An Unusual Bacterial Pneumonia in an Immunocompetent Patient

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13 year old boy, from Bhosari, Pune, reported to respiratory OPD in Jan 2018 with chief complaints of :

- **Chest pain**
- **Cough**
- **Fever**
- **Shortness of breath**

For 2 months

H/o Present illness

Chest pain- pleuritic chest pain, Rt side

Cough-mucopurulent expectoration,30-40ml,few episodes of streaky haemoptysis.

Fever-intermittent type, night sweats, chills and rigor

Dyspnea- MMRC grade 2, non progressive,no h/o PND, wheeze, orthopnea, palpitation.

No h/o – Loss of appetite, weight loss, close contact with TB

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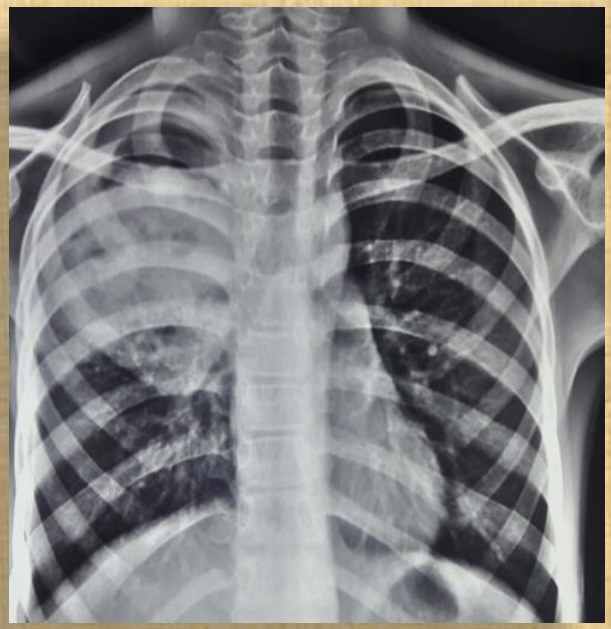
First seen by local paediatrician.

Hb-11gm/dl, TLC 19200/cmm,N-82%, L-13%,E-1%, M-4% Platelet -458000/cmm.



Right UL consolidation with air fluild level
?? lung abscess

Referred to our hospital for further management

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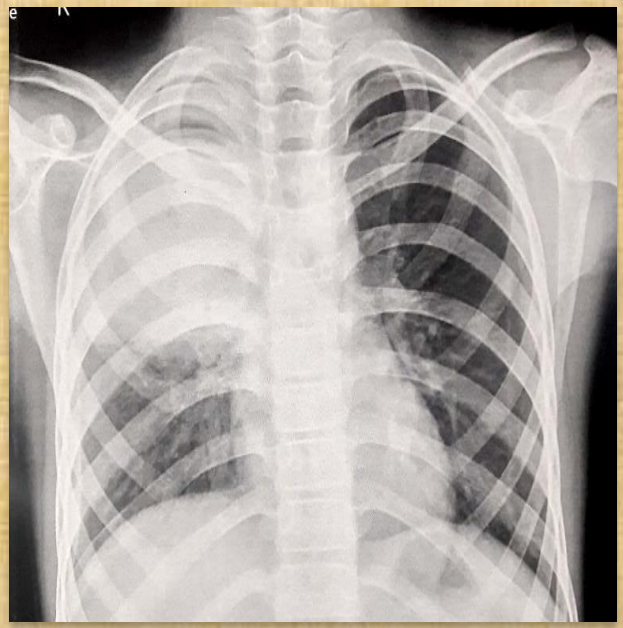
Attended paediatric opd on 23 Dec 2017

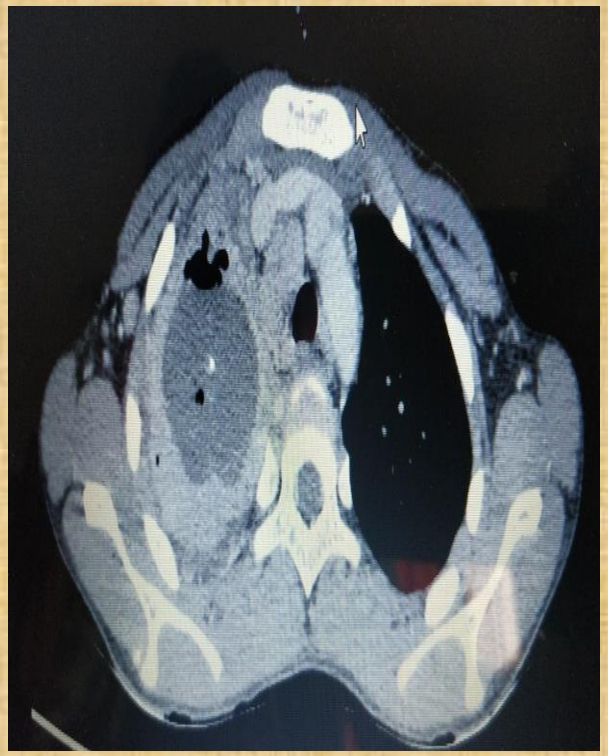
HB-10gm%, TLC 16000/cmm, N-80%,L10%, E-02%, M-08%.

Biochemistry-WNL



Rt upper lobe consolidation

CT Thorax



- ***Solitary, large, lobulated, well defined regular thick walled collection seen in Rt UL.***
- ***Peripheral post contrast enhancement***

Diagnosed as ? lung abscess

Paediatric surgeon consultation -advised RT UL lobectomy

Anaesthesia fitness was done for RT UL lobectomy

Patient reported to Respiratory opd

Persistence of symptoms with no other new complaints

Clinical Examination

Vitals- BP 120/70mmhg, P-100/min, RR-20/min, Temp-100-102F

Pallor present

Rt supraclavicular lymph node – 3-4cm. soft, mobile, non-tender

R/S Exam -- Reduced breath sounds in Rt S/S & Rt I/S area

Rest of examination was normal

Investigations

HB-10gm, TLC-8000/cmm, N-54%, L-35% ,E-04% ,M-07%

Biochemistry – WNL

Investigations

Sputum for Gram stain-Gram + ve cocci seen. (repeated sputum for gram stain done 3 times and also sent to outside lab)

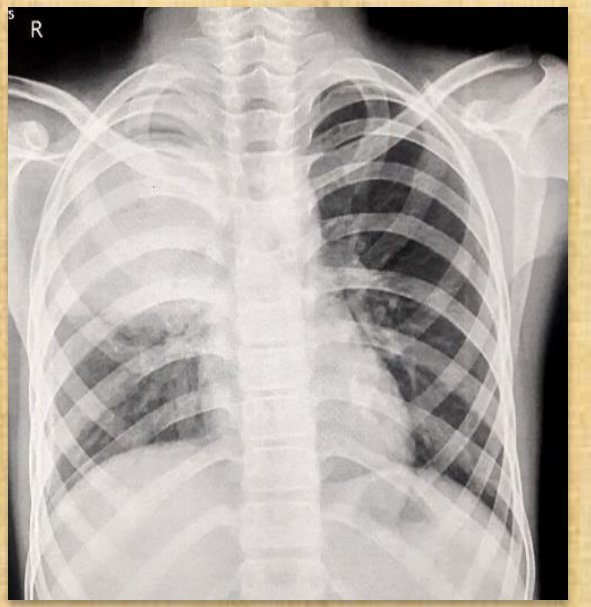
Sputum for ZN /fungal stain-negative

Genxpert –MTB NOT DETECTED

Radiological investigations

USG Thorax- Rt UL Consolidation.

USG neck-Enlarged lymph nodes RT Cx level 4(15*7mm) & LT Cx level 3(12*8mm)



No changes

Histopathological Investigations:

FNAC of right cervical lymph node– s/o of reactive lymphadenitis

USG guided FNAC : Signs of chronic inflammatory changes, no malignancy/TB

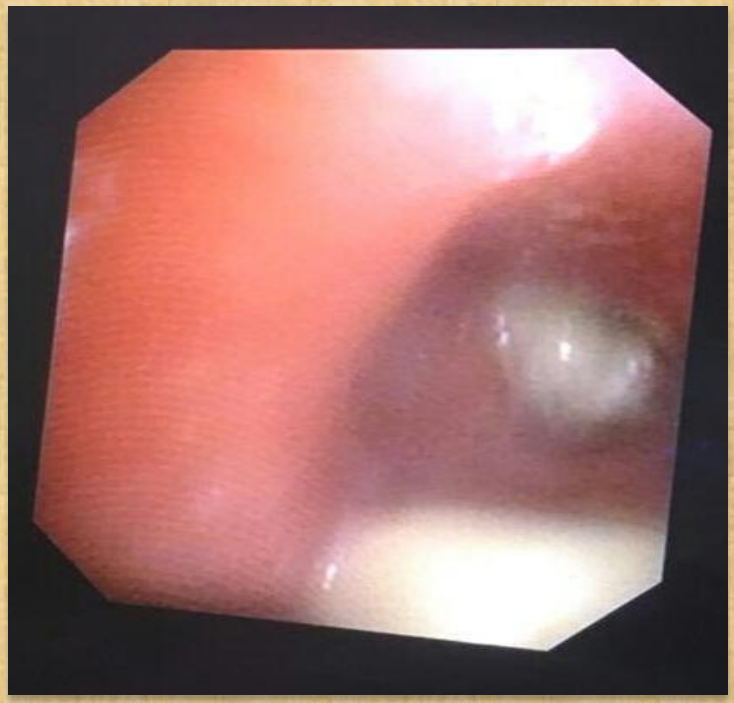
CT guided lung biopsy- neutrophilic inflammation and no evidence of malignancy /TB

Bronchoscopy

Diagnostic bronchoscopy

-Purulent secretion
-Pus discharge from RT Upper lobe

Post Bronchoscopy sputum



MICROBIOLOGY

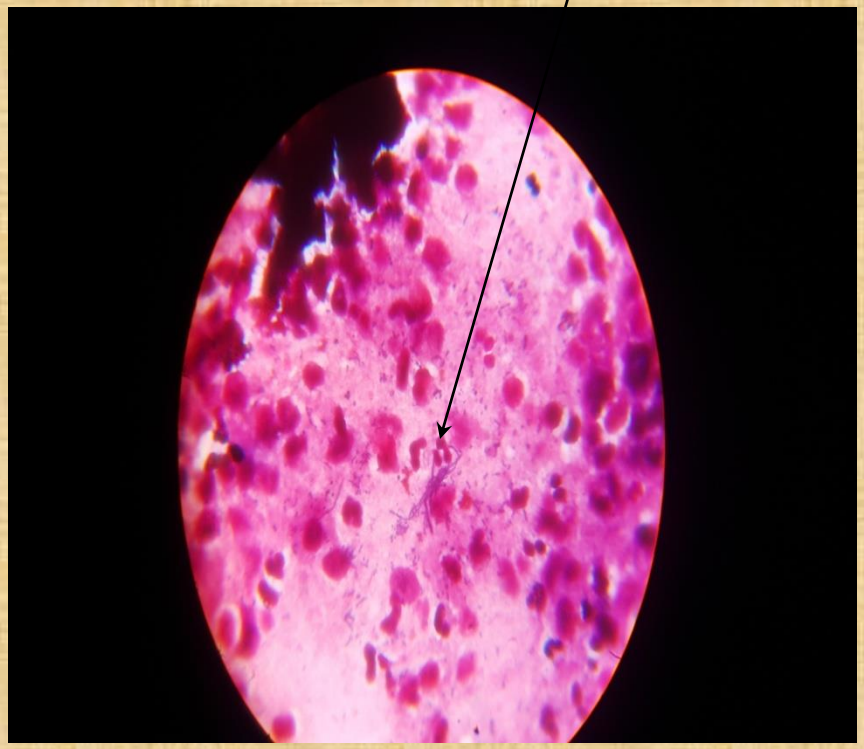
Post bronchoscopy sputum Gram stain –

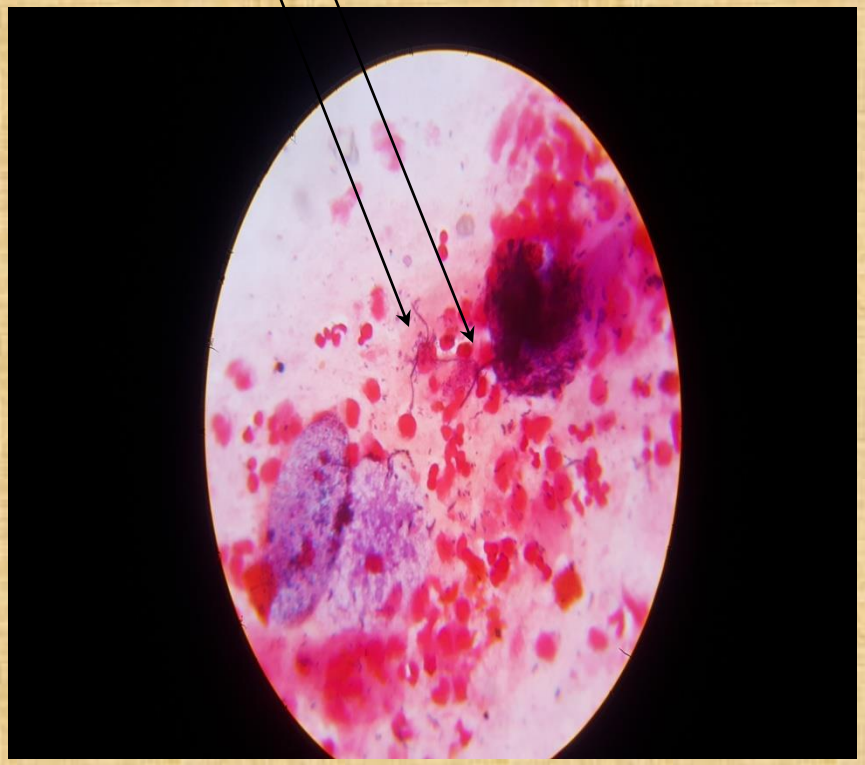
Typical gram positive beaded, fine right-angled branching filaments.(s/o Nocardia spp.)

Sputum for ZN /fungal stain-negative

Gram's stain: Typical Gram positive ,beaded, fine right-angled branching filaments.

Gram positive filamentous bacilli





Microbiological Phenotypic and genotypic investigations……

Sputum for GenXpert – NOT DTECTED

Sputum for culture on L.J. Media: No growth

[Sample received in the microbiology department after the administration of antibiotics; that could be the reason for no growth on culture media]

CT Brain-Normal

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Diagnosis

Pulmonary Nocardiosis

Management

- **Tab Septran DS (Sulfamethoxazole 800 mg +Trimethoprim 160 mg)twice a day.**
- **Tab Clindamycin 300mg thrice a day**

Course and management

- **Fever –low grade .**
- **Cough with expectoration – significant improvement seen .**
- **Pleuritic chest pain –reduction in intensity.**

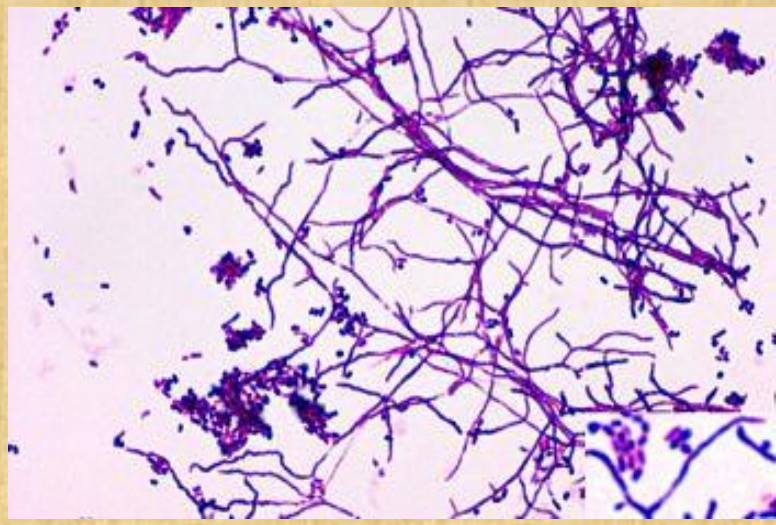
PLAN

- Septran-6months.
- Clindamycin-2weeks.
- f/u – 1 month.

Discussion

Nocardia-

- Genus-Aerobic Actinomyctes
- Gram-positive, aerobic,catalase-positive, rod-shaped bacteria.
- Appears as filamentous bacterium with hyphae like branching filaments.
- Weakly acid fast.



- Lungs are m/c site on involvement-70%.
- Other-Cns,skin,disseminated disease
- Nocardia are found in soil.
- Infection acquired by inhalation of bacteria or through traumatic introduction
- Nocardia are oral microflora found in healthy gingiva.

Risk factors

- **Leukemia**
- **HIV**
- **Organ transplantation**
- **Diabetes**
- **Corticosteroid**
- **Without a definable predisposing condition**

Clinical features

- **Acute, subacute, chronic disease**
- **Fever**
- **Cough**
- **Breathlessness**
- **Hemoptysis**
- **Wt loss**

Diagnosis

- **The Chest x-ray- nodular,consolidation,infiltrate and cavitatory lesions.**
- **BAL/Sputum-Gram stain/ZN stain**
- **Culture-blood agar, chocolate agar, Sabouraud's dextrose medium and LJ medium.**

DIAGNOSIS

- **Colonies of *Nocardia* spp. may take 48 hrs to several weeks.**
- **Typical colonies are usually seen after 3-5days.**
- ***Nocardia spp*. appear as either buff or pigmented ,waxy cerebriform colonies or have a dry chalky white appearance if aerial hyphae are produced.**

Management

Medical-

1. ***Sulfonamides-***

   Sulfadiazine and Trimethoprim-sulfamethoxazole

2. ***Third-generation cephalosporin like ceftriaxone.***

3. ***Amikacin, imipenem,minocycline,levofloxacin.***

-Duration 6-12 months.

-Surgical – ***if there is brain abscess.***

Clinical Pearl

In case of uncommon pulmonary infection, repeated attempts and a close interaction with microbiology lab always succeeds.

Thank you