ATYPICAL WHEEZE

Dr. K V Rajaramesh
Dr. S Balasubramanian Unit
KKCTH

CASE 1

HISTORY

- 1 year 6 months old female toddler

- Cough and cold 1 month
- Change in quality of voice 1 month
- Respiratory distress 7 days
- Fever 1 day

- BIRTH HISTORY

  Pre Term delivery(26 wks GA)/Twin Gestation

  Birth weight -800 gms

  H/o Respiratory distress at birth

  Ventilatory support (RDS) for20 days

- PAST HISTORY: Admission in DEC.2015(1 yr 3months) at a private hospital, treated as Viral Associated Wheeze

- For present symptoms she was treated elsewhere with inhaled steroids(Budesonide MDI), and in view of persistent symptoms, toddler referred for further management

What is the diagnosis???

- Extrathoracic Airway Obstruction

- Acute laryngo tracheo bronchitis
- Subglottic stenosis
- Vascular anomaly compressing trachea

WHAT WE DID.....

- Chest X ray:Normal
- CBC:Normal
- RFT:Normal

What Next???

SUPRAGLOTTIC CYST

- ENT consult obtained → advised CECT. Scan aborted as toddler worsened during procedure
- Immediate resuscitative measures undertaken and shifted to emergency OT ,where the airway was stabilized
- The cyst was excised by ENT surgeon

Case 2

- 2 years old female child came with history of cough,cold,fever and fast breathing→ on and off from 3 months.
- The child treated outside with nebulisation,in view of persistent symptoms referred.
- Initial assesment –
  - child had dysmorphic facies
  - Tachypnea
  - SSR,SCR
  - SpO2-90% in room air
  - Biphasic stridor with wheeze

Background H/O

- 2 nd born to NCM parents, with previous h/o still birth.

- She presented at 2 months of age with seizure.

  - Dysmorphic facies
  - Hypocalcemia
  - Primary hypoparathyroidism
  - CXR-absence of thymic shadow
  - ECHO-abnormal aortic arch

DIGEORGE syndrome was considered, confirmed by FISH (micro deletion involving 22q11.2)

- Chest X ray :No features of consolidation
- CBC :Normal
- RFTand Ca :Normal

Treatment

Child was treated with bronchodilator nebulisation→ No improvement.

WHAT NEXT.....?

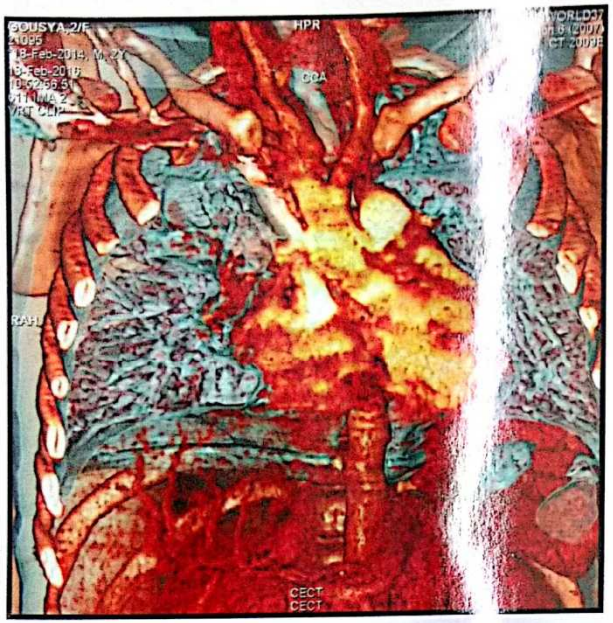
Turning point

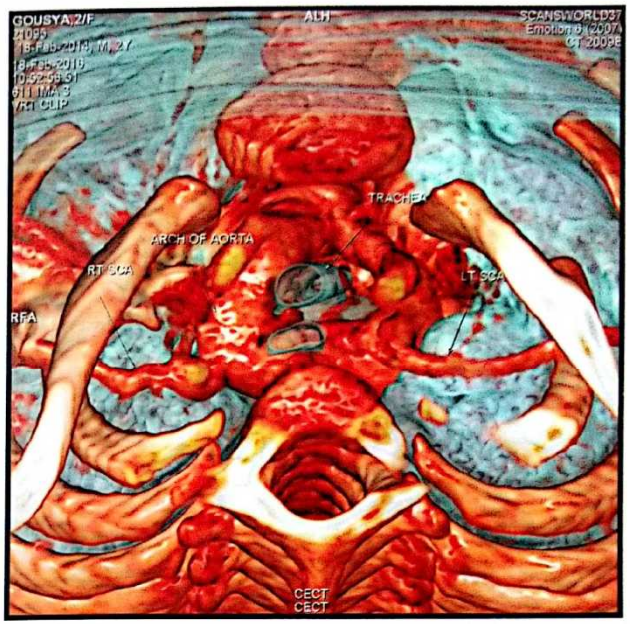
Child with-

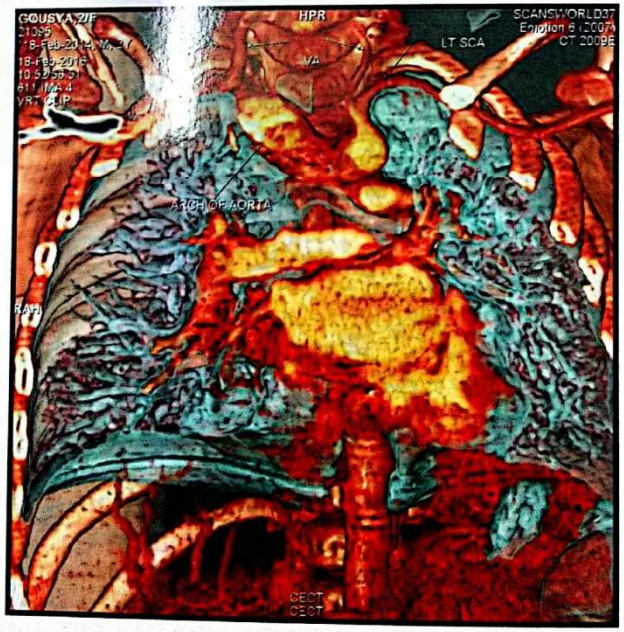
- Digeorge syndrome
- H/O recurrent hospitalisation for LRI
- Biphasic stridor
- ESM
- Not improving with nebulisation
- Previous echo showing abnormal aortic arch

In view of all these the possibility of vascular ring was suspected, for which repeat echo and CT angiogram was done.

Name :	BABY.GOUSIYA	Date :	18/02/2016







CT angio

REF. BY:DR.S.BALASUBRAMANIAN SW/NB/MRI: 604721095

MULTISLICE CT CHEST WITH THORACIC ANGIOGRAM

Serial axial sections of the thoracic aorta were taken from origin of neck vessels to celiac origin in helical mode. SSP, MIP and volume rendering models were reconstructed.

Multifocal consolidations in anterior segment of right upper lobe , right middle lobe, apical and basal segment of right lower lobe, apical segment of left lower lobe.

Right side aortic arch crossing to the left side behind the trachea with aberrant Left subclavian artery (arising as the last branch of aortic arch and arises after it crosses to the left side forming a near complete vascular ring compressing and narrowing the trachea .

Aortic arch branches in order are left common carotid, right common carotid, right subclavian and left subclavian arteries

Rest of the lung fields appear clear bilaterally with no focal lesions identified within.

No evidence of bronchiectasis / cavitation

No centrilobular/ miliary/ tree in bud nodules. No abnormal thickening of interstitium.

No definite mass lesions identified in the mediastinum / hilar regions.

No significant lymph node enlargement identified. No pleural effusion.

The heart is orthotopic with normal configuration. The cardiac chambers are of normal size.

No significant pericardial thickening / fluid collection seen.

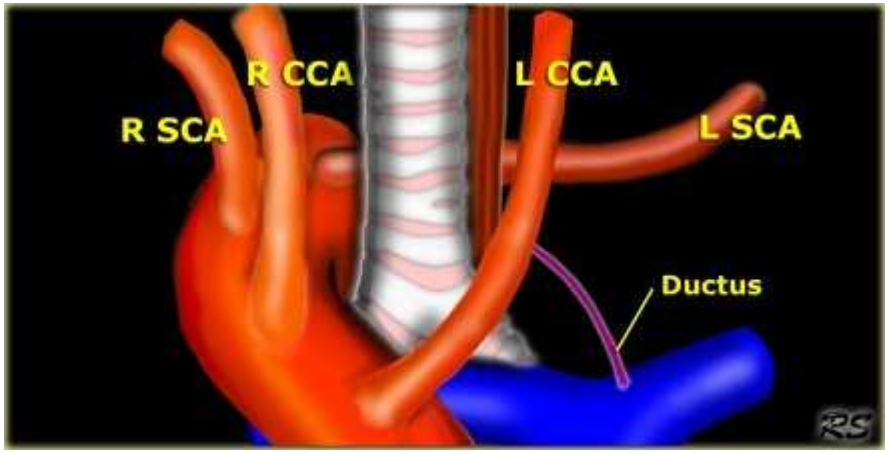
No obvious abnormal wall thickening / dilatation of the thoracic esophagus is seen.

No lytic/ sclerotic lesions in visualized skeleton.

Superficial soft tissues of the chest wall appear normal.

IMPRESSION:

- **Right side aortic arch with aberrant left subclavian artery forming near complete ring compressing and narrowing the trachea.**
- **Multifocal consolidation in both lungs.**


R CCA
L CCA
R SCA
L SCA
Ductus

What is Atypical Wheeze?

- Atypical wheeze is assosiated with history of failure to thrive,persistent wetcough,recurrent bacterial infection or severe sympotms requiring hospitalization

- Physical examination may reveal persistent/asymmetric focal signs, stridor, clubbing or inspiratory wheeze

CAUSES

- Upper airway disease - adenotonsillar hypertrophy, rhinosinusitis, postnasal drip, subglottic stenosis, laryngomalacia
- Congenital structural bronchial disease - complete cartilage rings, cysts, webs.
- Bronchial/tracheal compression - vascular rings and sling, enlarged cardiac chamber, enlarged lymph nodes
- Endobronchial disease - foreign body, tumour.
- Oesophageal/swallowing problems - reflux, incoordinate swallow, laryngeal cleft, or TEF.
- Causes of pulmonary suppuration - CF, primary ciliary dyskinesia, persistent bacterial bronchitis, immunodeficiency.
- Miscellaneous - BPD, congenital or acquired tracheomalacia, pulmonary oedema.

SYMPTOM	TYPICAL	ATYPICAL
Onset	Early	Any age
Symptom interval	Present	Absent
Family h/o	Present	Absent
Growth	Normal	FTT
Feeding	Not aggrevates	Aggrevates
Wheezing	Generalised	Localised
Character	Polyphonic	Monophonic
CXR	Normal /hyperinflation	Localised

CAUSES OF STRIDOR IN INFANCY

- Most common cause of stridor in early infancy is congenital airway anomalies.
- From these, laryngeal anomalies are most common.
- Inspiratory stridor typically originates from a glottic or supraglottic obstruction while expiratory and biphasic stridor denote sub-glottic obstruction

LARYNGEAL CYSTS

- Laryngeal cysts are 2 types

A) Saccular cysts arise in the saccule of the ventricle

B) Ductal cysts, are mostly situated in the vallecula

MANAGEMENT

- Diagnosis → Lateral neck radiograph
- Confirmation → Fiberoptic laryngoscopy
- For location and extent → CT/MRI
- Gold standard → Direct laryngoscopy

TREATMENT

1) Securing the airway immediately
2) Removal of the cyst :Endo-scopic/External approach/Carbon-di-oxide laser

When to suspect vascular ring?

- Vascular rings refer to congenital anomalies of the aortic arch and the great vessels encircling the trachea and esophagus.
- Age < 6 months
- Stridor / Noisy breathing
- Worsening with feeding / URIs

TAKE HOME MESSAGE

- Good history,physical examination,including growth
- Observation of respiratory mechanics
- Careful listening of noisy breathing

↓

Help in diagnosis

ALL WHEEZERS ARE NOT ASTHMATICS

REFERENCES

- Stridor in an Infant – A Rare Cause. Banani Poddar,Nitin Nagarkar,Durlabh Shah Bishnoi, Arjun Dass. Indian Pediatrics 2002; 39:288-291
- Pocket guide on management of recurrent wheeze in preschool children.The Hong Kong society of pediatric Respiorology
- Preschool wheezing phenotype. Andrew Bush,Prasad Nagakumar. EMJ 2016;1[1]:93-101.

THANK YOU