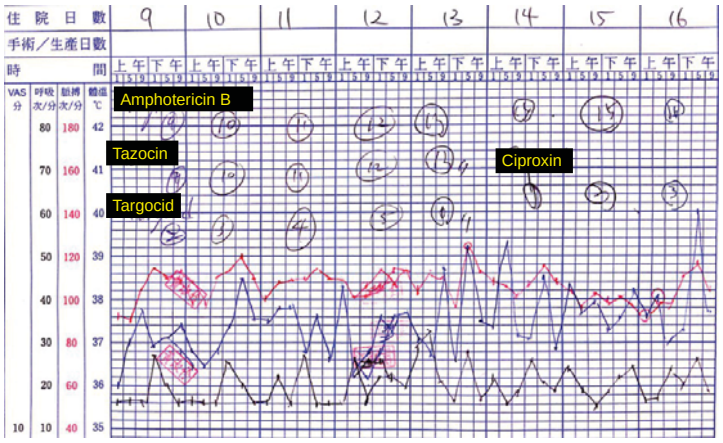
- Bedside Echo:
  - Bil. Multiple lung rockets;
  - Multiple peripheral conolidations on both lungs;

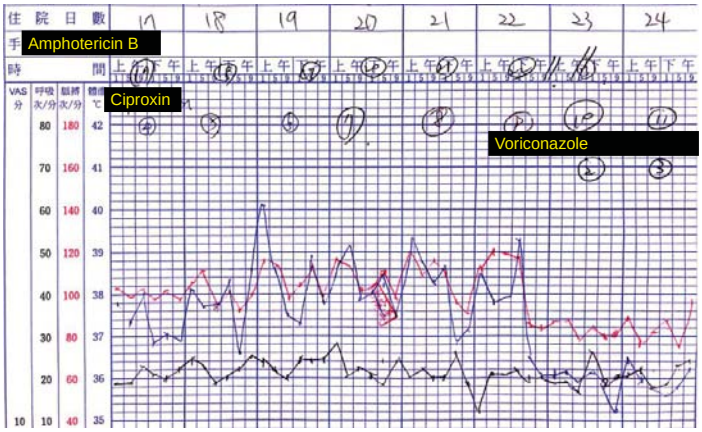
  → bilateral pneumonia with ARDS
- → on ET tube; ICU admission
- Post intubation CXR: 手繪圖

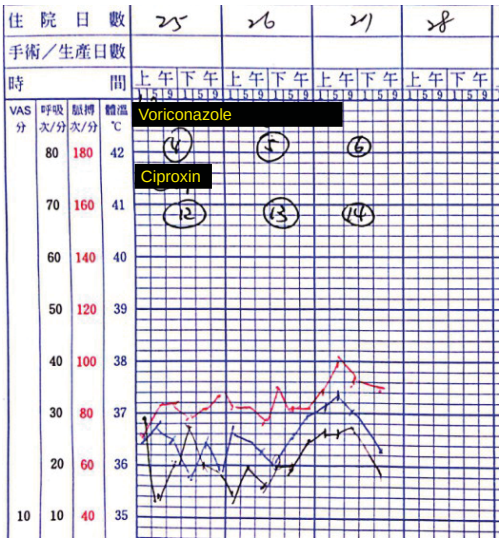


After Admission









Discussion

Invasive Aspergillosis

adapted from IDSA Guidelines (2008)

Aspergillus species have emerged as important causes of morbidity and mortality in immunocompromised patients

Classification of Aspergillosis

- Saprophytic
  - Aspergillus otomycosis
  - pulmonary aspergilloma
- Allergic
  - allergic Aspergillus sinusitis
  - allergic bronchopulmonary aspergillosis
- Invasive

Invasive Aspergillosis (1/2)

- infection of the site as portals of entry
  - lower respiratory tract
  - Sinuses
  - Skin
- hematogenous dissemination or direct extension from contiguous foci
  - CNS
  - cardiovascular system and other tissues

Invasive Aspergillosis (2/2)

- hematopoietic stemcell transplantation (HSCT)
  - the most common cause of infectious pneumonic mortality
- in other immunocompromised patients
  - opportunistic respiratory
  - disseminated infection

Diagnosis (1/2)

- Blood cultures
  - limited utility (often not positive even in disseminated infection)
- standard procedures for invasive pulmonary aspergillosis
  - Bronchoalveolar lavage
  - transthoracic percutaneous needle aspiration
  - video assisted thoracoscopic biopsy

Diagnosis (2/2)

- galactomannan EIA
- lack of a positive culture or direct smear result does not rule out the diagnosis

FDA-approved compounds for treatment of invasive aspergillosis

- Amphotericin B:
  - deoxycholate amphotericin B (D-AMB)
  - lipid formulations
    - AMB lipid complex (ABLC)
    - liposomal amphotericin B (L-AMB)
    - AMB colloidal dispersion (ABCD)
- voriconazole, itraconazole, posaconazole
- caspofungin

Overview of treatment guideline (1/1)

- Early initiation of antifungal therapy in patients with strongly suspected invasive aspergillosis is warranted while a diagnostic evaluation is conducted (A-I)
- Voriconazole is recommended as primary treatment of invasive pulmonary aspergillosis (A-Ⅰ)
  - Oral therapy can be maximized by using a dose of 4 mg/kg rounded up to convenient pill sizes (B-Ⅲ)

Overview of treatment guideline (2/2)

- L-AMB may be considered as alternative primary therapy (A-I)
- primary therapy with D-AMB is not recommended (A-I)

Condition	Therapy[a]	
	Primary	Alternative[b]
Invasive pulmonary aspergillosis	Voriconazole (6 mg/kg IV every 12 h for 1 day, followed by 4 mg/kg IV every 12 h; oral dosage is 200 mg every 12 h)	L-AMB (3–5 mg/kg/day IV), ABLC (5 mg/kg/day IV), caspofungin (70 mg day 1 IV and 50 mg/day IV thereafter), micafungin (IV 100–150 mg/day; dose not established[c]), posaconazole (200 mg QID initially, then 400 mg BID PO after stabilization of disease[d]), itraconazole (dosage depends upon formulation)[e]

Overview of treatment guideline (3/3)

- The volume of pulmonary infiltrates may increase for the first 7–10 days of therapy

Caillot D, Couaillier JF, Bernard A, et al. Increasing volume and changing characteristics of invasive pulmonary aspergillosis on sequential thoracic computed tomography scans in patients with neutropenia. J Clin Oncol 2001;19:253–9.

- Surgical resection may be useful in patients with lesions that are
  - contiguous with the great vessels / pericardium
  - causing hemoptysis from a single focus
  - causing erosion into the pleural space or ribs

(B-III)