Seed GLOBAL HEALTH

Project ECHO

EMS ECHO CASE PRESENTATION

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Brief History

48-YO male presenting with **DIFFICULTY IN BREATHING (DIB).**

Initially exertional, now DIB at rest.

Positives	Negatives
HIV-positive	Non-adherent to ART for 6 months
Progressive dyspnea for the last 5 days Low-grade fevers, Dry cough Right-sided pleuritic chest pain. LOW (~5 kg) over 2 months.	No orthopnea or PND. No recent travel or known TB contact

- Identify
- Situation
- Background
- Assessment
- Recommendation

Prehospital:

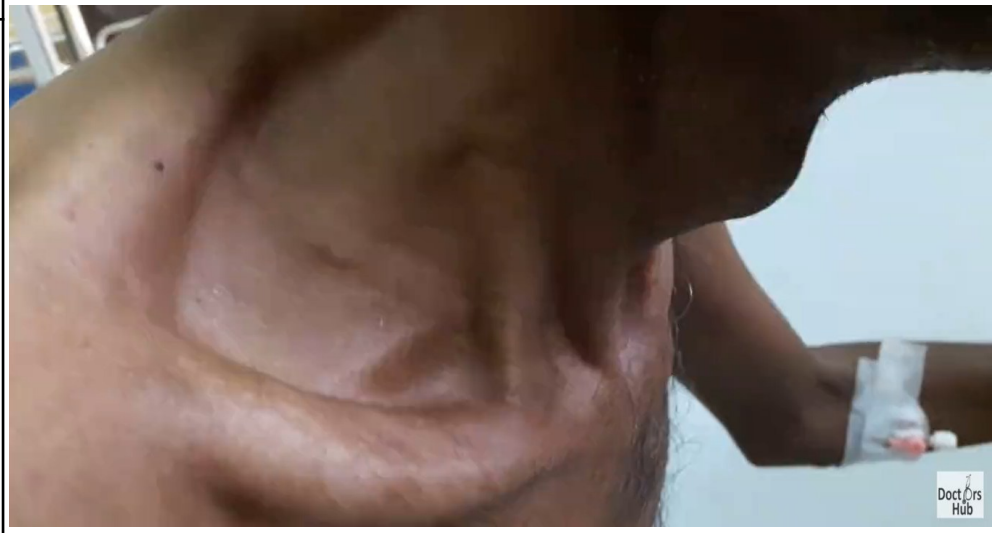
What do you need to prepare to transport this patient?

- Staff
- Patient
- Equipment
- Mode of transport
- Documentation/Handover

Primary Survey (Emergency Assessment and Management)

A	Patent: speaking shortened sentences
B	**SpO_2: 84% on RA** **RR: 28** **accessory muscles use** Chest: ↓ breath sounds, bronchial breathing + crackles over **RUL**, No wheezing Percussion: Dull **RUL**

https://www.youtube.com/watch?v=U5nrX-RN7hQ



Primary Survey (Emergency Assessment and Management)

C	**HR: 110 bpm**, regular. **BP: 98/62** mmHg Extremities warm, CRT: <3 seconds ***No*** JVD, ***No*** peripheral edema, ***No*** active bleeding	
D	GCS: 15, No focal neurological deficits Blood glucose: 5.1 mmol/L	
E	Temp: **37.8**°C **Wasted appearance** (BMI ~18)	***No*** *evidence for* *- rash, cyanosis* *- trauma* *- lymphadenopathy, extrapulmonary TB* *- meningism*

POLL QUESTION 1

What are the
top 3 management priorities
for this patient
at the bedside?

What are the emergency Conditions?

THREATS	*PRIORITY*	*Findings*	*Associated Risk*	*Immediate Action Taken*
B	Severe Hypoxemia	SpO_2 84% RA RR 28, accessory muscle use	Respiratory failure, tissue hypoxia	O_2 nasal cannula 4L→ SpO_2 improved to 94%
C	Early Sepsis	HR 110, BP 98/62, fever (low grade)	Septic shock, organ dysfunction	IV access, blood tests, Empiric antibiotics
	Hypovolemia	Wasted, malnutrition mild hypotension, insensible losses	Perfusion deficit, renal injury	IV fluid resuscitation (cautious)

And always reassess to monitor response to treatments

Skills Break!!!

What are the BASIC AIRWAY MANEOUVRES and how do you perform them?

Video…

Titrate oxygen, start IV fluids and empiric IV antibiotics

Great!

We have started to stabilize the patient

…let’s gather more details!

SAMPLE History

Signs & Symptoms	➢ Progressive SOB for 5/7, now SOB at rest. ➢ Dry cough, low-grade fever, mild right-sided pleuritic chest pain, fatigue ➢ Reduced appetite, ~5 kg weight loss over 2 months. ➢ No orthopnea, wheeze, hemoptysis, or leg swelling.
Allergies	➢ **No known drug or food allergies.**
Medications	➢ **Not currently on any medications.** ➢ Previously on ART (TDF/3TC/EFV) — *defaulted 6 months ago due to side effects.* ➢ Not on cotrimoxazole.

SAMPLE History

Past Medical History	➢ HIV+ 4 years. No prior TB treatment. ➢ **Last CD4 (8 months ago): 180 cells/mm³.** ➢ No other known chronic conditions.
Last Oral Intake	➢ 1–2 weeks; small intake of porridge and tea. ➢ Poor fluid intake in recent days.
Events Leading Up to Presentation	➢ DIB worsened over the past 24 hours. ➢ No trauma, no travel. ➢ Financial stressors.

What are all the possible differentials

and

what would you be looking for on examination to support these?

Secondary Survey (Head-to-toe examination)

RELEVANT POSITIVES	RELEVANT NEGATIVES
Sick looking, wasted, sweaty Dry mucosa, mild conjunctival pallor Mild SOB at rest Abnormal sounds RUL Normal conscious state Mild muscle weakness 4+/5 globally Responded to oxygen and initial fluid treatment HR 100 SpO2 94% on 4L NP	No murmur No signs of fluid overload Abdomen normal, no organomegaly No focal neurological deficit No skin lesions or ulcers (esp. Kaposi Sarcoma) No lymphadenopathy

Now what do the investigations show…

Investigations

BEDSIDE POCUS
(Point of Care Ultrasound)

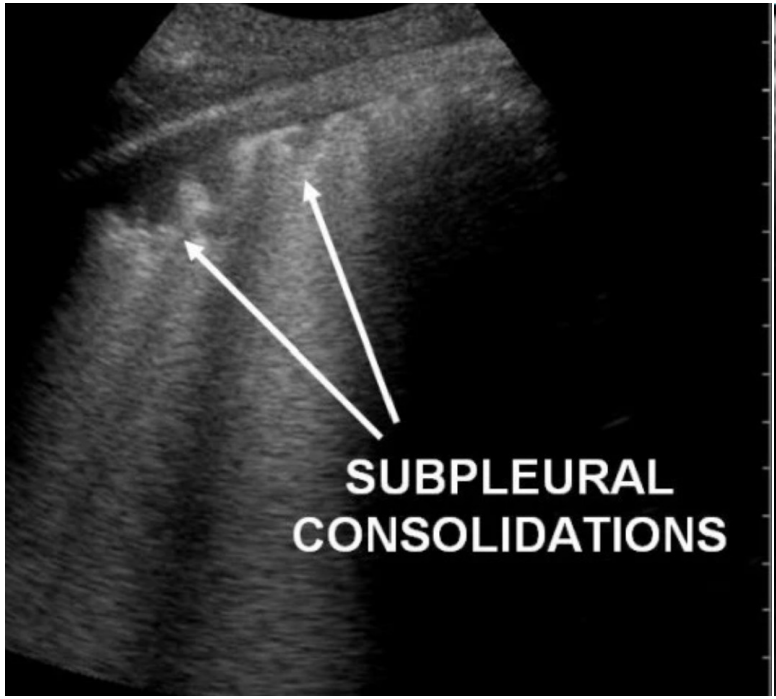
Lung

- Right upper lobe: subpleural consolidations
- Normal elsewhere

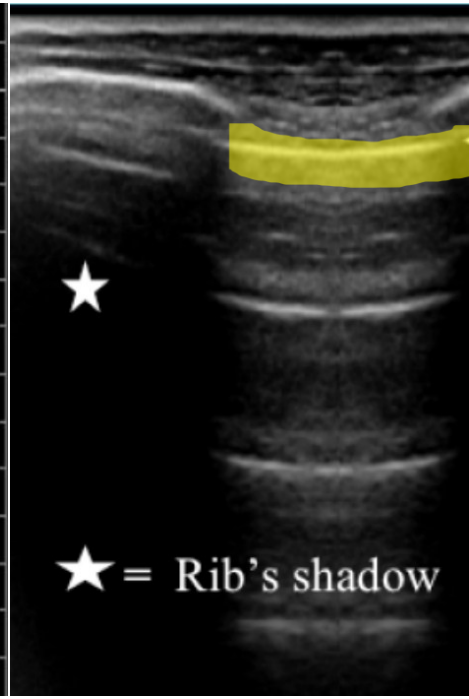
Cardiac

- Normal heart and pericardium

- IVC collapsing > 50%

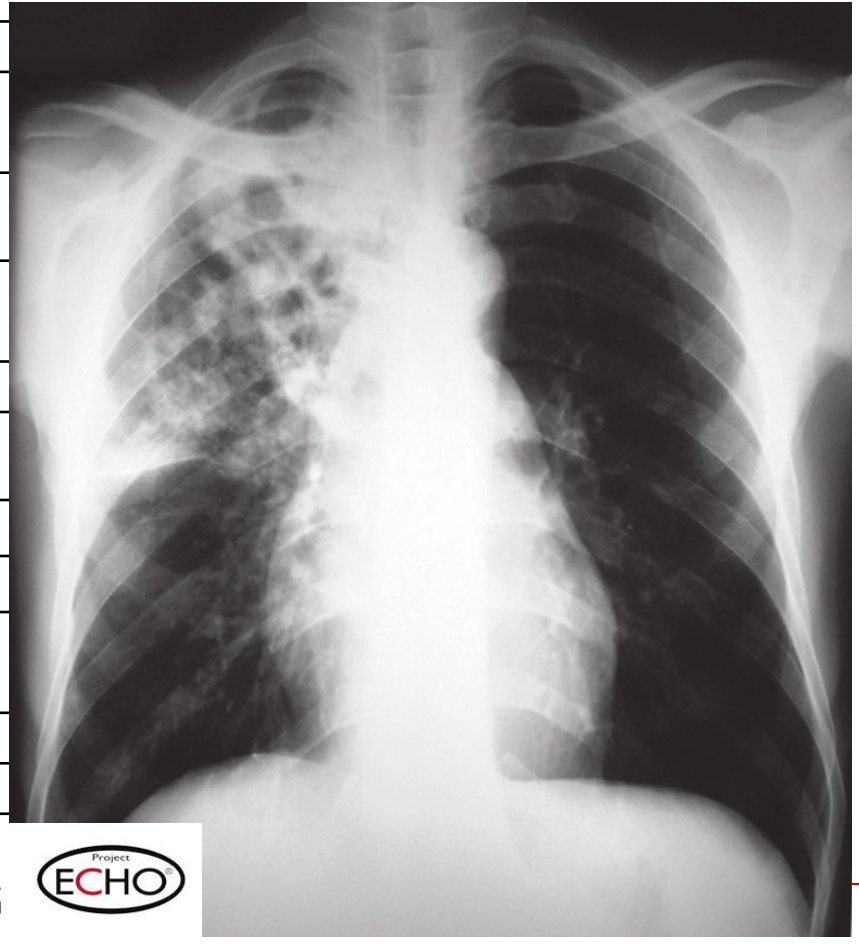


Normal smooth pleural line



Investigations

Investigation	Result
Chest X-ray (basic PA film)	**Right upper lobe cavitating lesion** with patchy infiltrates
Sputum GeneXpert MTB/RIF	**MTB detected, Rifampicin-sensitive**
Full Blood Count (CBC)	WBC: 5.2 x10^9/L, Hb: 10.2 g/dL, Platelets: 250 x10^9/L
Malaria RDT	Negative
Random Blood Sugar (RBS)	5.1 mmol/L
ESR	78 mm/hr
ECG	Sinus tachycardia
Electrolytes, Creatinine	**Na: 129 mmol/L**, K: 4.1 Creatinine: Normal
CD4 count	*Pending (expected >48 hrs)*
ABG/VBG	*Not done*
CRP, D-dimer, LFTs	*LFT pending*
Blood cultures	*Pending*



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Differential diagnoses

- **Pulmonary Tuberculosis**
- Pneumocystis jirovecii Pneumonia (PCP)
- Community-Acquired Bacterial Pneumonia (CAP)
  - Early Sepsis (Respiratory Source)
- HIV-Associated Wasting Syndrome

- Anemia-related Dyspnea
- Disseminated Fungal Infection (e.g., Histoplasmosis)
- Pulmonary Embolism (PE)

Supportive Management

- Oxygen therapy: Target $SpO_2 \geq 92\%$
- Replace fluids (IV maintenance until able to tolerate PO)
- Antipyretics: paracetamol
- Monitor vitals

Nutritional and Psychosocial Support

- Start nutritional support if oral intake is possible
- Begin vitamin supplementation (B-complex, multivitamins)
- Involve social workers for ART adherence support

Specific Management

GeneXpert Confirmed TB	➢ Start HRZE regimen for 2 months ➢ Administer according to weight-band dosing
Suspected PCP Pneumonia (HIV+, hypoxia, dry cough)	Start IV Cotrimoxazole 960 mg q8h ➢ Corticosteroids >> SPo2< 90% : ➢ Prednisolone 40 mg PO BD x 5 days, then taper (if no contraindications)
Bacterial superinfection ??	Ceftriaxone 2 g IV once daily ➢ Add Azithromycin 500 mg PO/IV once daily if atypical organisms suspected

Disposition Plan

Transfer Internal Medicine (TB Isolation)

Continue treatment & follow up outstanding tests

Monitor for Adverse Drug Reactions

Delay ART for 2-4 weeks (f/u HIV-TB clinic)

Thank you

And now for the nursing perspective…

Skills Break!!!

If the patient starts to deteriorate and you need to insert an AIRWAY ADJUNCT….

do you know how?

Video

POLL QUESTION 2

What diagnoses do you need to consider if the patient suddenly becomes severely short of breath, hypoxic, confused and hypotensive?

Skills Break!!!

You suspect a tension pneumothorax ….

Do you know what to do?

Video