

Recent advances of ultrasound in medical practice.

Presented by

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WELCOME



- Spectrum of recent advances of ultrasound in medical practice is wide. Advances range from diagnostic purpose to interventional procedure which is applicable in all disciplines of medical science. Among them important two are **elastography of breast lesion & Ultrasound as a guide for interventional procedure in chest lesions**

- Many diseases cause changes in the mechanical properties of tissues. These changes cannot be directly measured by popular imaging devices such as computed tomography (CT), traditional ultrasound (US) and magnetic resonance imaging (MRI). Elastography is a strain imaging technique that has been well established in research literature to identify tissue stiffness of an abnormal growth.

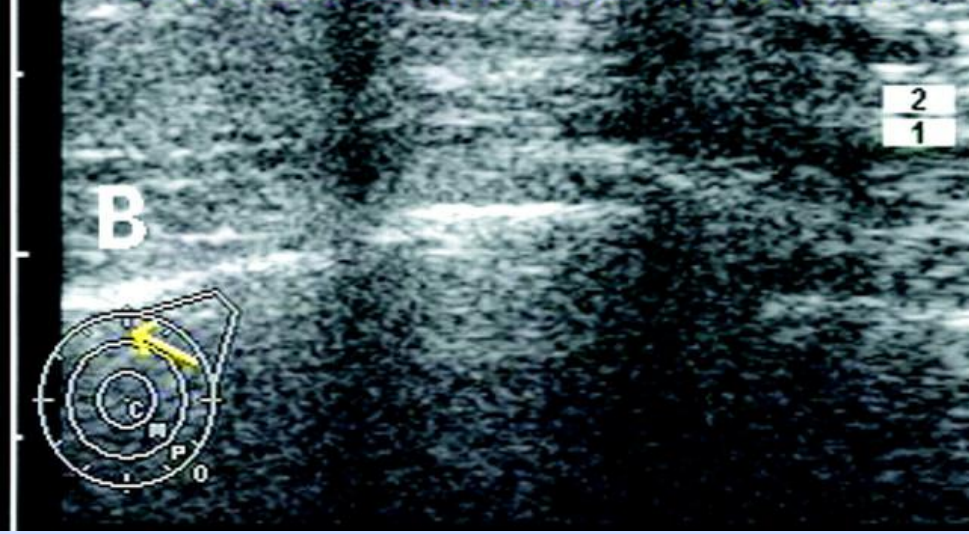
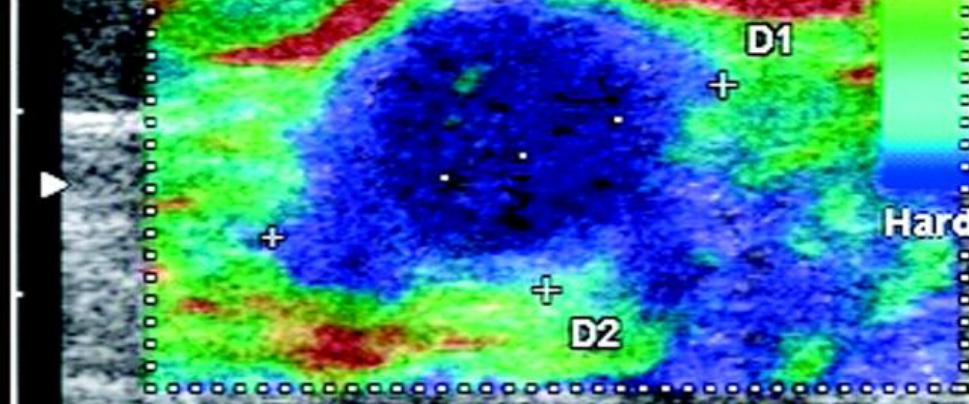
- Conventional ultrasound can be used with some additional software for elastography. To acquire image, ultrasound image is taken and then pushes on the tissue with probe to take a compression image. Some form of stress is applied to the tissue and resulting tissue deformation is assessed, elastogram is displayed visually as a grey-scale (white is soft and dark is stiff tissue) or a color-scale (red is soft and blue is stiff).
- USG elastography differentiates between benign and malignant lesions on the basis of their elasticity:

D1: 25.9 mm -04 Soft

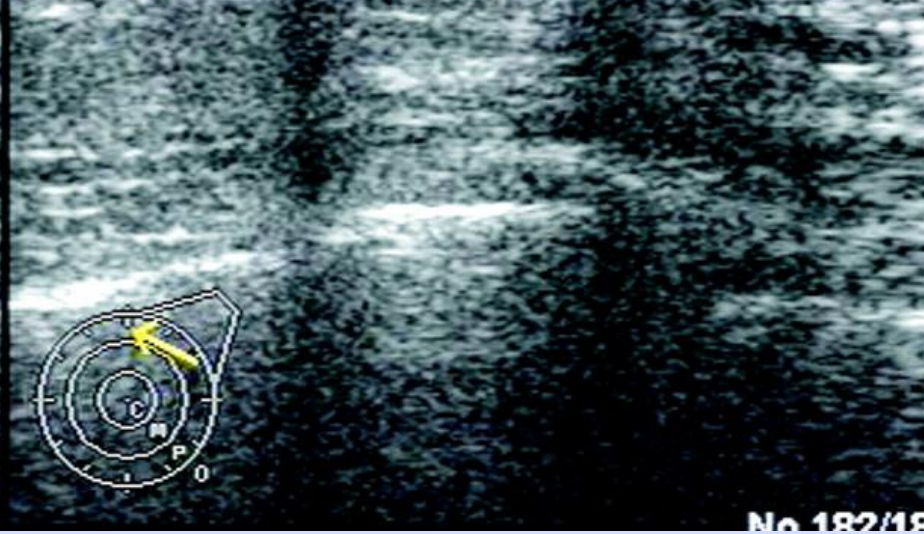
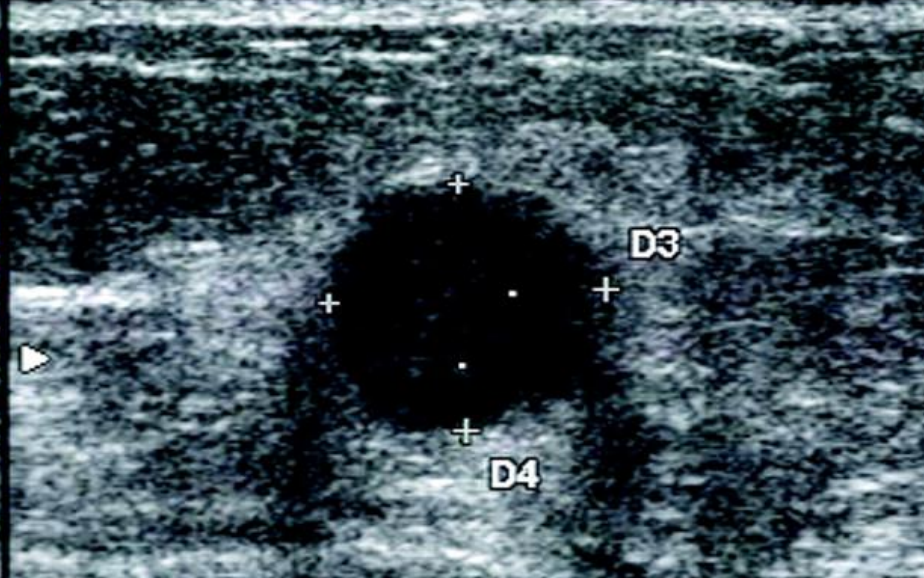
D2: 17.4 mm

D3: 15.1 mm

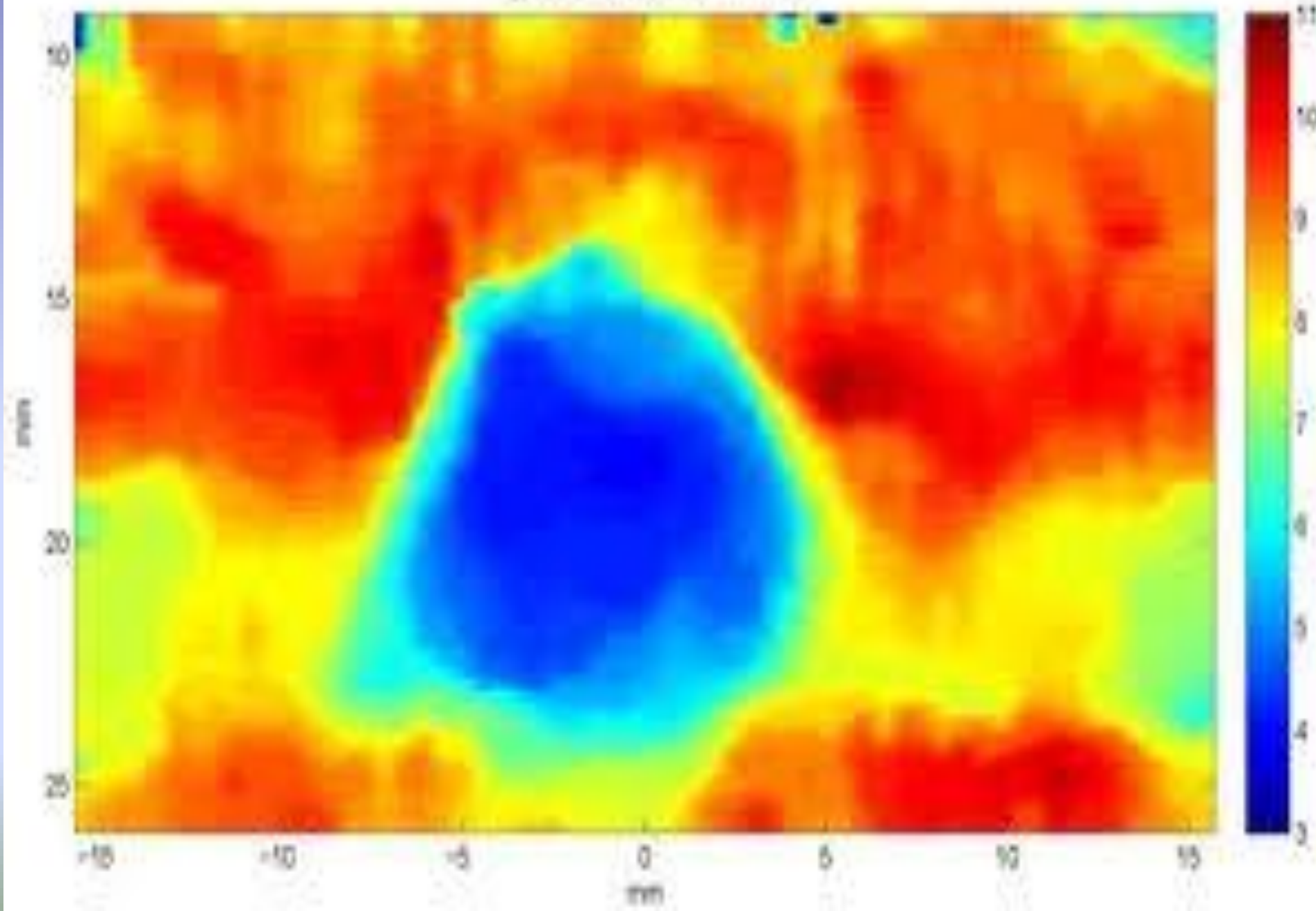
D4: 13.6 mm Hard



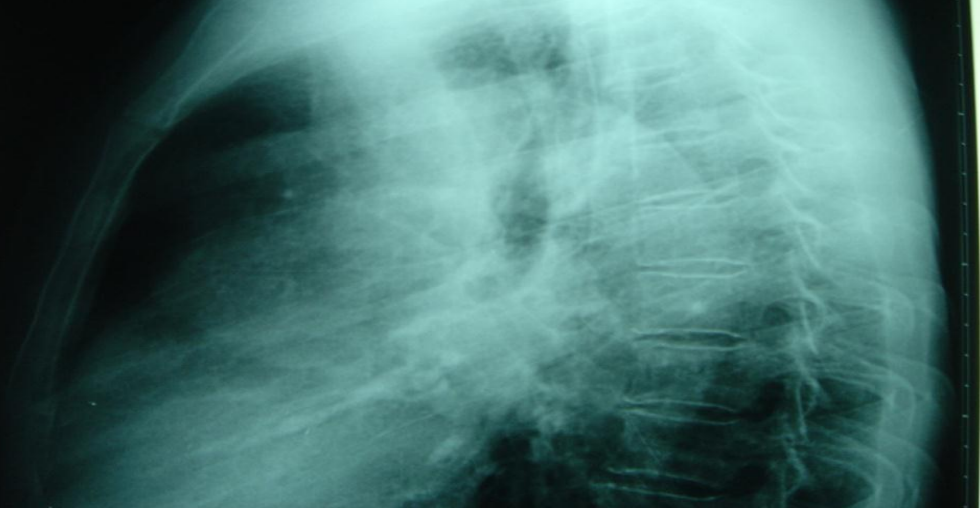
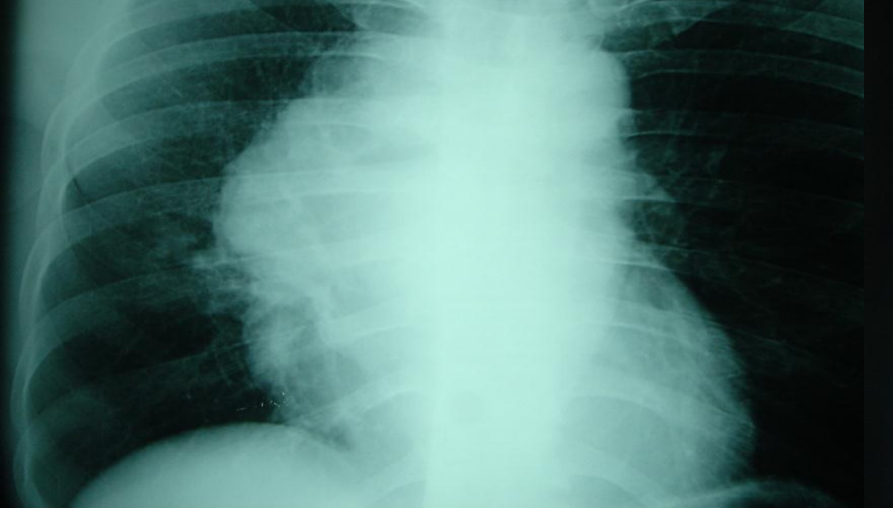
-04



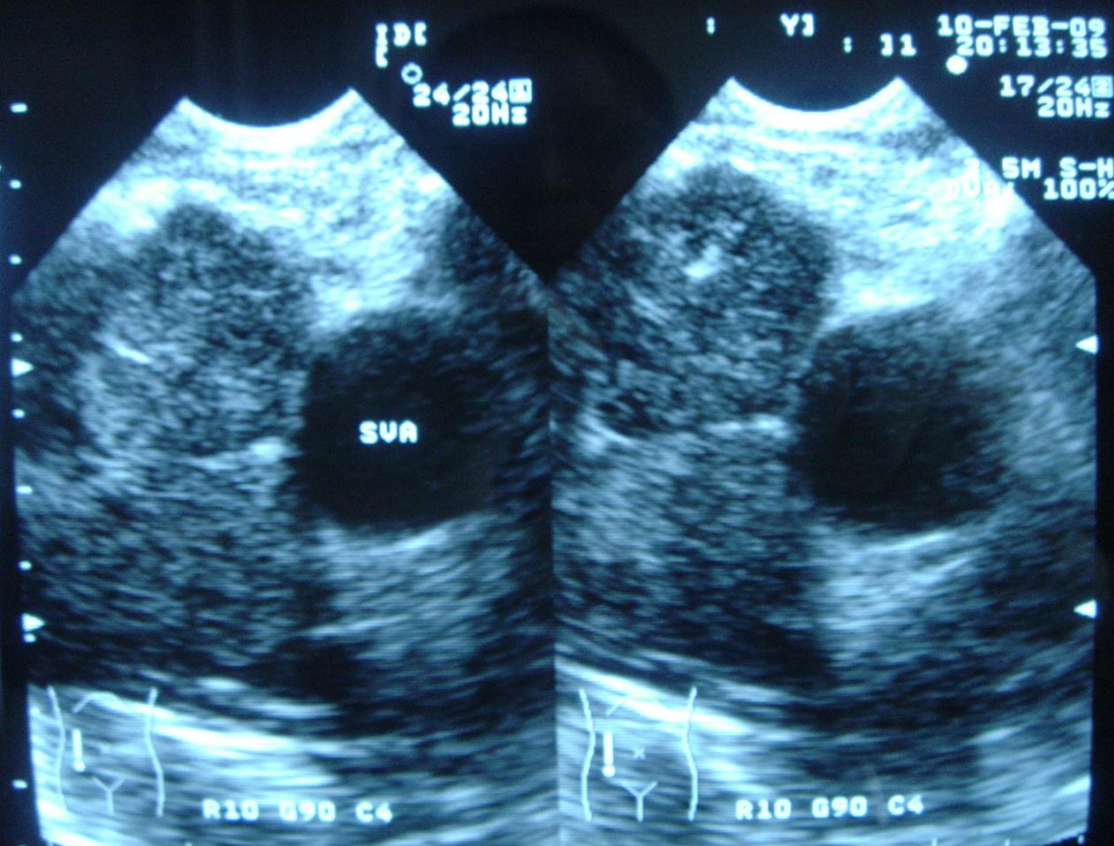
Type 1 Invert, Shear Modulus



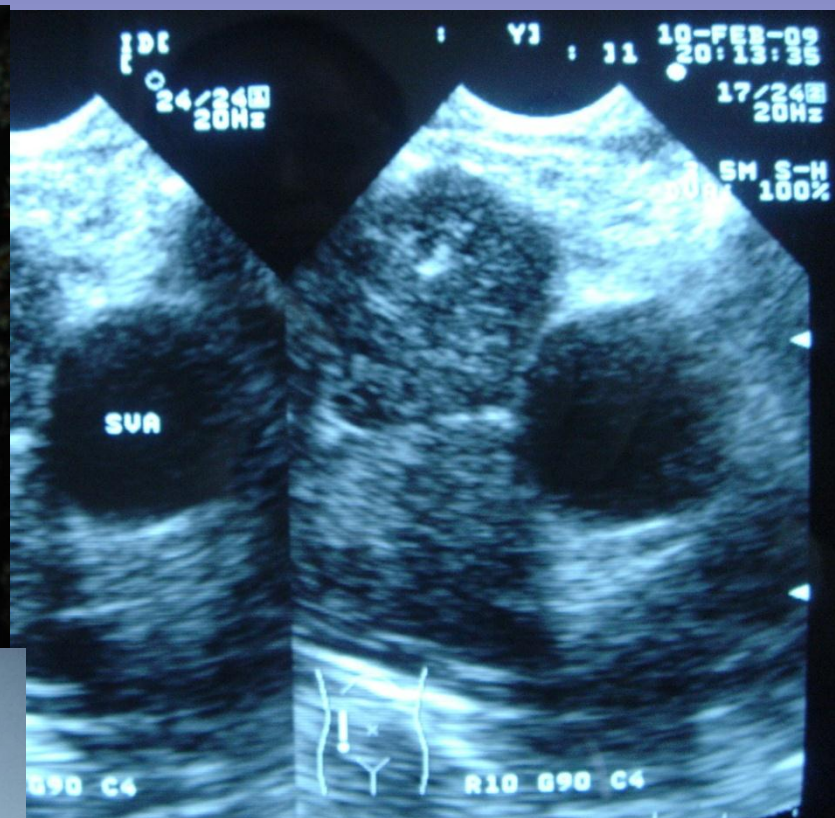
- With the advancement of medical science
Ultrasound plays an important role as a guide
in different interventional procedures.
Ultrasound-guided needle biopsy, percutaneous
aspiration & drainage procedures have gained
wide acceptance in clinical practice because of
their safety, simplicity & effectiveness. The choice
of guidance methods depends upon the location,
size of lesion, the radiologist's preference and the
availability of imaging facilities.



Appearance of patient & chest x-ray shows mass in right lung with superior vena caval compression syndrome.



Ultrasound & CT scan shows soft tissue mass in right lung compressing superior vena cava.



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CYTOPATHOLOGY REPORT

Sp. No. P-0305 Date received: 11-Feb-09 Report issued: 11-Feb-09
Patient Name: Mr. Makhan Lal Halder Age: 70 Y Sex: M
Referred by: Dr. Amar Biswas, DTCD, FRSH, MD
Specimen: FNA, Rt. Mediastinal mass

Aspirated by:

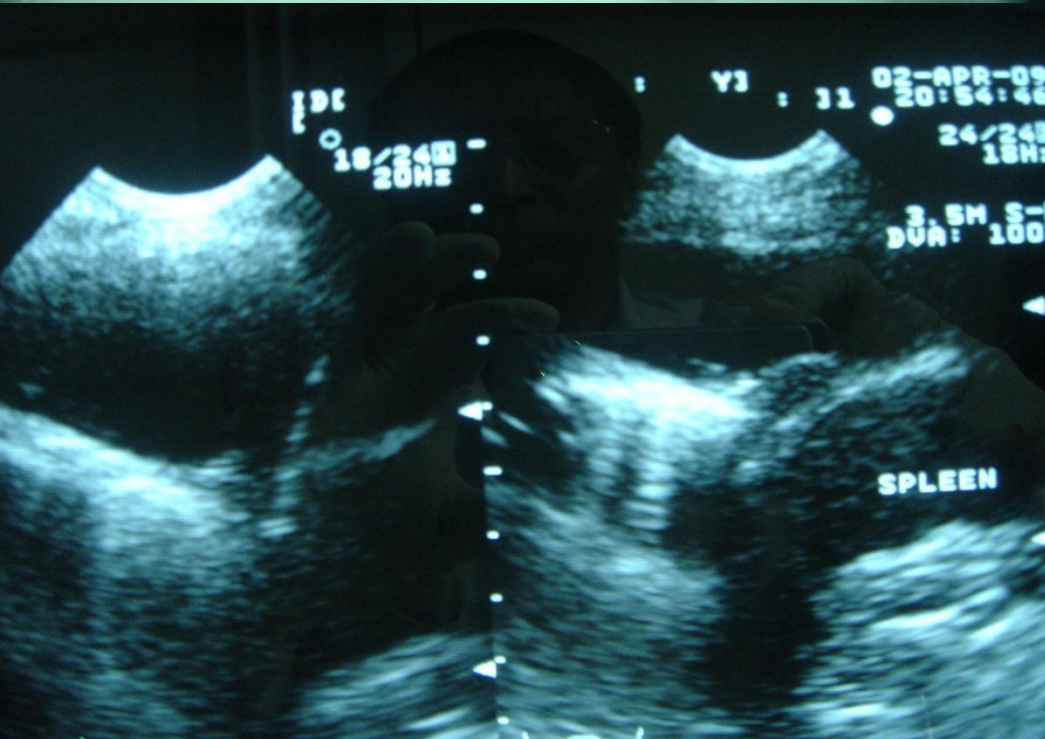
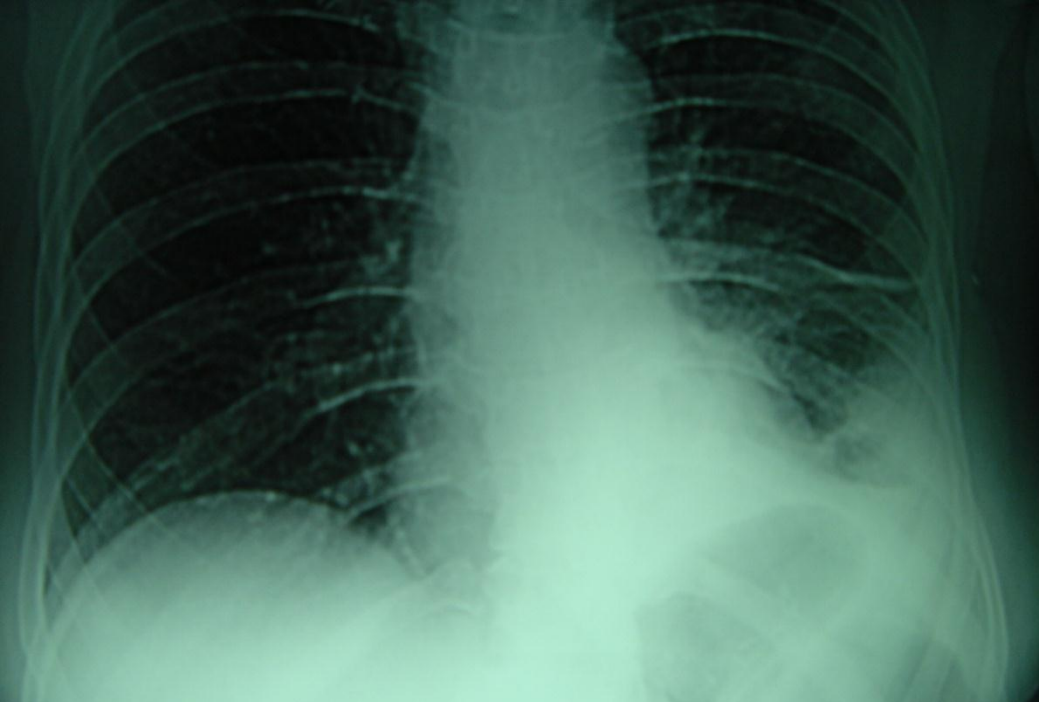
Aspiration note:

Microscopic appearance:

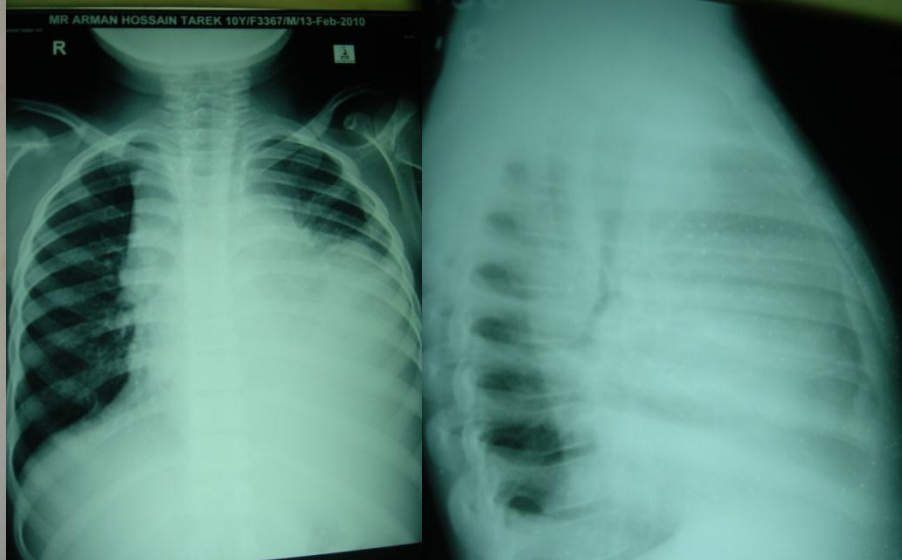
Smears show small malignant cells having coarse chromatin and scanty cytoplasm. The background reveals many lymphocytes. The smears show crush artifact.

Dx: Positive for malignant cells.
Small cell undifferentiated carcinoma.

USG guided FNAC
report shows
small cell
undifferentiated
carcinoma.



CXR, Ultrasound & USG guided aspiration-FNAC shows
Tubercular
empyema thoracis



HI NIKDU, DHAKA

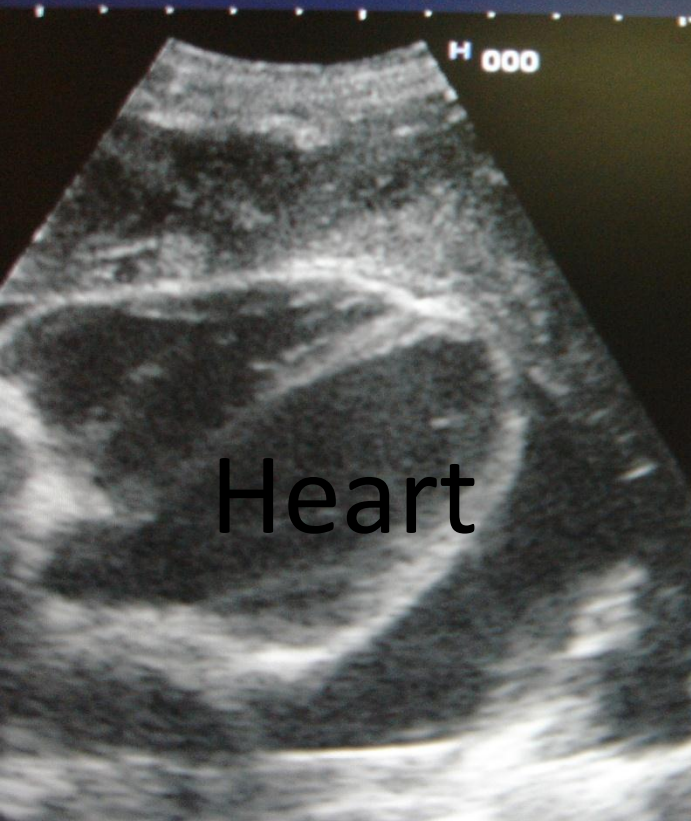
P:H

TIB

01-MAR-10 13:06:19

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H 000



Heart



CXR,
Ultrasound &
USG guided
FNAC
report shows
Non
Hodgkins
Lymphoma
in
mediastinum

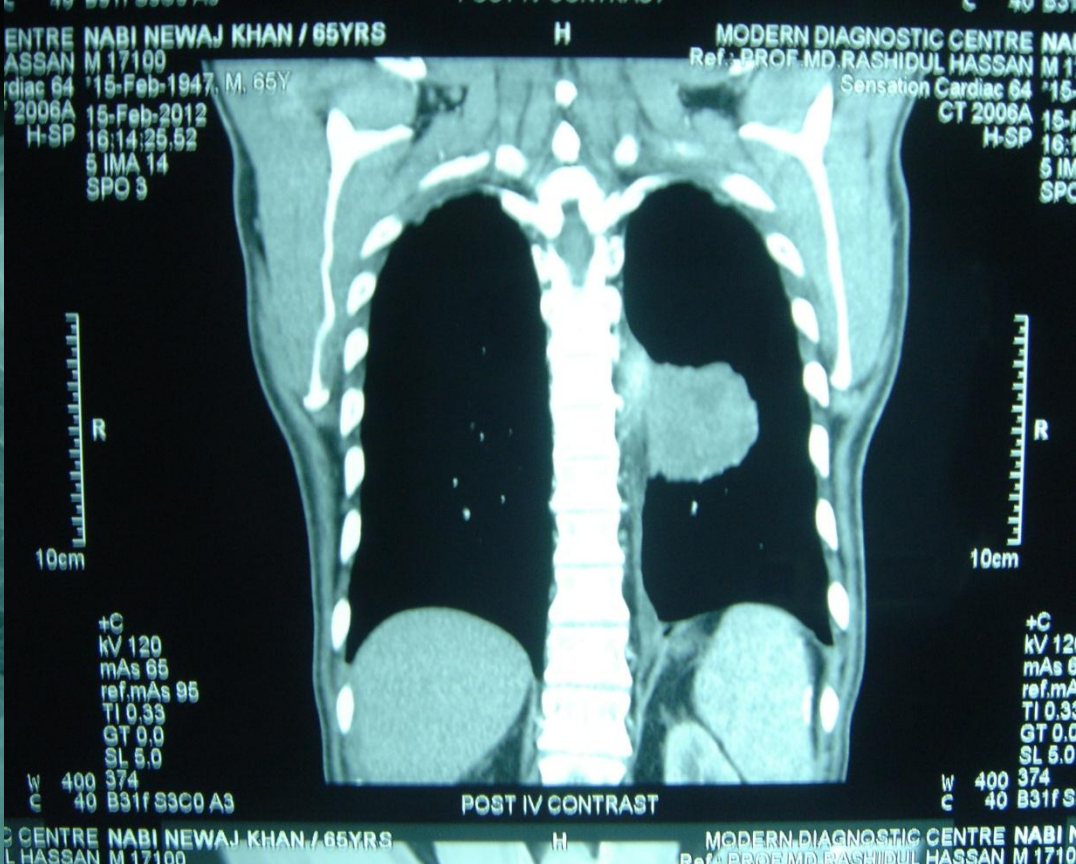
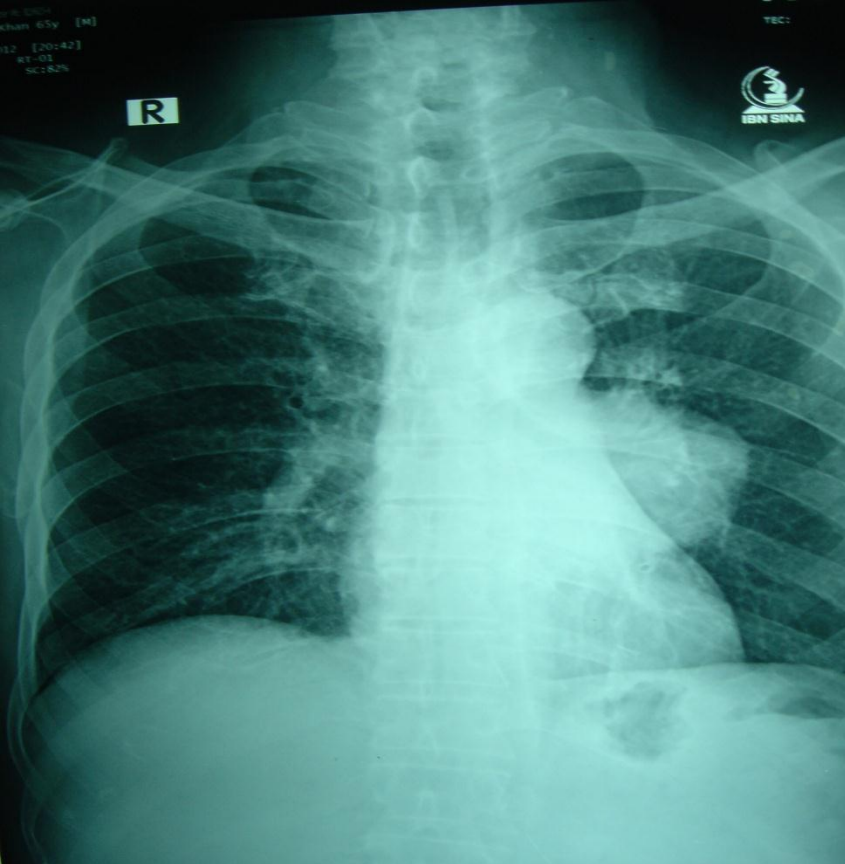




Microscopic appearance:

Smears reveal malignant epithelial cells present in clusters and sheets. These cells have pleomorphic nuclei and moderate amount of cytoplasm. Background shows inflammatory cells and blood.

Dx: Positive for malignant cell.
(Metastatic adenocarcinoma)



Patient's Name : Mr. Nobi Newaz Khan
Age : 65 Year(s) Sex : Male
Referred by : Dr. Ziaul Karim Zia MBBS, MD Chest
Specimen : Lung middle left
Investigation : CT Guided FNAC

Patient's ID : 000000255525
Case ID : 120000005314

Lab No : 12-004-643
Exam Date : 22 Feb 2012

Clinical History

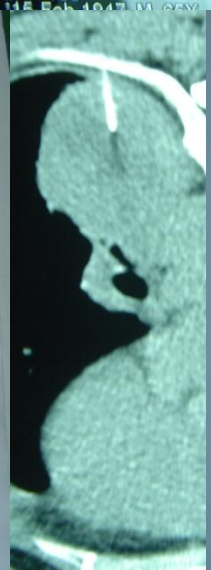
CT Findings : A soft tissue lesion is seen in the left middle lung.
Aspiration Note : A needle is introduced. The needle tip is identified within the lesion. Aspirated a few drops of haemorrhagic material. No immediate complication is seen.

Microscopic Description

Comments : Smear shows moderate cellular material containing plenty of pulmonary macrophages, a moderate number of polymorphs, lymphocytes and reactive bronchiolar cells in the background of blood mixed with debris.
No malignant cell or granuloma is seen.

Dx : Lung middle left (CT guided FNAC) : Inflammatory lesion (See Comment).

With Compliments for kind referral



Name :
Specimen : Left lung

Thanks for kind courtesy of your referral

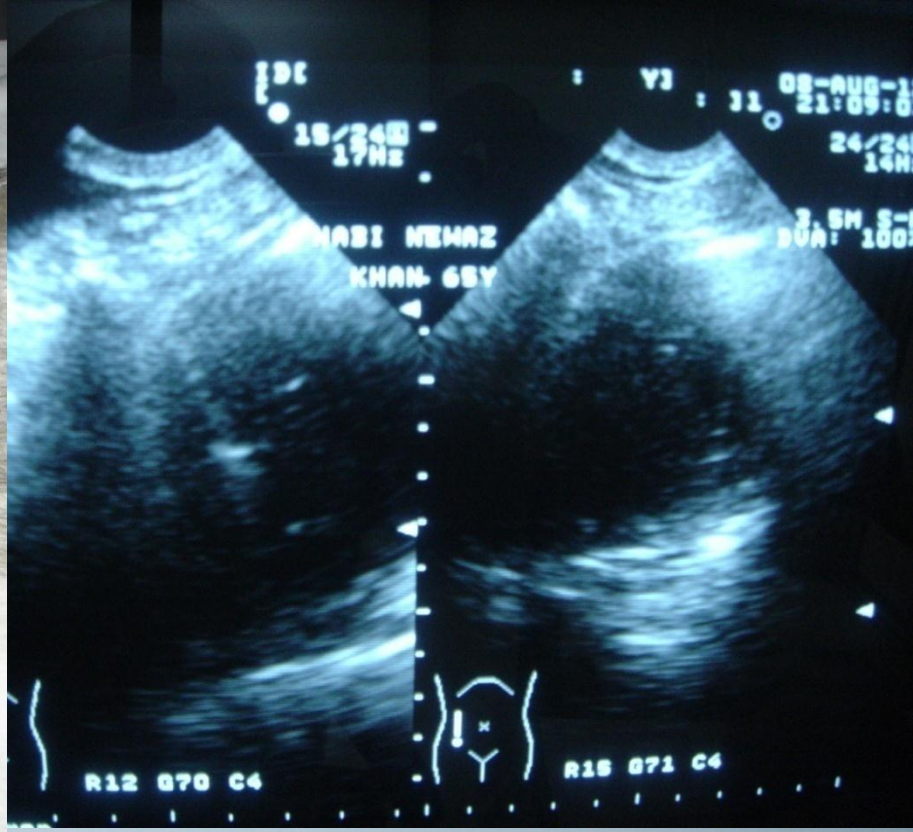
Ref. By : Prof. (Dr.) Md. Rashidul Hassan
MBBS, MCPS, FCPS, MD.

Note:
A lesion is seen in the mid and lower zone of left lung, measuring about 5.6 x 4.8 cm. and density of the lesion is 38-40 HU. Tip of the needle seen within the lesion and blood stained materials are aspirated and no complication occurred following the procedure.

Microscopic Description :

Smears show plenty of neutrophils, fair number of lymphocytes, few histiocytes in small clusters, fibro-collagenous tissue and necrotic materials.
Background shows red blood cells.
No malignant cell is seen.

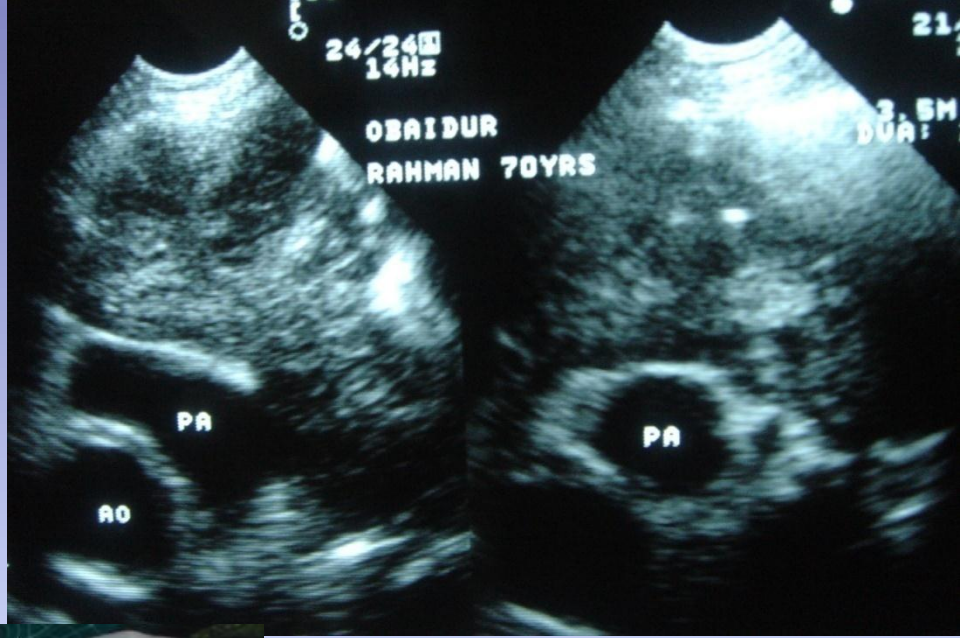
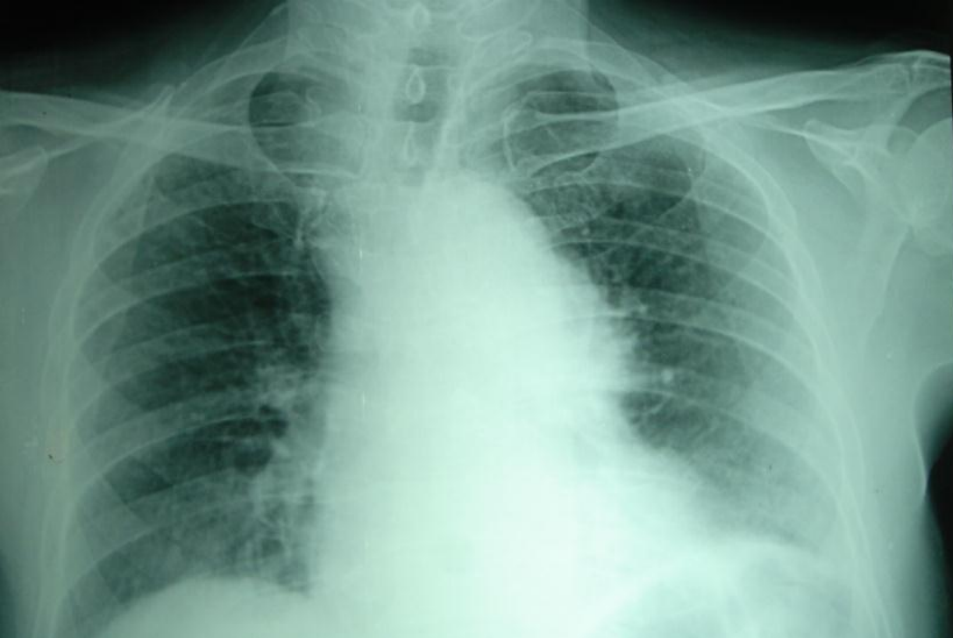
Diagnosis : Left lung lesion (C.T guided FNAC) : Inflammatory lesion.



Microscopic appearance:

Smears reveal clusters and sheets of malignant epithelial cells having large nuclei and moderate amount of cytoplasm. Background shows necrotic debris, inflammatory cells, and blood.

Dx: Positive for malignant cell.
Suggestive of squamous cell carcinoma.



CYTOPATHOLOGY REPORT

Sp. No. P-0193 Date received: 27-Jan-11 Report issued: 27-Jan-11

Patient Name: MR. OBAIDUR RAHMAN Age: 70 Y Sex: M

Referred by: Prof. M A Azhar, FCPS, FRCS

Specimen: FNA, left lung mass (Ten unstained smears).

Aspirated by:

Aspiration note:

Microscopic appearance:

Smears show small clusters and single anaplastic cells having coarse granular chromatin and scanty cytoplasm. The background reveals cellular debris and inflammatory cells.

Dx: Positive for malignant cell.
Small cell undifferentiated carcinoma.

Handwritten signature or initials in blue ink.



FNA from left lung. Blood mixed material was aspirated. Eleven slides in 1st aspiration and 12 slides in repeat aspiration are made and examined.

Microscopic description:

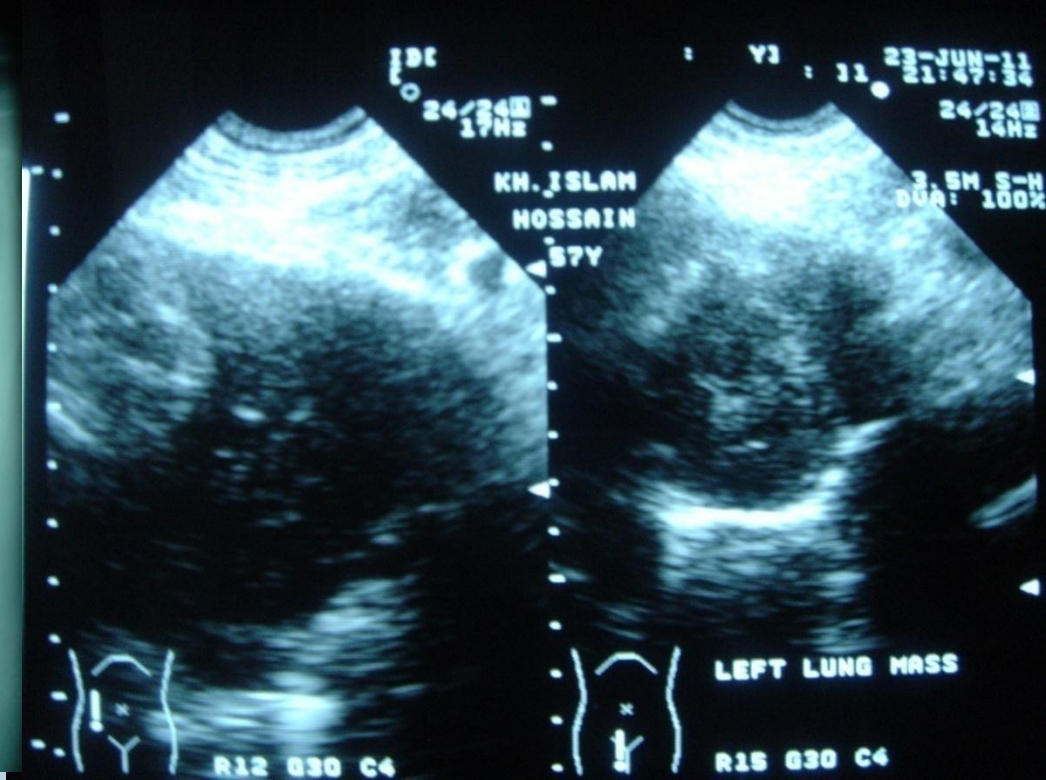
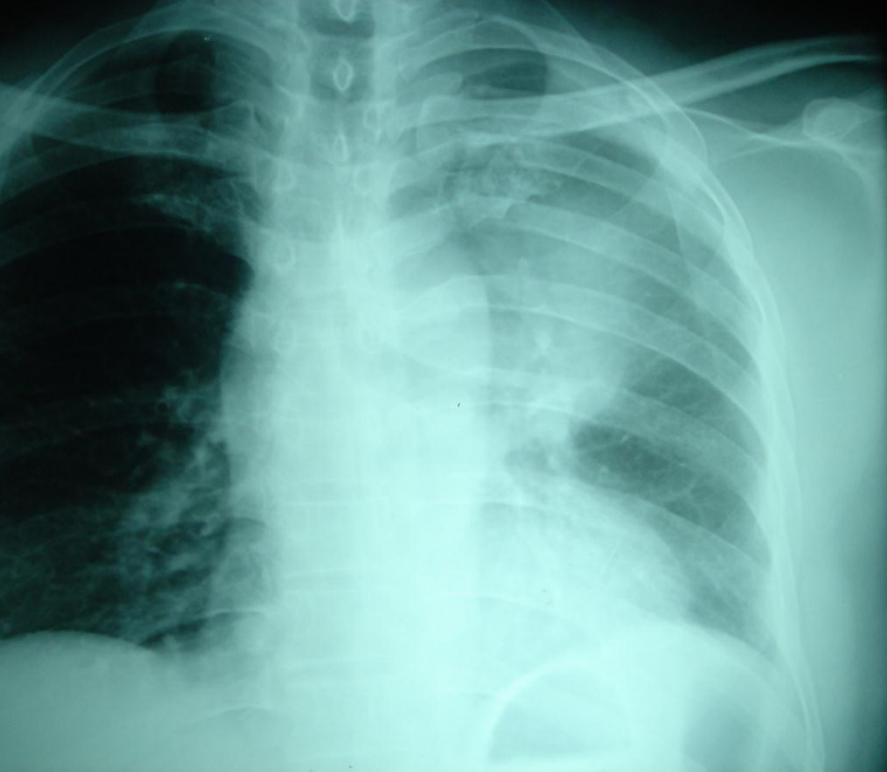
Aspirate is hypocellular and contains a large of neutrophils admixed with lymphocytes and dust laden foamy histiocytes.

No cells from any tumour was aspirated, even in repeat aspiration

A few tiny clusters of epithelioid histiocytes are seen but no well-formed microgranuloma is seen

No malignant cell is seen.

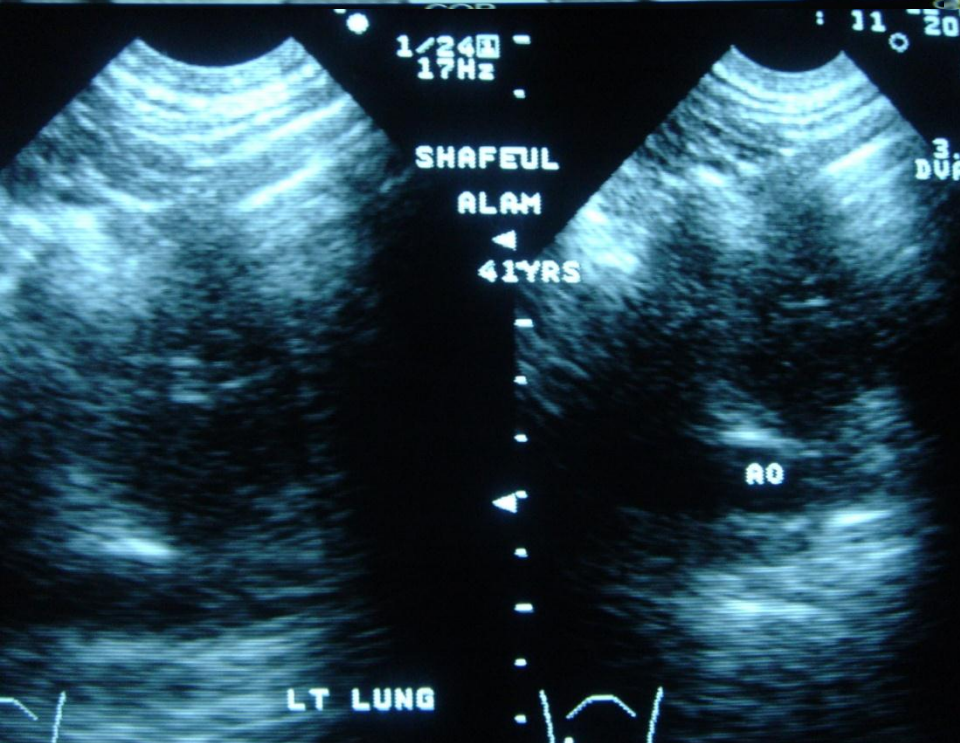
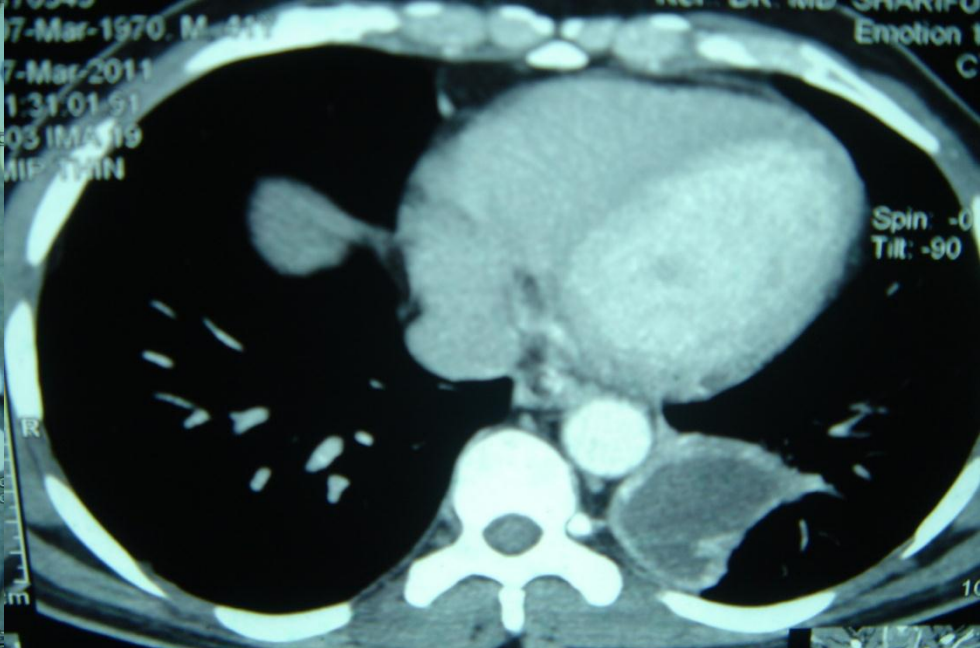
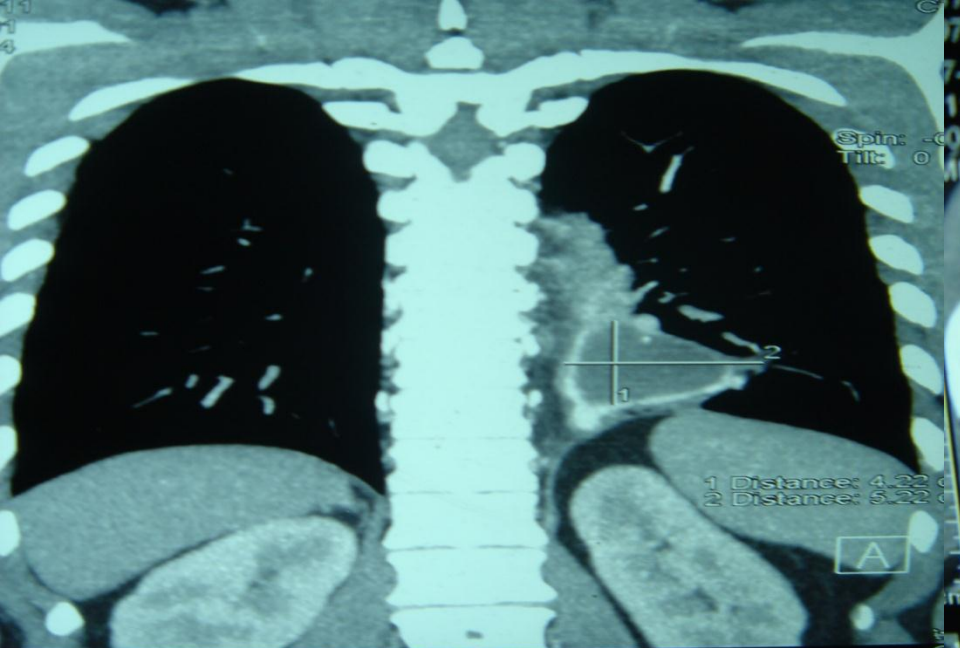
Comment: Lung lesion – (CT-guided FNAC): **Consistent with inflammatory lesion.**



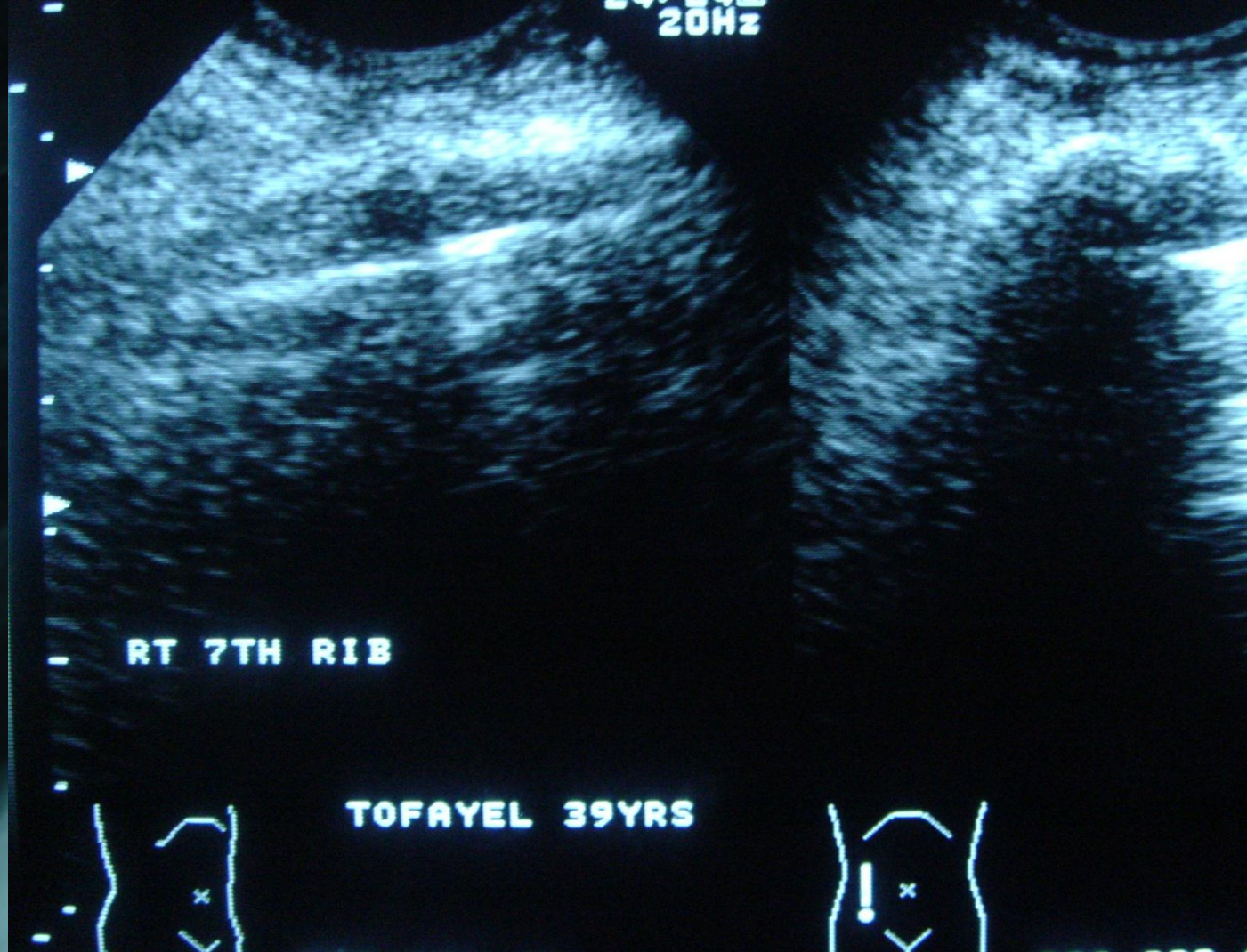
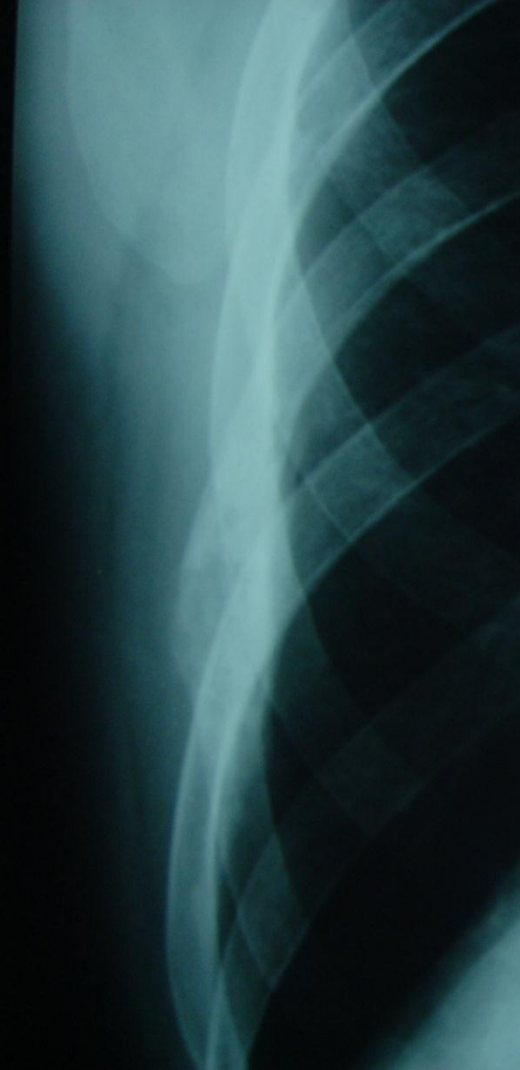
Microscopic appearance:

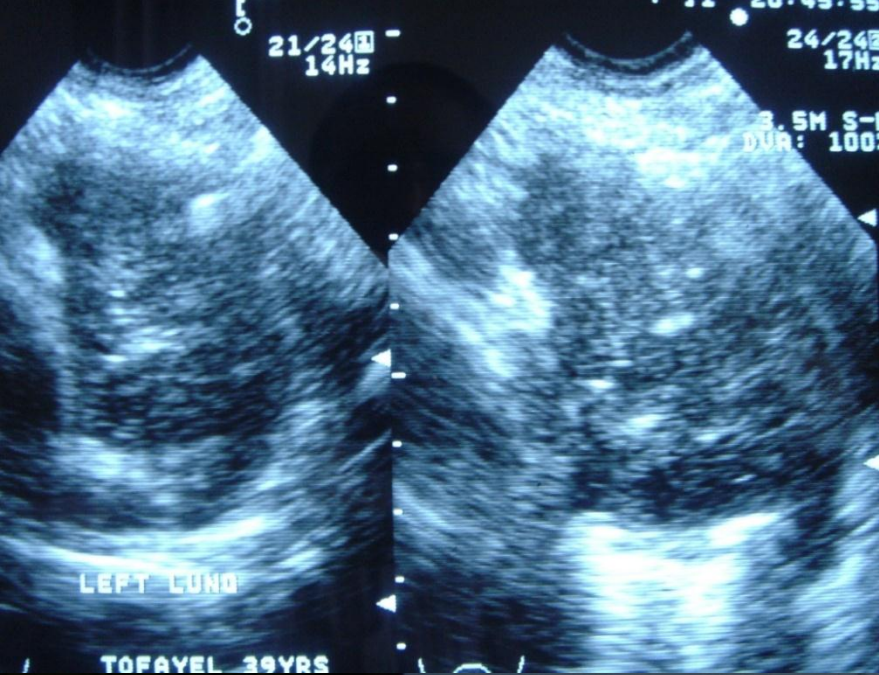
Smears reveal malignant epithelial cells, necrotic debris and blood. Many of the cells show keratinized cytoplasm. The background shows necrotic debris, inflammatory cells and blood.

Dx: Positive for malignant cells.
Squamous cell carcinoma.









দি ল্যাবরেটরি The Laboratory

SEL Green Centre (2nd Floor), 30 Green Road, Dhaka 1205 Email: the_lab_bd@yahoo.com, Mob: 01712644974, 01675458571

CYTOPATHOLOGY REPORT

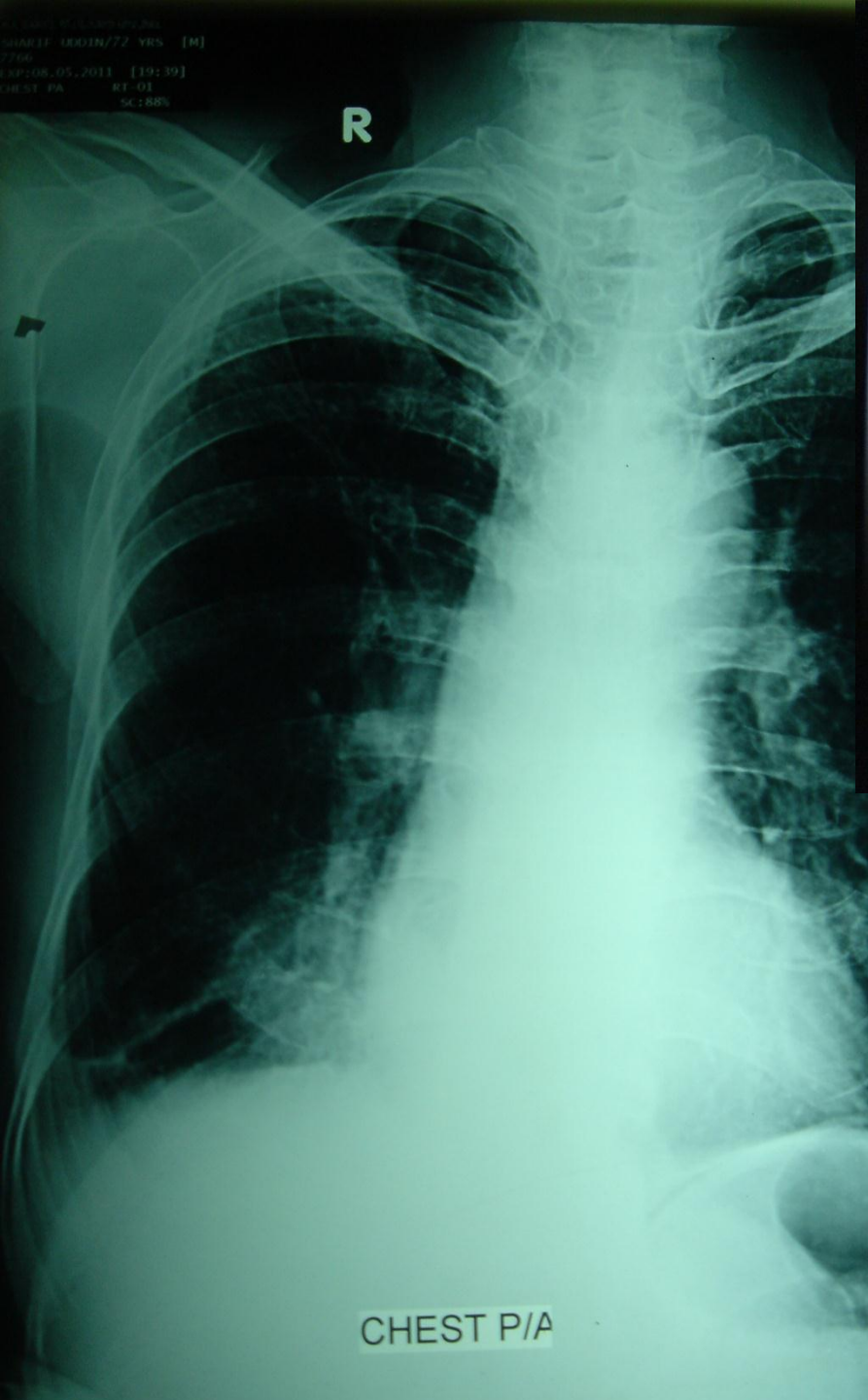
Sp. No. P- 1764-65 Date received: 23-Aug-11 Report issued: 24-Aug-11
 Patient Name MR. TOFAYEL AHMED Age: 39 Y Sex: M
 Referred by: Dr. A F M Kamal Uddin, DTCD, MD
 Specimen: 1764: FNA, left lung lesion.
 1765: FNA, lesion in right rib.

Aspirated by:
 Aspiration note:

Microscopic appearance:

Smears made from both of the samples show anaplastic epithelial cells arranged in clusters and singly. Ill-defined gland formation is seen. The background reveals cellular debris, inflammatory cells and blood.

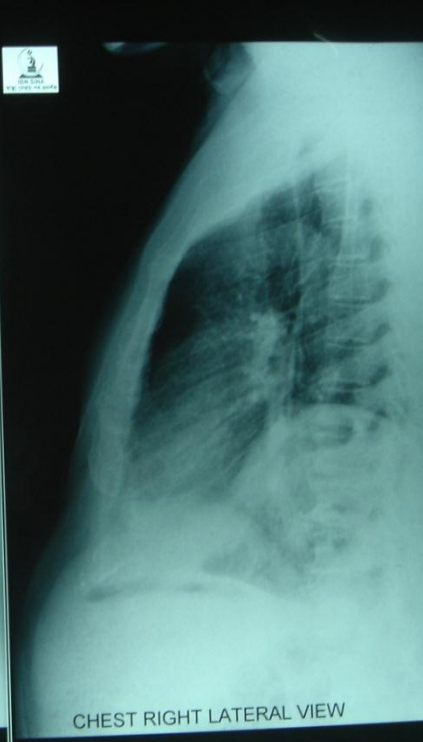
Dx: Positive for malignant cell.
 Adenocarcinoma of lung with metastasis in right rib.





R

CHEST PA VIEW



CHEST RIGHT LATERAL VIEW



24/24 12Hz

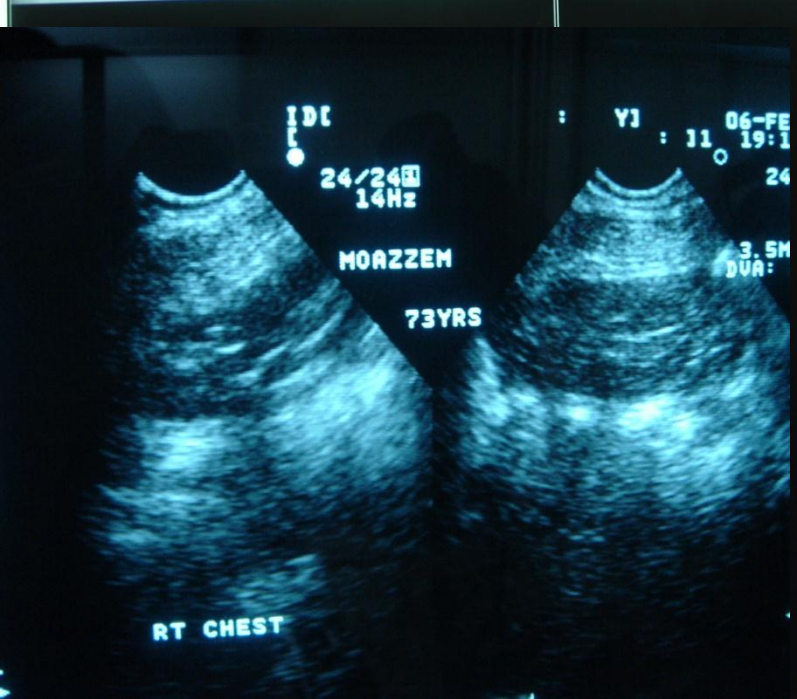
MOAZZEM HOSSAIN

RA

LU

LA

LIVER



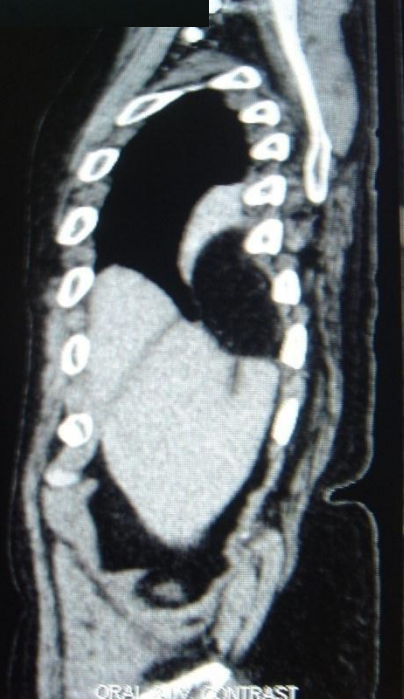
IDC

24/24 14Hz

MOAZZEM

73YRS

RT CHEST



ORAL CONTRAST

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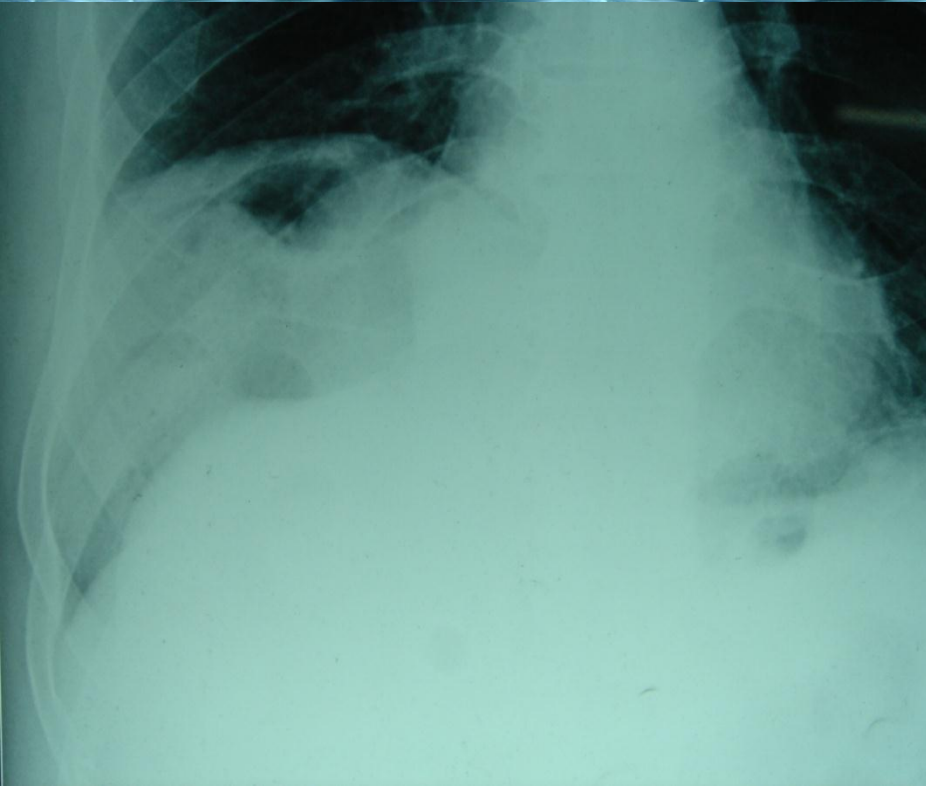
CYTOPATHOLOGY REPORT

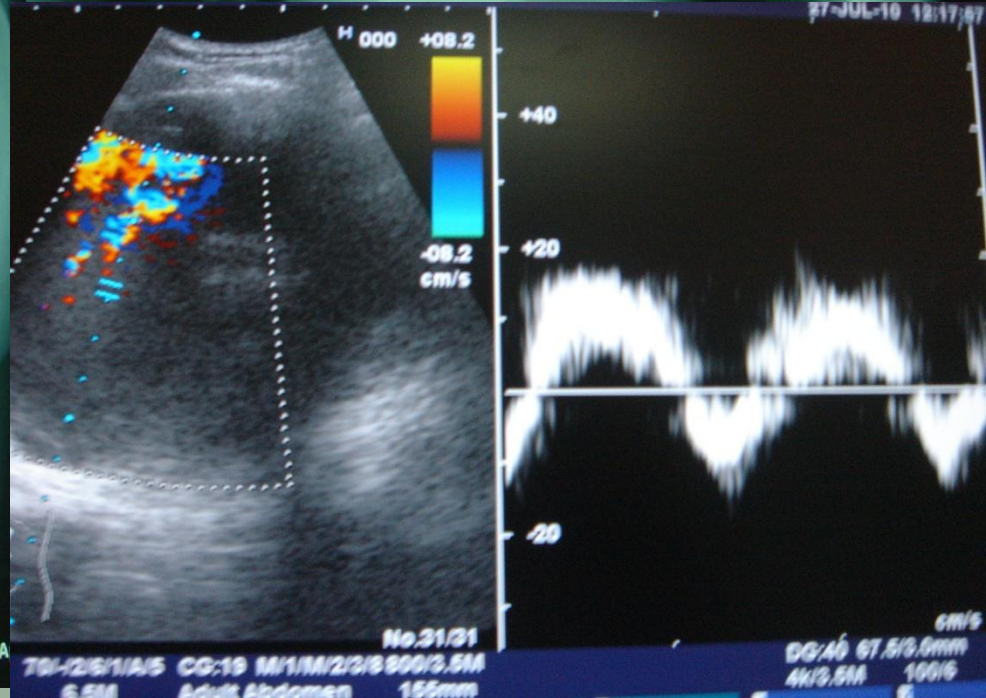
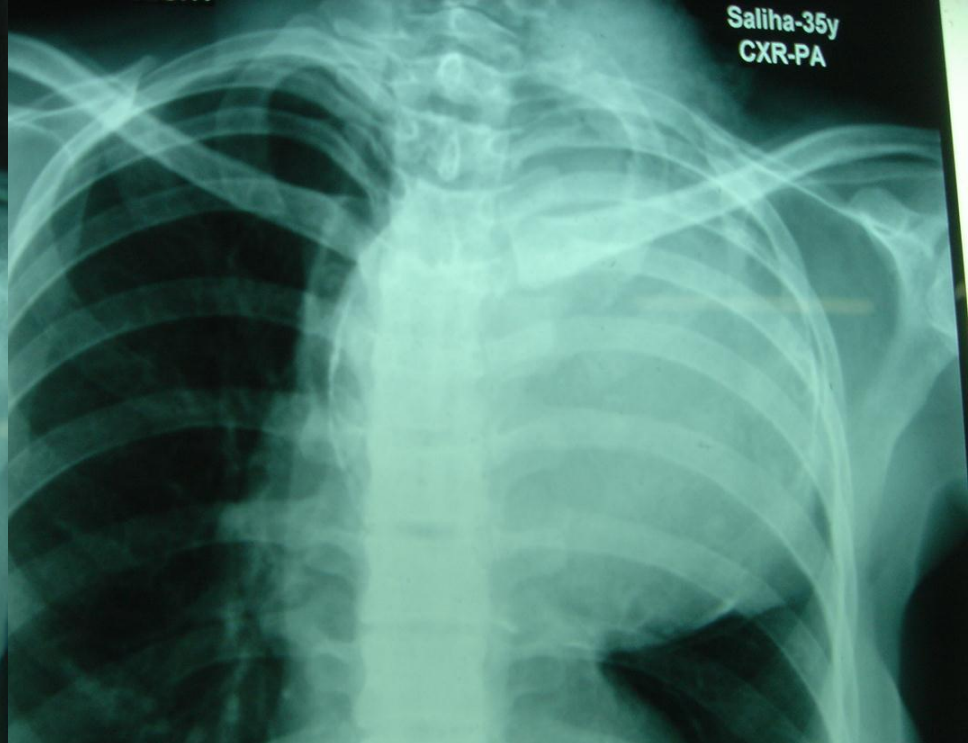
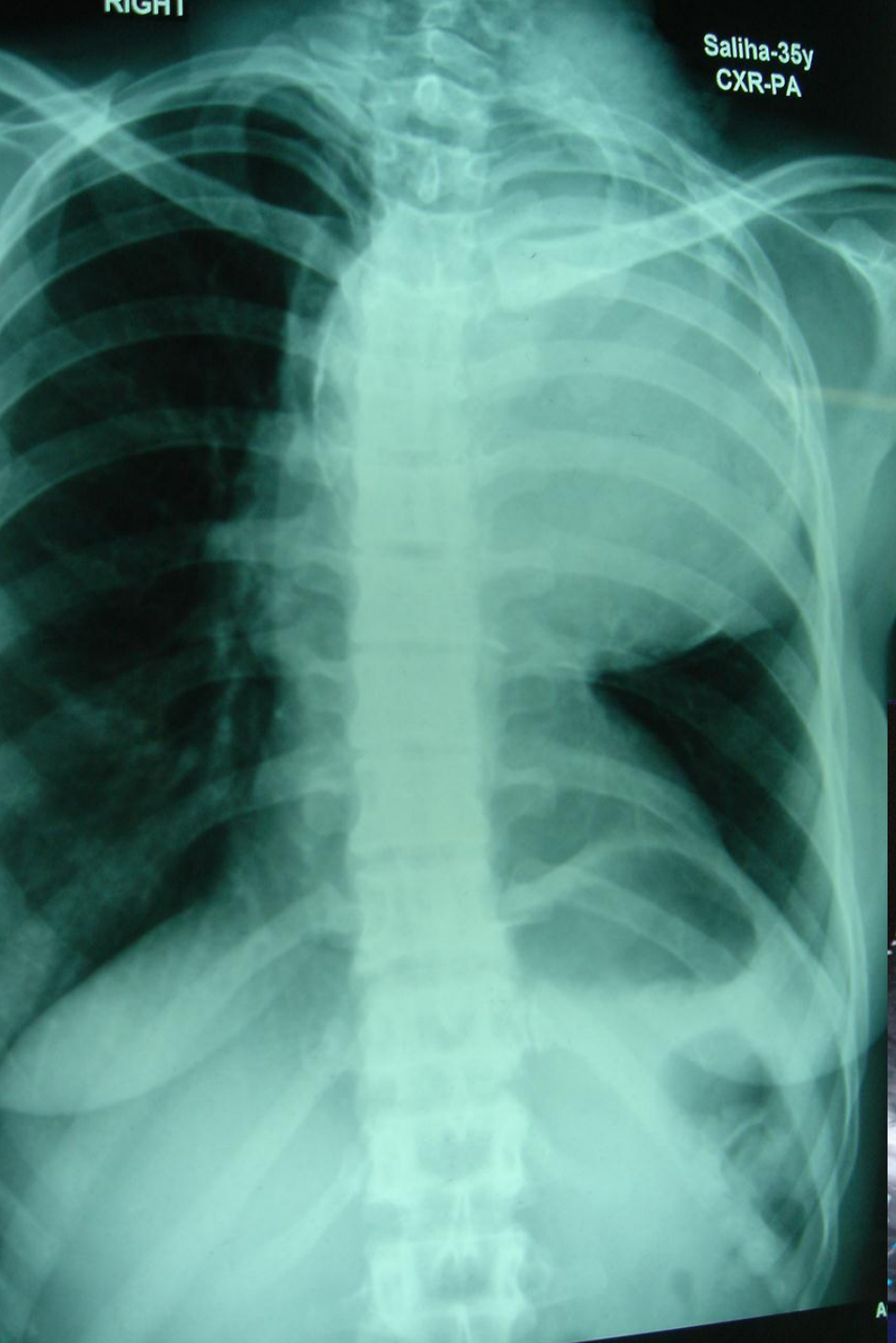
Sp. No. P-0255 Date received: 06-Feb-12 Report issued: 07-Feb-12
 Patient Name: MR. MD. MOAZZEM HOSSAIN BHUIYAN Age: 73 Y Sex: M
 Referred by: Dr. Md. Mostafizur Rahman, FCPS, Ph.D.
 Specimen: FNA, Rt. Lung mass (Six unstained smears)

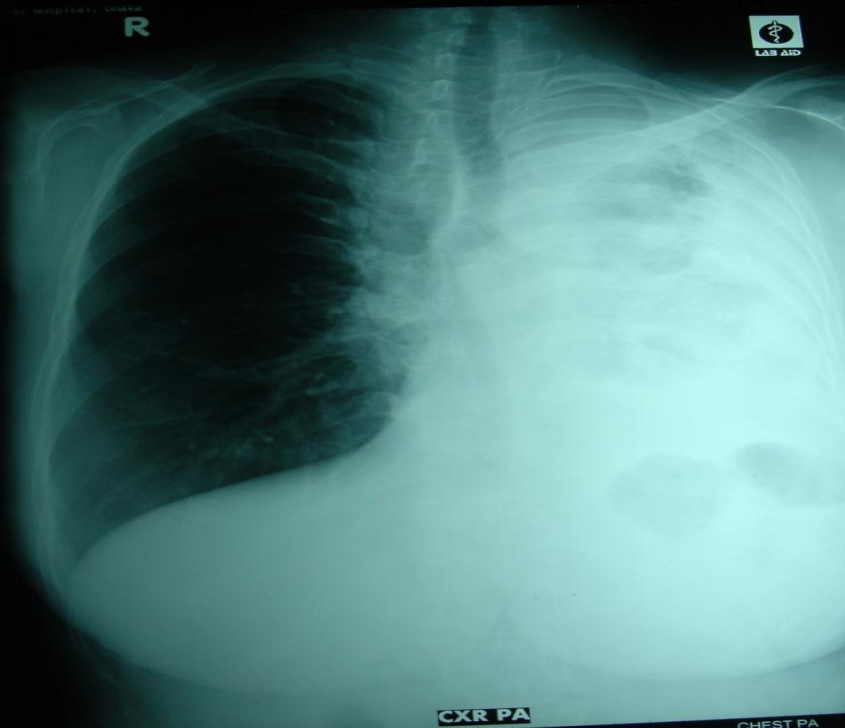
Aspirated by:
 Aspiration note:

Microscopic appearance:
 Smears reveal blood, lymphocytes, histiocytes and a small number of polymorphs.
 No malignant cell or evidence of granuloma is seen.

Dx: Negative for malignant cells.
 Inflammatory lesion.





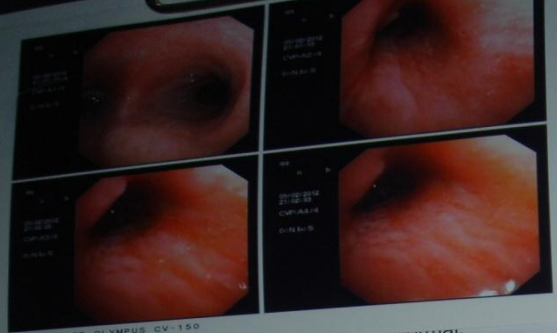


CXR PA



3003 2-8 F 55
 MRS. RINA RANI /55Y.
 P -50.000mm
 S 10.0 li
 T -10.0
 250mA 0.8s
 120kv
 HF/S
 A 0.0
 NORMAL

01/30/2012 3003 2-
 22:45:27.70 MRS.
 P -60.0
 ECLOS 10.0
 W195T -10.
 +46 250MA
 120kv
 HF/S
 A 0.0
 FOV238 NORMA
 F 32



LAB AID LTD
 BRONCHOSCOPY
 (NON EB -270 S.)
 : 55 Yrs Sex : F
 P(USA) FRCP

LUNGS :
 RIGHT : Normal
 LEFT : There is active bleeding from the lesion.

SPECIMENS TAKEN

Washing (BAL) : Not taken
 Brushings : Not taken.
 Endobronchial Tissue : Not taken.
 Applications : N/A

Comments : Growth in left principal bronchus.

Referred by : Prof. F M Siddiqui MBBS FCPS Medicine FACP
 Specimen : Lung middle left
 Investigation : CT Guided FNAC
 Case ID : 120000003003
 Lab No : 12-004-385
 Exam Date : 01 Feb 2012

Clinical History
CT Findings : A soft tissue lesion is seen in the left middle lung.
Aspiration Note : A needle is introduced. The needle tip is identified within the lesion. Aspirated a few drops of haemorrhagic material. No immediate complication is seen.

Microscopic Description
Comments : Smear shows moderate cellular material containing plenty of pulmonary macrophages, a moderate number of polymorphs, lymphocytes and reactive bronchiolar cells in the background of blood mixed with debris.
 No malignant cell or granuloma is seen.

Dx : Lung middle left (CT guided FNAC) : Inflammatory lesion (See Comment).



- CT scan is more expensive, less available, has radiation hazards & more time consuming. On the other hand sonographic guidance is usually quicker, more precise, less expensive, easily available, no radiation hazards, repeatable, less traumatic, can be done in bed side. Most advantages of ultrasound as guidance method is its ability to continuously monitor needle-tip advancement under real time visualization . When lesion is situated peripherally or extended to the periphery it can satisfactorily serve the purpose whatever may be the size of lesion.

Thanks.

