X-ray – The forgotten tool in diagnosis of CHD

26th April 2018

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CONTENT

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• How to approach cardiac diagnosis from a chest radiograph
• Characteristic images in some cardiac anomalies
• Conclusion
INTRODUCTION

Chest X-ray

Echocardiography

Trans-catheter Cardiac Interventions

Cardiac CT/MRI
Image quality

Mnemonic - RIP - Rest In Peace

- **Rotation** - Spinous processes at midpoint between medial ends of the clavicles?
- **Inspiration** - 5 to 7 anterior ribs intersecting the diaphragm in the mid-clavicular line?
- **Penetration** - Spine visible behind the heart?
APPROACH CARDIAC DIAGNOSIS FROM THE CHEST RADIOGRAPH

• Situs & Cardiac position
• Cardio-Thoracic ratio (CTR)
• Thymic shadow
• Cardiac Silhouette and Chamber enlargement
• Pulmonary vasculature
Situs & Cardiac position

Normal position situs solitus
Right  |  LA  |  LV  |  Left
RA  |  RV
Liver  |  Stomach  |  Spleen

Situs inversus with dextrocardia
Right  |  LA  |  LV  |  Left
RA  |  RV
Spleen  |  Stomach  |  Liver

Situs solitus with dextrocardia
Right  |  RA  |  LA  |  Left
RV  |  LV
Liver  |  Stomach  |  Spleen

Situs inversus with levocardia
Right  |  LA  |  LV  |  Left
RA  |  RV
Spleen  |  Stomach  |  Liver
**Situs ambigous / isomerisms**

*Bronchial Morphology / lung segments*

- Right lung is tri-lobed, while left is bi-lobed.
- Right bronchus is short, wide and straight.
- Left bronchus is long, thin and curved.
Cardio-Thoracic Ratio (CTR)

Normal Values of CTR

• Adult is 0.41 to 0.5.
• Infants - 0.55
• Neonates - 0.60 in neonates.
Thymic Shadow
Pulmonary Vasculature

- Plethoric?
- Oligemia?
Increased flow

Decreased flow
characteristic cardiac contour in some anomalies
Conclusion

• CXR, complimentary to a good clinical examination serves as a screening tool for the detection of CHD

• lets partner to save children with CHD, we are few cardiologists with a big job on our hands
MY VISION!!

• To develop a cardiac registry for CHD in the country

• Train medical personnel in the diagnosis of CHD, early management and prompt referral.

• Be part of a team that will manage as many children with CHD locally, both surgical and transcatheter interventions.

• Encourage Research within the field of pediatric cardiology
Thank you!