

Approach to a patient with dyspnea

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CASE

- ▶ 70 year old FLP, k/c of HTN and ESRD, presented to the ER with progressive dyspnea (Grade 4) from 5 days ago, orthopnea, pleuritic chest pain, dry cough, epigastric pain, vomiting (once) and fever (on and off)
- ▶ No history of hemoptysis, palpitation, intermittent claudication, hematemesis, melena, bowel changes. Other systems unremarkable.
- ▶ PMH
 - ▶ Admitted twice before for same illness
 - ▶ HTN: on Amlor (10g), Concor (5mg)
 - ▶ ESRD: since 2016, started dialysis 2 weeks ago (7 sessions)

- ▶ O/E pt was conscious, oriented, dyspneic, Afebrile, Pallor ++, Bilateral p.edema +++, PPP
- ▶ No Jaundice, clubbing, tremors or signs of DVT
- ▶ Chest : decreased breath sounds in Rt side

- ▶ BP: 160/80 , PR: 106, Temp: 37.3

Investigation ??

- ▶ CBC
- ▶ RFT & Electrolytes
- ▶ LFT
- ▶ ABG
- ▶ Skin Tuberculin test
- ▶ AFB
- ▶ CXR & USS
- ▶ Urine catheter
- ▶ ECG and Echo

FULL BLOOD COUNT

LOOD CELLS	Result	Normal Values
Hemoglobin)	8.7 gr/dL	11.4 - 16.5
Red Blood Cells)	3.1 x10 ⁶ /mm ³	3.8 - 5.8
Hematocrit)	25.9 %	37.0 - 47.0
.	83.5 fL	77.0 - 93.0
.	28.1 pg	27.0 - 32.0
.	33.6 %	31.0 - 35.0
RDW (Red cell Distribution Width)	13.1 %	11.0 - 16.0
RDW-SD (Red cell Distribution SD)	40.4 %	34.0 - 47.0

BLOOD CELLS	Result	Normal Values
White blood cells)	7.80 x10 ⁹ /L	4.00 - 11.00

Cell Differentials	Result	Normal Values	Absolute
Neutrophils	83.6 %	50.0 - 75.0	6.52 x10 ³ /iL
Lymphocytes	8.9 %	25.0 - 50.0	0.69 x10 ³ /iL
Eosinophils	7.5 %	2.0 - 8.0	0.59 x10 ³ /iL
Monocytes	%	0.0 - 5.0	x10 ³ /iL
Platelets	%	0.0 - 2.0	x10 ³ /iL
.	%		
.	%		
.	%		
.	%		

ETS	Result	Normal Values
Platelet Distribution Width)	393 10 ³ /mm ³	150 - 400
Mean Platelet Volume)	10.7 %	7.0 - 20.0
Platelet-Larger Cell Ratio)	9.2 fL	7.0 - 12.0
.	19.50 %	

Sender :

BIOCHEMISTRY

Test	Results - Units	Normal Values
Urea	81.0 mg/dL	Female : 7 -17 Male : 9 -20
Creatinine	10.40 mg/dL	0.70 - 1.20
Sodium (Na)	128.0 mmol/L	137.0 - 145.0
Potassium (K)	4.80 mmol/L	3.50 - 5.10

BIOCHEMISTRY

Test	Results - Units	Normal Values
Urea	88.0 mg/dL	Female : 7 - 17 Male : 9 - 20
Creatinine	12.50 mg/dL	0.70 - 1.20
Sodium (Na)	132.0 mmol/L	137.0 - 145.0
Potassium (K)	5.50 mmol/L	3.50 - 5.10
ASOT (AST)	44.0 U/L	14.0 - 36.0
ASPT (ALT)	34.0 U/L	9.0 - 52.0
AST	605.0 U/L	12.0 - 43.0

BIOCHEMISTRY

Gender :

Test	Results - Units	Normal Values
ALP - Alkaline Phosphatase	311.0 U/L	38.0 - 126.0

RADIOMETER ABL800 BASIC

ABL800 BASIC PATIENT REPORT Syringe - S 195uL 09:33 PM 10/22/2019
Sample # 151

Identifications

Patient ID 79
Patient Last Name
Patient First Name
Sample type Arterial
T 37.0 °C

Blood Gas Values

pH 7.379
pCO₂ 15.2 mmHg
pO₂ 71.8 mmHg

Oximetry Values

ctHb 5.7 g/dL
sO₂ 92.9 %
FO₂Hb_e 92.1 %
FHHb_e 7.1 %

Electrolyte Values

cK⁺ 2.6 mmol/L
cNa⁺ 122 mmol/L
§ cCa²⁺ mmol/L
cCl⁻ 80 mmol/L

Metabolite Values

cGlu 4.5 mmol/L
cLac 0.3 mmol/L

Temperature Corrected Values

pH(T) 7.379
pCO₂(T) 15.2 mmHg
pO₂(T) 71.8 mmHg

Oxygen Status

ctO_{2e} 7.5 Vol%
p50_e 29.15 mmHg

Acid Base Status

cBase(Ecf)_c -15.7 mmol/L
cHCO₃⁻(P.st)_c 12.2 mmol/L

ABG

Compensated Metabolic Acidosis

Chest X-Ray



**Rt.
Massive
Pleural
Effusion**

Next Step ??

Pleural Tapping !!



Cause of Pleural Effusion

✕ Transudates

Heart failure
Cirrhosis
Nephrotic syndrome
Hypoalbuminemia
Hypothyroidism

Exudates

Pneumonia
Malignancy (rarely transudate)
Tuberculosis
Pulmonary embolism
Rheumatoid arthritis
Systemic lupus erythematosus
Sjorgens syndrome
Pancreatitis
Esophageal rupture
Post coronary bypass surgery
Viral/parasitic disease
Post myocardial syndrome
Drug induced

LIGHT'S CRITERIA - Transudate

	Absolute value	Pl.fluid:serum ratio
Protein	< 3 g/dl	<0.5
LDH	< 200 units/L	<0.6
Glucose	< 60 mg/dl	1.0

Exudate

Protein	> 3g/dL	
Glucose	low	Empyema, Ca, SLE, RA, TB
LDH	high	Empyema, Ca, SLE, RA, TB
pH	low	Empyema, Ca, SLE, RA, TB
Amylase	high	Acute pancreatitis

Thoracentesis #1

- ▶ Procedure under septic condition
- ▶ On first puncture - 500ml of fluid
- ▶ Bloody fluid
- ▶ No Complications
- ▶ Pts claimed to be a little relieved.

CULTURE REPORT

SPECIMEN TYPE: FLUID
SOURCE-BODY SITE: N/A
ORGANISM: No Bacteria Growth

SET-UP DATE: 24/10/2019
ORGANISM GROUP: NA
BACTERIA COUNT: NA

Result

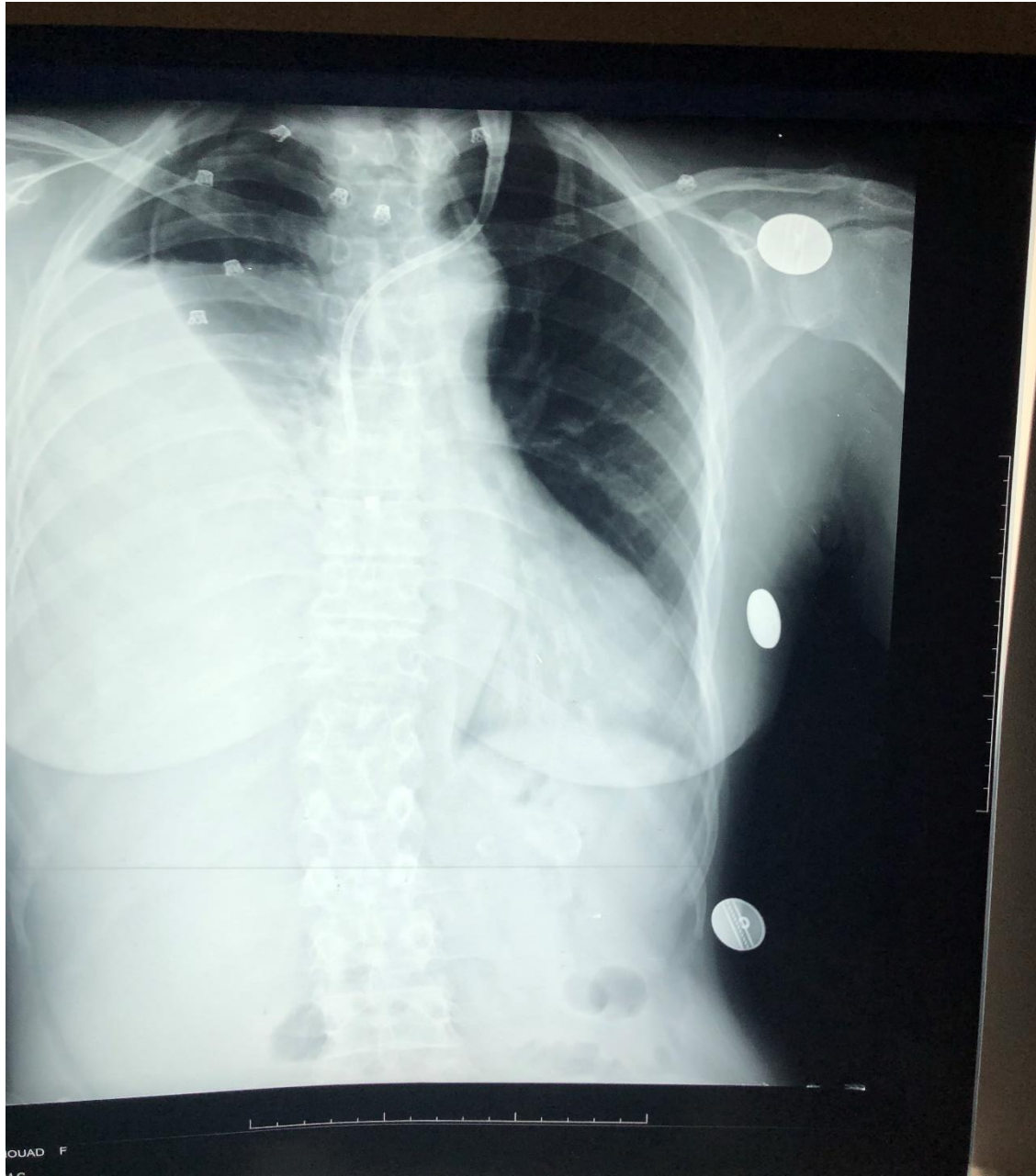
No Bactrial growth

Test Parameter	Result	Referance Range
MICROBIOLOGY REPORT		
WBC	2-4 HPF	(0 - 5)
RBC	plenty HPF	(0 - 5)
Ep.Cells	Nil	Nil
Bacteria	Nil	Nil

	Appearance of fluid	Type of fluid	Predominant cells	Other DX feature
TB	Cloudy Bloody Yellow	Exudate	Lymphocytes-	+ TT & pl.biopsy 80%
Malignant disease	Bloody	Exudate	lymphoctes	Positive pl .biopsy 40%
Pul. infarction	Bloody	Exudate	RBC	Source of embolism
Rheumatoid disease	Serous Yellow	Exudate	Lymphocyte)	RF , ANTI CCP
SLE	Serous	Exudate	Lymph.	Anti-DNA
Obst. of thoracic duct	Milky	Chyle	None	Chylomicrons

Thoracentesis #2

- ▶ Under septic condition
- ▶ After 2nd puncture - 1500ml of bloody aspirate
- ▶ Complicated ?
- ▶ Dyspnea improved



Hydropneumo- thorax

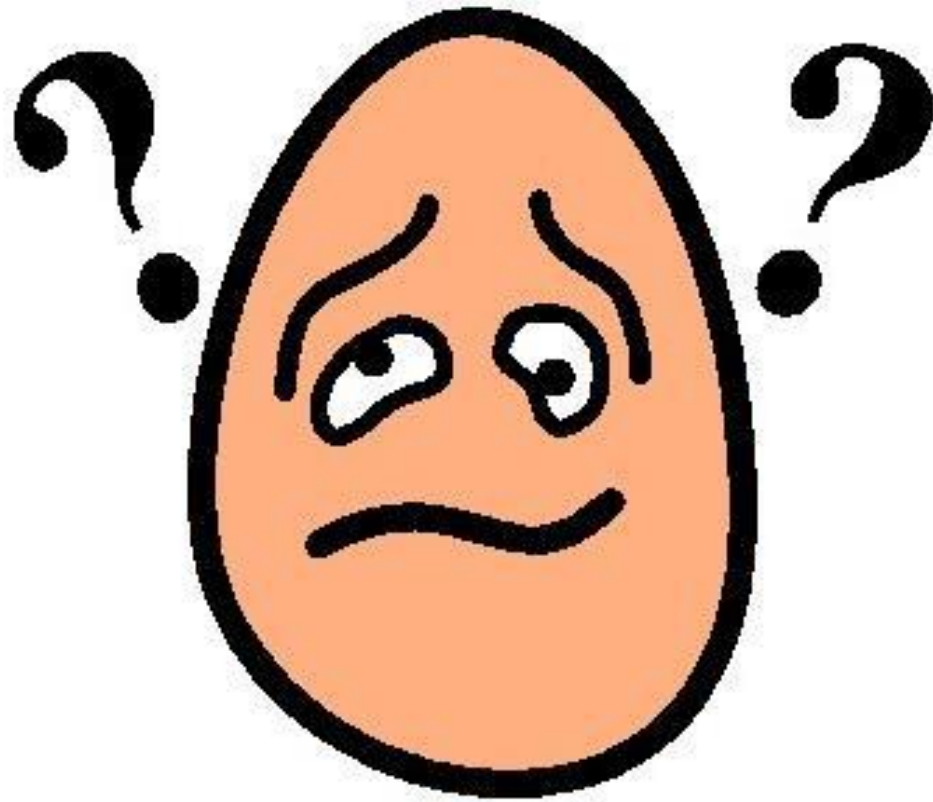
Rapid reaccumulation of fluid

..... **Chest Tube !!!!**



Next Step??

CT Chest and Abdomen



Can we manage it ??

- ▶ Initially manage the underlying cause
- ▶ Drainage: <2L/24hr and <1L in the first to occasion (to prevent RE-EXPANSION PULMONARY EDEMA)
- ▶ Pleurodesis: Tetracycline, Bleomycin (for recurrent effusion eg. malignancy)
- ▶ Intrapleural Streptokinase: used to break down pleural adhesions
- ▶ Surgery: for persistent collection and increased pleural thickness



Pleural effusion (> 1 cm height on decubitus radiograph, ultrasound or CT) without clinically evident heart failure.



Perform thoracentesis; measure pleural fluid protein and LDH.

Are any of the following met?
• Pleural to serum protein ratio > 0.5
• Pleural to serum LDH ratio > 0.6
• Pleural LDH > two thirds upper limit of normal serum LDH

Potential diagnosis (e.g., empyema, hemothorax, chylothorax)

Additional pleural fluid testing (cultures, hematocrit, triglycerides)

No

Transudate.
Treat heart failure, cirrhosis, or nephrosis.

Yes

Exudate.
Further diagnostic procedures:

Obtain pleural fluid glucose; ADA; total and differential cell counts; cytologic analysis; and, if suspected infection, pH and cultures.

ADA > 40 U per L (667 nkat per L) and lymphocytic effusion

Consider antituberculous treatment.

No diagnosis

Perform helical chest CT.

Positive helical CT: pulmonary embolism confirmed

No diagnosis

Consider bronchoscopy if hemoptysis, atelectasis, or pulmonary infiltrates are present.

Suspected pancreatic pleural effusion or esophageal rupture

Pleural fluid amylase

Symptoms improving?

No

Consider pleural biopsy (blind, image-guided, or by thoracoscopy).

Yes

Observe

Thank you

The image features the text "Thank you" in a bold, sans-serif font. Each letter is filled with a different color from a rainbow spectrum: 'T' is purple, 'h' is red, 'a' is orange, 'n' is yellow, 'k' is green, 'y' is blue, and 'o' is purple. The text has a slight 3D effect with a soft grey shadow cast to the left. The background is white, with a decorative brown geometric pattern of overlapping triangles on the right side.