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**Adult Chest X-Rays**

Chris Toote

*RAD-AID*

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ADULT CHEST
(with a little Bahamas on the side)

Chris Toote
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TRAVEL GUIDE
(“watchu saying man”)

• Introduction and Roentgen’s Rays
• Anatomy Review
• The Normal Chest Radiograph
• Gonna Wanna See These
• Potpourri
• Homeward Bound
ONE DIRECTION
ONE DIRECTION

AP

L

PA
DENSITY

- Air
- Bone
- Fat
- Soft Tissue
- Metal

- Air
- Fat
- Soft Tissue
- Bone
- Metal
DENSITY
DENSITY
TRAVEL GUIDE
(“ting” or “tingum”)

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CHEST ANATOMY
THE MEDIASTINUM
HEART ANATOMY
LATERAL LOBAR ANATOMY
TRAVEL GUIDE
(“bey”)

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TRAVEL GUIDE
(“wibe”)
ATELECTASIS

- Fancy word for collapse or incomplete expansion of lung
- Subcategories based on underlying mechanism OR morphology
- Silhouette sign helpful for localization
- Direct signs:
  - air bronchograms, fissure displacement, vessel crowding
- Indirect signs:
  - opacification, mediastinal displacement, diaphragm elevation, compensatory lobe expansion, smaller intercostal spaces
ATELECTASIS

MECHANISM
• Obstructive
• Relaxation
• Compression
• Cicatrisation
• Adhesive
• Dependent

MORPHOLOGY
• Discoid (plate-like, band)
• Subsegmental
• Segmental
• Lobar
• Round
DISCOID ATELECTASIS
SEGMENTAL ATELECTASIS
ROUND ATELECTASIS
TRAVEL GUIDE
("man looka here…")
TRAVEL GUIDE
(“biggety”)
TRAVEL GUIDE
(“oh-no-man!”)
Abscess vs Empyema

- Shape – round vs lentiform (unchanged shape frontal to lateral for abscess)
- Pleural Angle – acute vs obtuse
- Wall – thick irregular vs smooth
- Enhancement – empyema has more pleural enhancement
- Adjacent structures – bronchi, vessels, extrapleural fat
TRAVEL GUIDE
("potcake")
PULMONARY VASCULAR CONGESTION

- **grade 0**: normal chest radiograph, PCWP 8-12 mmHg
- **grade 1**: upper lobe diversion, cardiomegaly, PCWP 13-18 mmHg
- **grade 2**: interstitial edema, Kerley lines, cuffing, PCWP 19-25 mmHg
- **grade 3**: alveolar edema, consolidation, pleural effusions, PCWP >25 mmHg
UPPER LOBE DIVERSION
INTERSTITIAL EDEMA
ALVEOLAR EDEMA
NORMAL CXR
NON-CARDIOGENIC EDEMA

• Near drowning
• O2 therapy/post-intubation
• Trauma/transfusion (TRALI)

• CNS (neurogenic)
• Allergic alveolitis
• Renal failure
• Drugs
• Inhaled toxins
• Altitude/ARDS
• Contusion
ARDS
TRAVEL GUIDE
(“run right out”)
FIND THE PNEUMONIA
TRAVEL GUIDE
("junkanoo")
TRAVEL GUIDE
(“junkanoo”)
APPEASE THE MASSES
• Introduction and Roentgen’s Rays
• Anatomy Review
• The Normal Chest Radiograph
• Gonna Wanna See These
• Potpourri
• Homeward Bound
SHORTNESS OF BREATH
CXR PE FINDINGS

- Pleural effusion
- Elevated hemidiaphragm +/- tenting
- Fleischner’s sign
- Westermark’s sign
- Hampton’s hump
- Palla’s and Chang’s signs
FLEISCHNER SIGN
WESTERMARK SIGN
MELTING ICE CUBE SIGN
CHANG’S SIGN
TRAVEL GUIDE
(“switcha”)
TRAUMA
FEVER
RIGHT UPPER LOBE COLLAPSE
SOLITARY PULMONARY NODULE DDX

- Granuloma
- Carcinoma
- Hamartoma
- Metastasis
- Bronchial adenoma (carcinoid tumor)
COUGH
TRAVEL GUIDE
(“I straight”)

• Introduction and Roentgen’s Rays
• Anatomy Review
• The Normal Chest Radiograph
• Gonna Wanna See These
• Potpourri
• Homeward Bound
QUESTIONS?
(“we ga link” or “link up”)