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A Case of Pediatric Plasma Cell Granuloma

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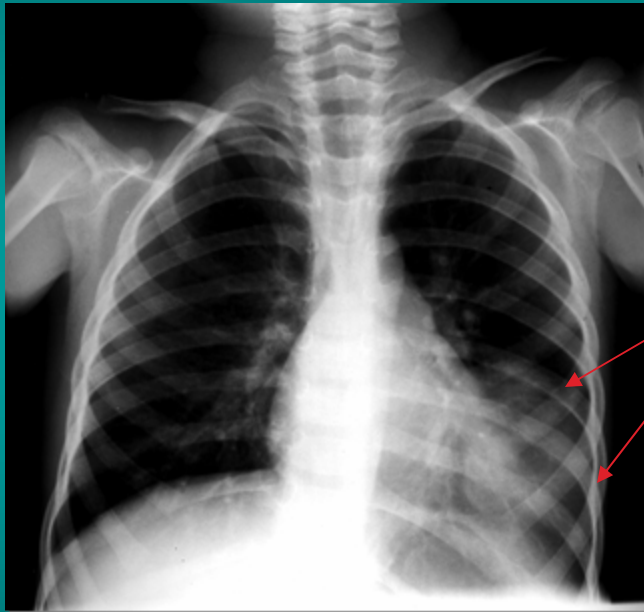
Our Patient

- 8 year old male with history of recurrent left lower lobe and lingular pneumonias since 1994.
- Chest X-ray in 1996 from outside hospital showed mass with calcifications at left lung base.

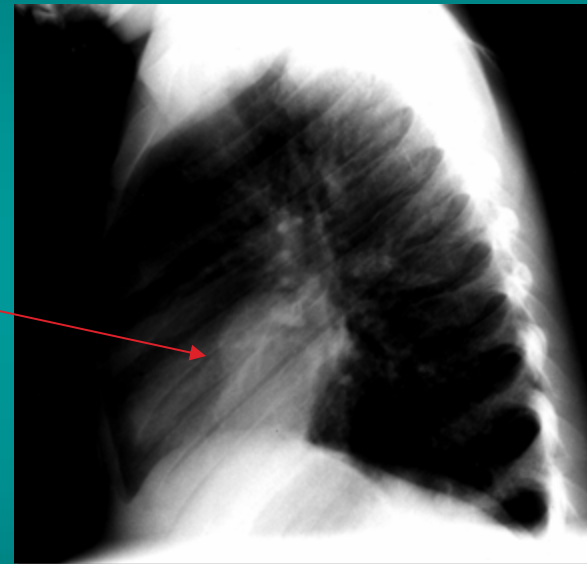


Chest X-Ray from Outside Hospital, 1996

PA View



Lateral View



Opacity

- Round opacity in left lower lung (LLL) field
- Silhouetting out of left hemi-diaphragm

- Likely anterior lingular mass
- +/- Calcifications at left lung base
- ? Round pneumonia v Mass



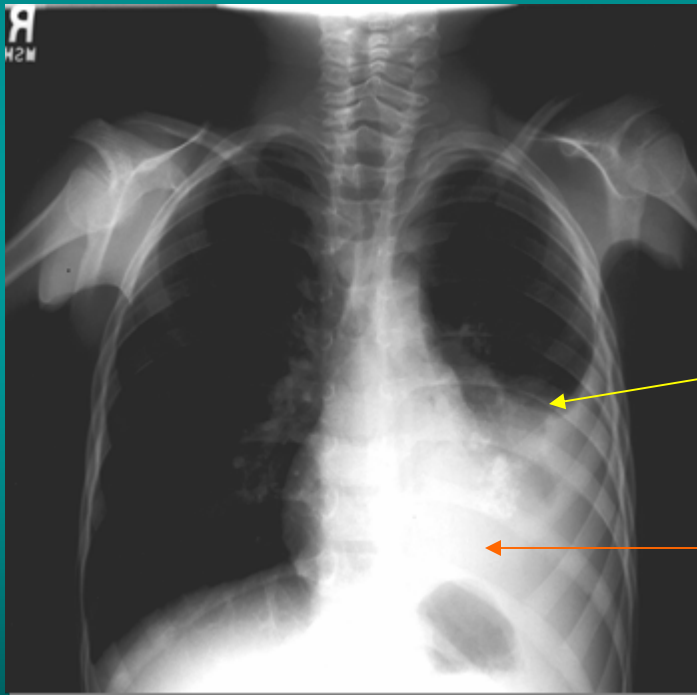
Our Patient

- Patient was referred to Children's Hospital in June 1999 with fever, cough and dyspnea for further workup.



Chest X-rays Showing Acute Pneumonia

PA View



Meniscus

Lateral View



- Associated left pleural effusion (moderate size)

- Increased opacity of left lung base
- Calcified mass within left lower lobe



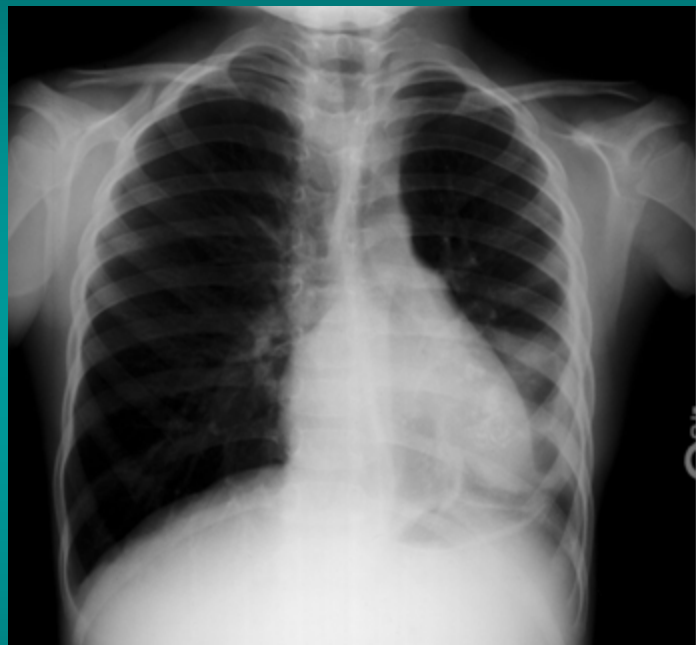
Clinical Course I

- CXR showed left base mass with central calcification, post-obstructive consolidation and pleural effusion.
- Labs showed Wbc 17, IgE 777 (normal 200).
- Patient treated with IV antibiotics and discharged.
- Acute pneumonia resolved.



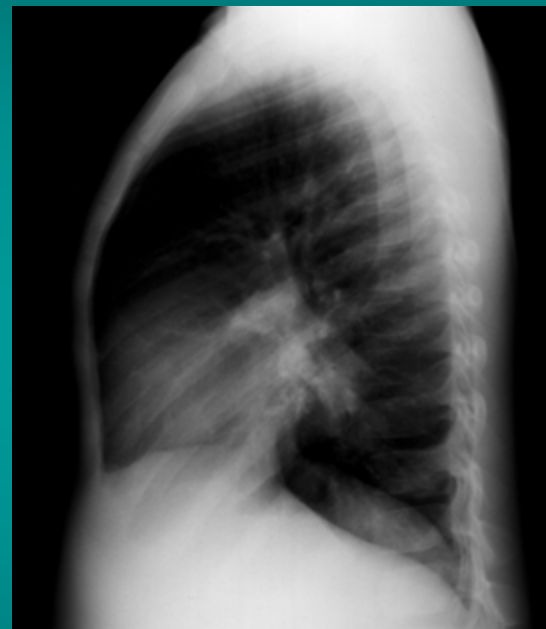
Follow-up Chest X-rays

PA View



- Chest X-rays demonstrating resolving post-obstructive pneumonia.
- Decreased size of surrounding infiltrate and pleural effusion.
- Note improved size and appearance of left lower lung mass.

Lateral View



- Several amorphous calcific densities in left lower lung.
- Shift of heart and mediastinum into left thorax.



Menu of tests for Workup of Lung Mass

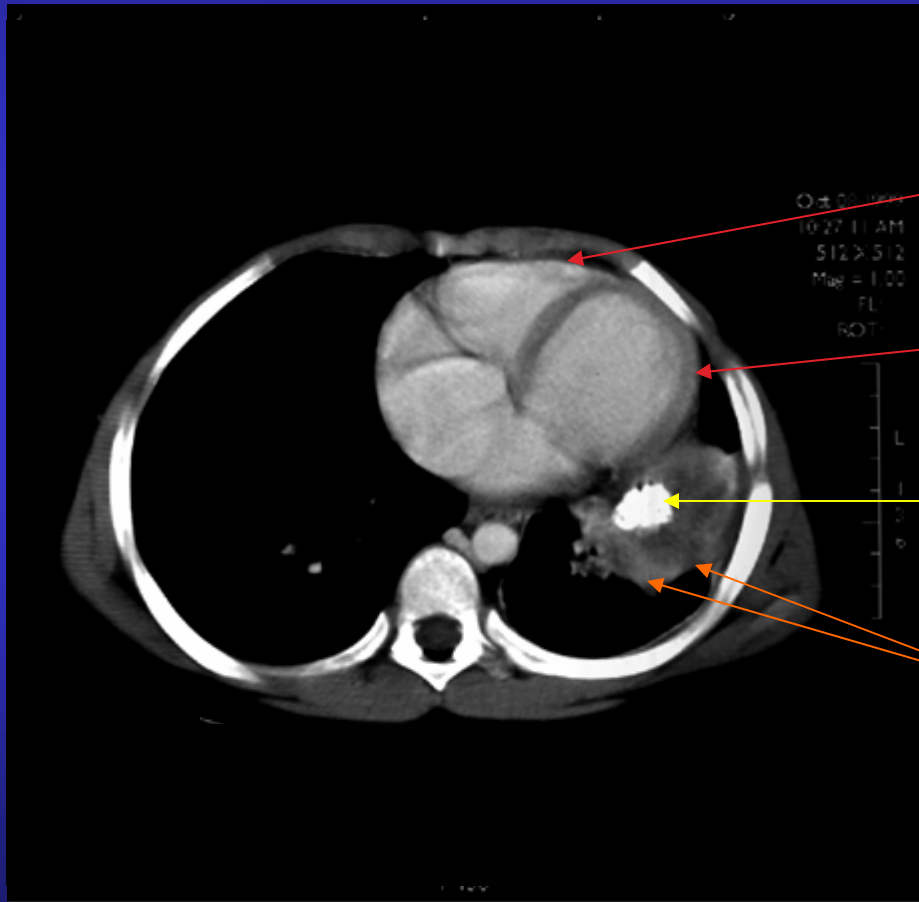
- Chest X-ray percutaneous
- Chest CT +/- biopsy
- Bronchoscopy and open thoracotomy with biopsy of lung mass
- Pathological/Histological Characterization



Our Patient: Chest CT, 1999

Film Findings:

- Calcified mass in left lingula
- LLL collapse/consolidation
- No evidence of mediastinal lymphadenopathy
- No liver or splenic lesions
- Remainder of exam was unremarkable



Right Ventricle
(RV)

Left Ventricle
(LV)

Calcification
(Irregular)

Heterogeneous Soft-
Tissue Mass



Brief Differential

MALIGNANT

- Primary Bronchogenic cancer
- Metastatic Cancer including: Neuroblastoma, metastatic osteosarcoma
- Carcinoid, Adenoid cystic carcinoma, Mucoepidermoid carcinoma

BENIGN

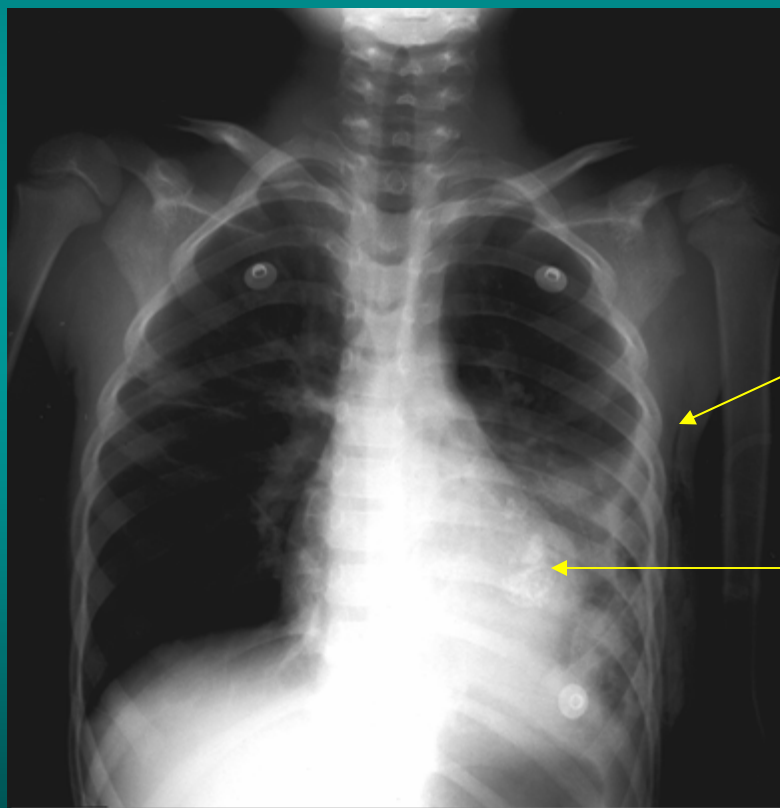
- Bronchial Adenoma
- Hamartoma
- Granuloma (Infectious v Inflammatory)
- Teratoma



Lung Biopsy was performed

Chest X-ray S/P Lung Biopsy

- Portable AP View, S/P Open Thoracotomy in June 1999.
- Calcified mass in left lung base.
- Subcutaneous emphysema in left lateral chest wall.
- No pneumothorax.
- Right lung, heart, mediastinum otherwise unremarkable.



Subcutaneous
emphysema

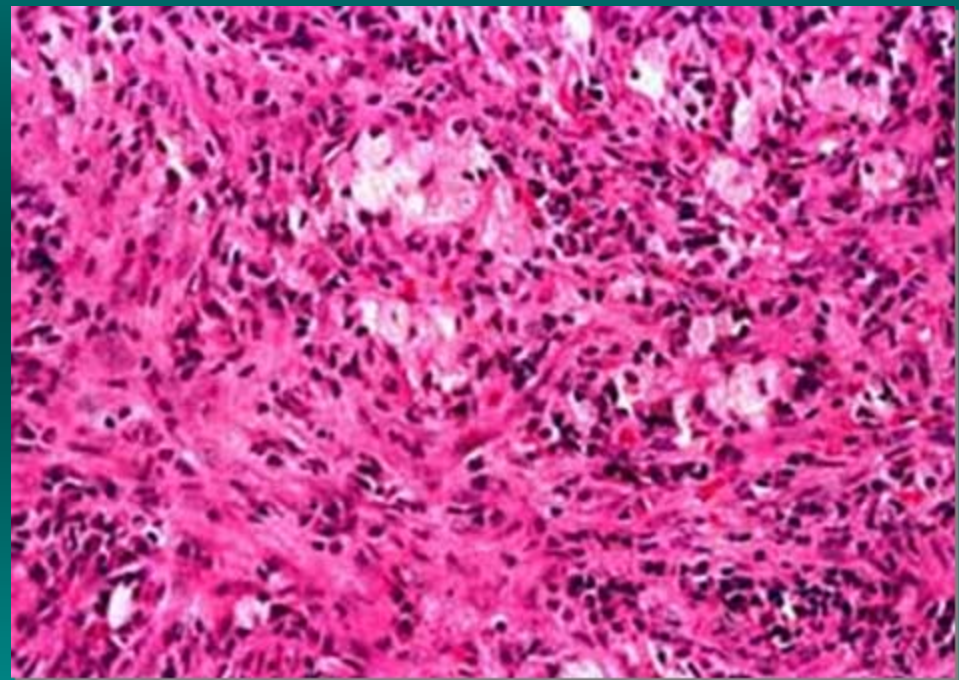
Calcification
in mass



Biopsy Findings

- Multiple biopsies of lung were taken.
- Frozen section demonstrated a Plasma cell granuloma: “Benign inflammatory and spindle cell lesion...”
- Also known as fibrous histiocytoma, fibrous xanthoma, xanthogranuloma, xanthofibroma, and postinflammatory pseudotumor
- This was confirmed by more detailed pathological evaluation
- Special stains for bacteria, fungi, acid-fast bacilli and Epstein-Barr Virus were all negative

Histology



- Plasma cells, lymphocytes, histiocytes and spindle cells in a fibrous or vascular stroma



Plasma Cell Granuloma

Highlights

- Most common benign lung neoplasm in children
- Unknown etiology-
? Inflammatory origin
- Children older than 5 years on presentation
- Nonspecific Respiratory Symptoms
- Labs usually normal
- Well-demarcated, solid tumor
- Variable Size
- Calcification in 15-25% of cases
- Does not appear to metastasize



Plasma Cell Granuloma

Radiographic Presentation

- Localizing density on chest radiographs
- Solitary, peripheral, well-marginated mass
- Anatomic preference for lower lobes
- Extraparenchymal extension unusual but important manifestation
- If mediastinum is involved and the mass is calcified, it may stimulate other tumors



- Heterogeneous attenuation
- Variable contrast enhancement
- Variable calcification (dense to subtle)



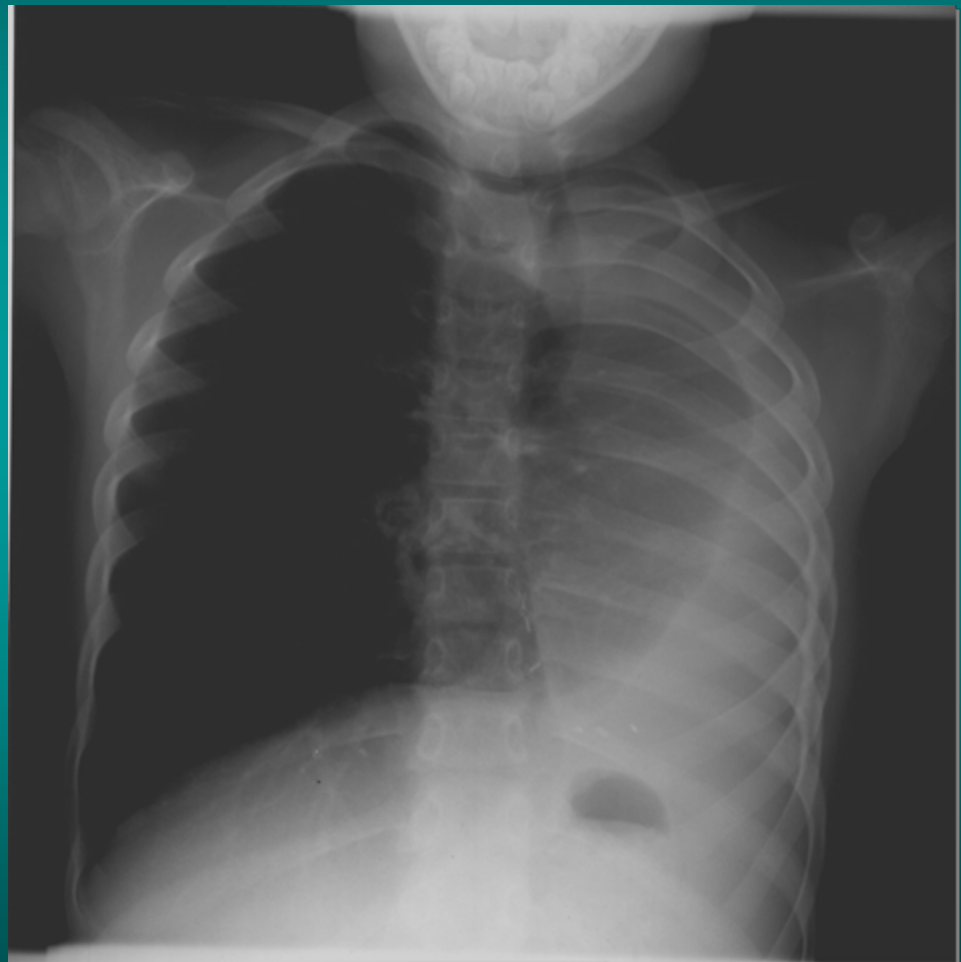
Clinical Course II

- He was started on oral steroids (prednisone 40mg PO qd) to decrease mass size prior to future resection (based on case reports in literature).
- Surgical resection of mass was carried out in August 2000.



Post-Op Chest X-Ray, Nov. 2000

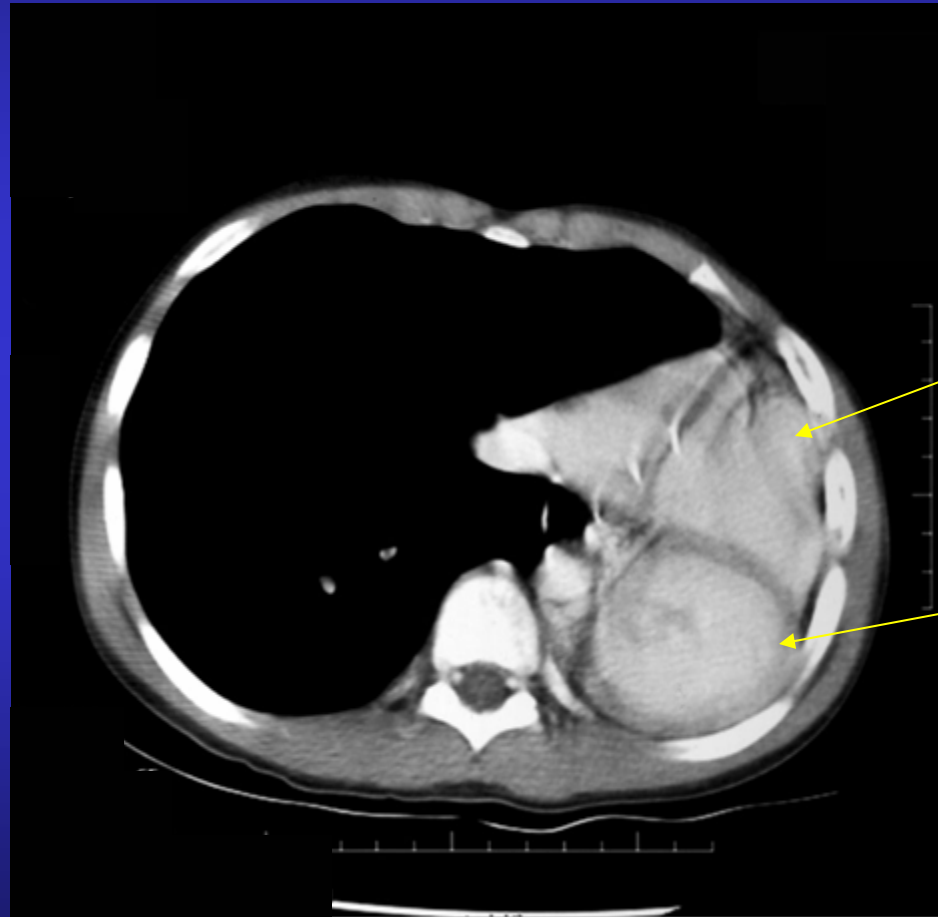
- S/P Left Pneumonectomy
- Mediastinum shifted far to the left
- Hyperinflation of right lung





Post-Op Chest CT: Mediastinal Window

- S/PL pneumonectomy
- Shift of heart and mediastinum to the left



RV

LV



Post-Op Chest CT: Lung Window

- Left lung is absent.
- Right lung is clear.
- Right lung is hyperinflated and extends to left thorax
- No pulmonary metastases seen.
- Bone windows were unremarkable.
- No evidence of recurrence.





References

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