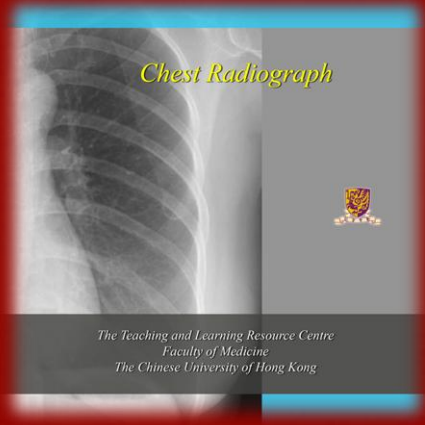

Improving Chest Radiograph Interpretation Skills

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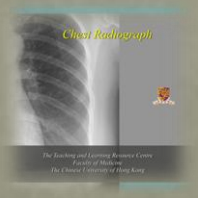
Department of Imaging and Interventional Radiology

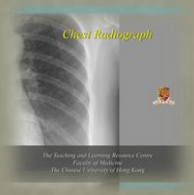
FUNDAMENTALS

- Chest anatomy is quite complex. Medical students and junior resident doctors sometimes struggle to interpret chest radiographs
- We aim to address this by providing
  - User friendly radiology resource material
  - Systematic radiograph-interpretation scheme.
  - Immediate Post tutorial Assessment of their performance
  - Formative feedback



RESOURCE

- Innovative Articulate® format
- Available Online and a CD version (*mobile version to follow*)
- Liberal use of 3D-CT images assist in understanding the orientation and arrangement of the chest structures in a 2D routine chest radiograph
  - CT images representing normal chest structures allow the reader to better correlate the location of a lesion/structure when viewing a 2D chest radiograph
- A systematic Scheme for interpretation
- http://facs.med.cuhk.edu.hk/site/cdproject/proj/cx/player.html



Teaching and Learning Resource Centre

Outline | Thumbnails | Search

CHEST X-RAY :: INTRODUCTION

Introduction

Types of chest radiographs

Technical facts (1)

- A Chest Radiograph is obtained in full inspiration.
- Adequate penetration by X-ray beam is necessary for a good film. On an optimally penetrated PA film, the thoracic spine disc spaces should be barely visible through the heart but other bony details of the spine are not usually seen.
- Diaphragm should be at about the 8th - 10th posterior rib or 5th - 6th anterior rib on good inspiration.
- Sufficient penetration allows visibility of bronchovascular structures through the heart.
- The standard chest examination consists of a PA (posteroanterior) and a lateral chest radiograph. They are to be read together.
- On the lateral view, we look for proper penetration and inspiration by observing that the spine appears darker caudally. This is because there is much more air in lower lobe lungs and less "chest wall".

Technical facts (2)

Chest Radiograph (01:35 / 10:20)

Teaching and Learning Resource Centre

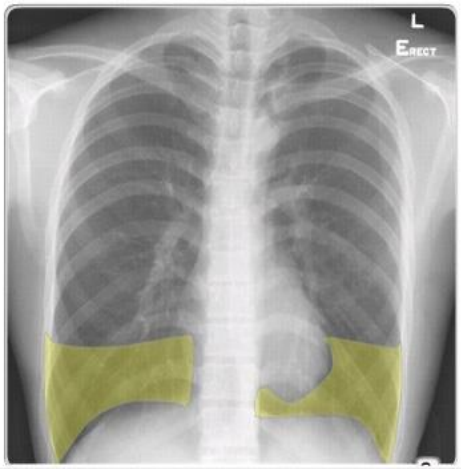
Outline | Thumbnails | Search

1. A systematic approach to reading Chest ra
2. CHEST X-RAY :: INTRODUCTION
3. CHEST X-RAY :: INTREPRETATION
4. Normal Structures
5. Radiographic zones of lungs
6. Monographic lung segment on CXR
7. Right Lung
8. Left Lung
9. Lung Fissures
10. Airway
11. Bronchial system
12. Mediastinum
13. Heart & Vessels
14. Diaphragm
15. Thoracic cage
16. How to interpret a chest radiograph
17. Common Lung Pathologies
18. Common Lung Pathologies (#1-2)

Radiographic zones of lungs

Lung apices
Upper zone
Mid zone
Lower zone

Lower zone

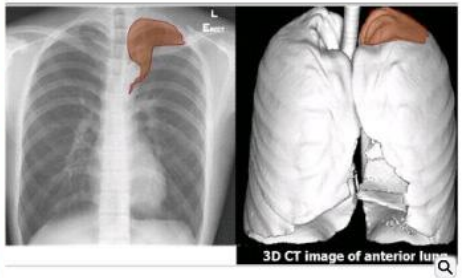


SLIDE 5 OF 21 CLICK NEXT TO ADVANCE 00:25 / 00:25

Left Lung

Left Upper Lobe (LUL)
LUL- Anterior Segment
LUL- Apico-Posterior Segment
Superior Lingula
Inferior Lingula
LLL - Superior Basal
LLL - Anteromedial Basal
LLL- Laterobasal
LLL - Posterior Basal

LUL- Apico-Posterior Segment



SLIDE 8 OF 21 PLAYING 00:20 / 00:50

Teaching and Learning Resource Centre

Outline | Thumbnails | Search

1. A systematic approach to reading Chest ra
2. CHEST X-RAY :: INTRODUCTION
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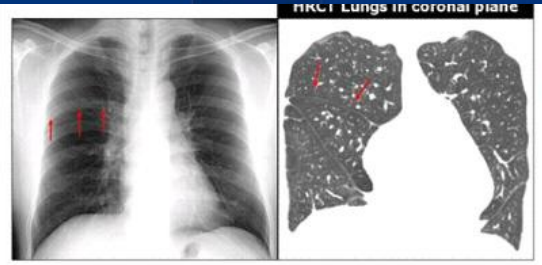
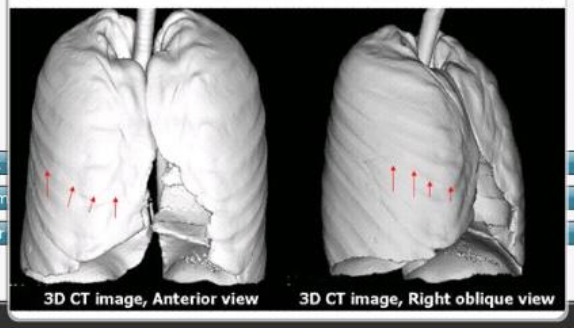
18. Common Lung Pathologies (#1-2)

Lung Fissu

HRCT Lungs in coronal plane





Intro
Minor
Begin
the ri
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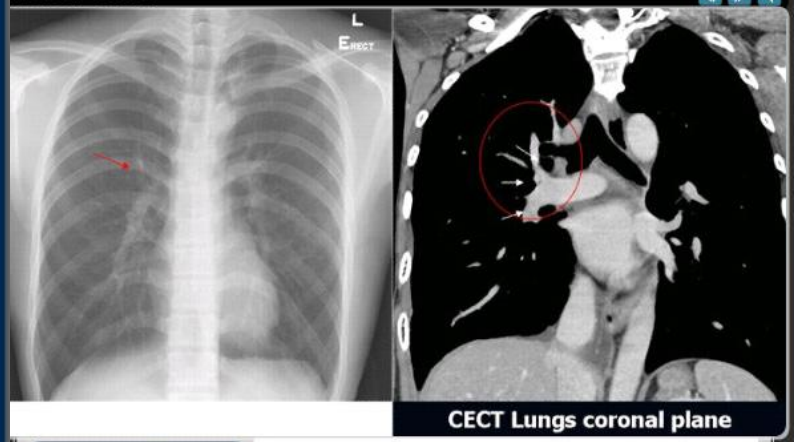
Right
Left m
Other

SLIDE 9 OF 21 PLAYING 00:10 / 00:25

Heart & Vessels

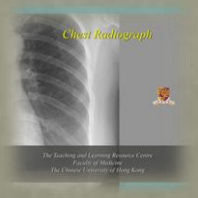


Retrocardiac
Pleura

SLIDE 13 OF 21 PLAYING 00:40 / 01:00

TASK

- Reading and interpreting radiographs is a skill. This skill needs to be adopted and so is the task.
- We have developed a radiograph-interpretation scheme and a systematic approach that may help the students attain the skills required to study and make clinical decisions based on the patient's clinical conditions.
- http://facs.med.cuhk.edu.hk/site/cdproject/proj/cx/player.html



Teaching and Learning Resource Centre

Outline | Thumbnails | Search

How to interpret a chest radiograph

Introduction

- Radiographs of chest are transparent and hence you can look through them from either side
- Always place them so that you seem to be facing the patient
- Naturally this is only possible with AP and PA views
- All body radiographs are usually marked by technologists indicating the patient's right and left side
- To interpret a chest radiograph, we must think in layers when looking at any radiograph, like beginning from outside-in or inside-out with one type of structure at one time.
- Chest radiographs are usually independent of side markers due to position of left ventricle and aortic knuckle
- Do a targeted search rather than staring at the radiograph. An abnormality unlikely to strike you unless you look for abnormalities in a planned manner
- Your eyes should scan all portions of the film, follow lung/mediastinal interfaces and look again carefully in areas where you know that mistakes are easily made, such as over the spine on the lateral view and in the apex on the PA view.

1 2 3 4 5 6 7 8 9 10

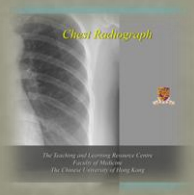
ASSESSMENT

- Self-study tutorials available after completion of the task. Students must complete a post-study quiz as an obligatory commitment

  http://facs.med.cuhk.edu.hk/site/cdproject/proj/qz/04cx/quiz.html

- Assessment could be continuous and repeated and they are expected to become better as they progress in the years of their medical studies.

- Formative feedback

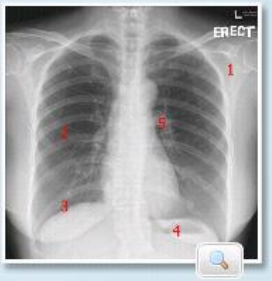


Chest Radiograph Quiz

Question 2 of 39

Point Value: 5

Identify the following structures.



1 -- Select --

2 -- Select --

3 -- Select --

4 -- Select --

5 -- Select --

Score so far: 1 points out of 1

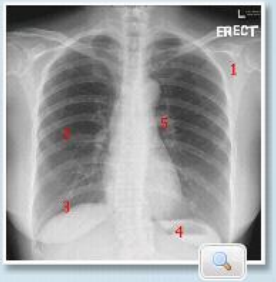
SUBMIT

Radiograph Quiz

2 of 39

Point Value: 5

Identify the following structures.



1 Left scapula

2 Anterior end 4th right rib

3 Right diaphragm

4 Fundic bubble

5 Left hilum

Correct

That's right! You selected the correct response.

Next Question

Score so far: 6 points out of 6

SUBMIT

CONCLUSION

- The target audience for this resource are medical students and junior resident doctors.
- However, this resource is freely available to **ALL** teachers as well, so that they may reinforce these basic skills during clinical encounters and in the context of patient management and care.
- We welcome your feedback and shall be happy to receive suggestions to improve the contents..

Acknowledgement: Mr. Alex Yung & the TLRC for technical assistance provided