



**EFIM**

European Federation of Internal Medicine



NICOSIA GENERAL HOSPITAL

# **CASE PRESENTATION** **(CYPRUS)**

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**Internal Medicine Resident**

**Nicosia General Hospital (CYPRUS)**

# CLINICAL PRESENTATION

- **23-year old Romanian male**
- **Past medical history**: smoker (5 pack-years)
- **Present complaint**:
  - fever with rigors, and
  - sore throat (from a week before admission)
- On **Abx**: amoxicillin/clavulanic acid 625mg tds per os
- **Travel**: Romania (almost a month ago)
- **Occupational exposures**: dust/soil exposure (Fruit Market employee)
- **Recreational drugs/medication**: none

# PHYSICAL EXAMINATION

- **Fever** (temperature 38.1°C) with rigors
- Sinus tachycardia (**148 bpm**)
- Prolonged capillary refill time (**CRT: 4 sec**)
- 2/6 **systolic murmur** at the aortic valve position
- Mild crackles of the right middle and lower lung lobe  
**Tachypnea** (20 breaths per minute)
- **Hypoxia** (SaO<sub>2</sub>: 89%)
- Other findings: herpes labialis, dryness of oral mucosa, decayed teeth in the right lower mandible, tonsillitis without exudate and mildly tender neck lymphadenopathy of the left carotid triangle

| Parameter                                 | Day 1  | Reference values            |
|---|--------|-----------------------------|
| White blood cells (WBCs)                  | 26.01  | $\times 10^9/L$ (3.91-8.77) |
| Neutrophils                               | 21.57  | $\times 10^9/L$ (1.82-7.42) |
| Haemoglobin                               | 14.5   | g/dL (11.9-15.4)            |
| Mean Cell Volume (MCV)                    | 85.8   | fL (77.0-93.0)              |
| Mean Corpuscular Haemoglobin              | 29.8   | pg (27.0-32.0)              |
| Reticulocytes %                           | 0.2    | % (0.039-0.057)             |
| Platelets (PLTs)                          | 19     | $\times 10^9/L$ (150-450)   |
|   |        |                             |
| International Normalized Ratio (INR)      | 1.43   | 0.95-1.02                   |
| Fibrinogen                                | 438.5  | mg/dL (270.0-470.0)         |
| D-Dimers                                  | 11499  | ng/ml (0.0-550.0)           |
|   |        |                             |
| Glucose                                   | 91     | mg/dL (74-106)              |
| Urea                                      | 103    | mg/dL (17-43)               |
| Creatinine (Cr)                           | 1.62   | mg/dL (0.67-1.17)           |
| Proteins                                  | 5.5    | 6.6-8.3 g/dL                |
| Albumin                                   | 2.4    | 3.5-5.2 g/dL                |
| Total Bilirubin                           | 2.71   | mg/dL (0.3-1.2)             |
| Direct Bilirubin                          | 1.22   | mg/dL                       |
| Alkaline phosphatase (ALP)                | 413    | IU/L (30-120)               |
| Gamma-Glutamyltransferase ( $\gamma$ -GT) | 134    | IU/L (9-55)                 |
| Lactate dehydrogenase (LDH)               | 684    | IU/L (208-480)              |
| C-reaction protein (CRP)                  | 293.20 | mg/L (0.00-5.00)            |
| Procalcitonin (PCT)                       | 5      |                             |

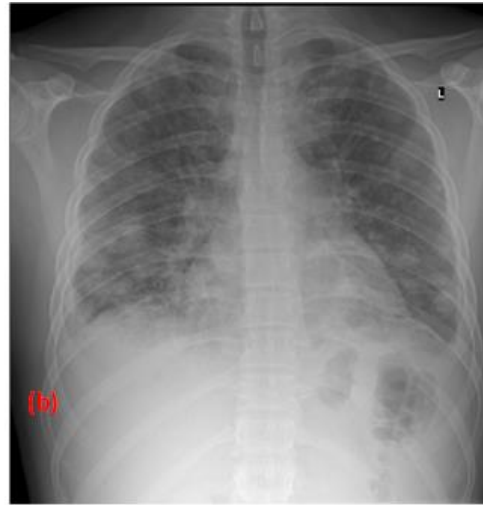
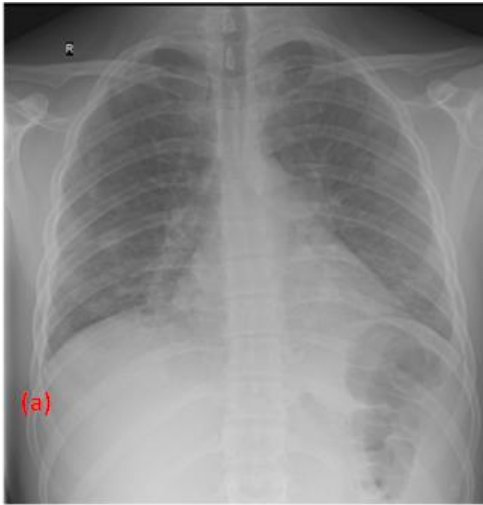
# EMPIRICAL TREATMENT

- Oxygen therapy (SaO<sub>2</sub> ≥ 96%)
- **Empirical Abx therapy:**
  - PIPERACILLIN / TAZOBACTAM 4.5 gr q6h IV, and
  - VANCOMYCIN 15mg/kg q12h IV (after loading dose 30mg/kg), and
  - DOXYCYCLINE 100mg q12h Per Os
- **Fresh frozen plasma (due to DIC)**

# WORKUP (2)

- **Blood Cultures:** *Streptococcus gordonii*
- **2<sup>nd</sup> day of Hospitalization** → clinical deterioration (severe tachypnea / epistaxis / hypoxia)
- **CT Chest Scan:** multiple interstitial and nodular infiltrates, mild bilateral pleural effusions and multiple pulmonary cavities
- **Transthoracic and transoesophageal echocardiographs:** normal

# WORKUP (2)



- CXR (2<sup>nd</sup> day) / CT CHEST (3<sup>rd</sup> day): Multiple interstitial pulmonary infiltrates
- Signs of septic thrombotic lung infarcts

# WORKUP (2)

- TST: negative
- Immunological screening (ANA, ANCA, etc): negative
- Influenza PCR: negative
- Streptococcal/Legionella urine antigen: negative
- Doppler and CT-neck venography: mild neck lymphadenopathy and **left internal jugular vein thrombosis with extension in the left anonymous vein**



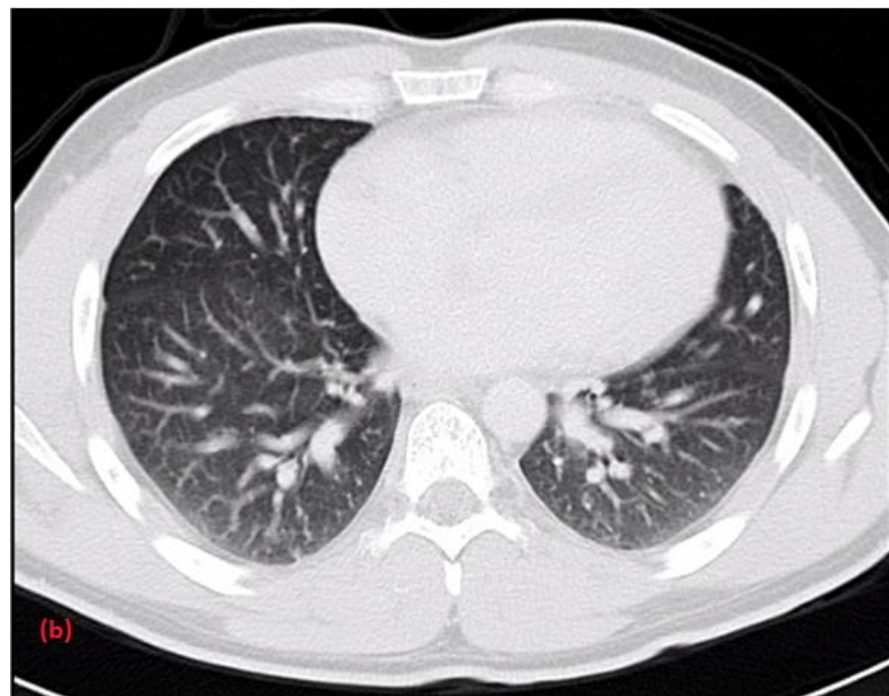
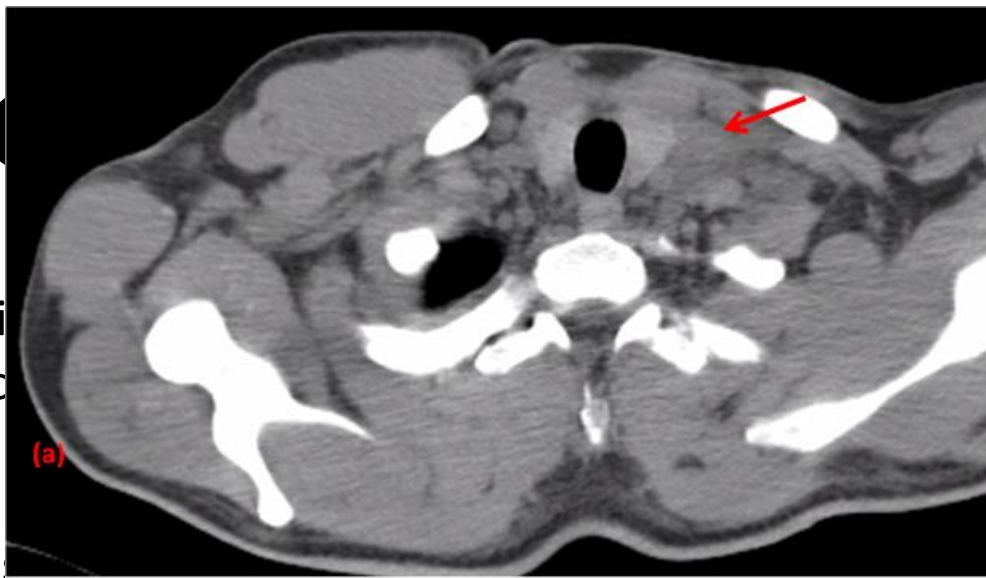
# TREATMENT

De-escalated (after blood cultures) to:

- PENICILLIN G 6mU q6h IV, and
- DOXYCYCLINE 100mg q12h Per Os (*Rickettsia typhi* and *R. conorii* IgM Abs (+) = 1/64)
- LMWH (Enoxaparin 6000 iu q12h SC)

# WORKUP (3)

- **Pleuritic fluid culture:** *S. gordonii*
- **Rickettsial IgM Abs:** positive for *R. typhi* / *R. conorii* (with **4-fold titer increase in 2 weeks = 1/256**)
- **Percutaneous thoracic drainage and CT-guided transcutaneous catheter drainage** (on days 14 and 18): due to increased/encapsulated pleuritic fluid collection
- **Thrombophilia screening**
  - Protein C, Protein S, Antithrombin III, Resistance to protein C, Lupus anticoagulant (LA): negative
  - **Genetic thrombophilia testing:** **3 minor mutations** heterozygosity for beta-Fibrinogen-455, Plasminogen activator inhibitor-1 (PAI-1 4G/5G), Methylenetetrahydrofolate reductase (MTHFR C677T).



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# DIAGNOSIS

**(Complicated) Suppurative (septic)  
thrombophlebitis of the jugular vein**

OR

**Anaerobic Post-Anginal Sepsis**

OR

**LEMIERRE SYNDROME**

**(caused by *S. gordonii* and possible Rickettsial  
co-infection)**

# KEY ELEMENTS / LEMIERRE'S SYNDROME

- **Incidence:** 1 case / million
- **Mortality:** 15% with Abx (from 90% without Abx)
- **2 types:**
  1. young previously healthy people with recent upper respiratory or oral - pharyngeal infections
  2. older adults, predisposition factors and portals of entry distal from the head i.e central venous access devices, malignancies of lung, colon, breast and ovary and thrombophilia
- **Clinical presentation:** Prolonged fever, sepsis, contralateral neck tenderness, neck lymphadenopathy metastatic necrotic septic emboli/abscesses, dyspnea, pleuritic pain

# KEY ELEMENTS (2)

- **Causative agents:**
  - **Fusobacterium necrophorum (81%)**, other *Fusobacterium* spp., MRSA, *Klebsiella pneumoniae*, Viridans streptococci group, *Bacteroides fragilis*, *Peptostreptococcus* spp, and Prevotella
  - 1/3 of the patients → poly-microbial bacteremia
- **Treatment:**
  - **Treatment of Choice:** combination of broad-spectrum intravenous antibiotics (**b-lactams/beta-lactamase inhibitor**), with or without **Metronidazole** or **Clindamycin**
  - **Abx Duration** → UNCERTAIN → at least 2-4 weeks of **intravenous antibiotics** followed by another 2-4 weeks of oral antibiotics
  - **Anticoagulation** (similar response Vs Abx alone)
    - Indications: retrograde extension of thrombus, bilateral neurological features due to endocranial thrombosis, severe clot burden
    - Discontinuation: the infection is controlled and the venous re-cannulation is achieved
  - **Surgical drainage** of pulmonary embolus
  - **Thoracotomy** for abscess drainage

# TAKE-HOME MESSAGES

- Lemierre' disease is a very rare entity
- Mimics common diseases: e.g endocarditis
- Can cause lethal complications
- Main cause: anaerobic bacteria of oral flora (eg. F. necrophorum) → OTHER species may cause septic thrombophlebitis
- Suspect underlying Thrombophilia Predisposition
- Treatment: long-term IV antibiotic therapy ± Anticoagulation (needs close follow-up)
- Importance of patient's → **HISTORY/CLINICAL PRESENTATION/EXAMINATION**









**THANK YOU!!**

CYPRUS