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RESIDENT COCCI SEEDS IN LUNG: A CASE REPORT

Microbiology

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ABSTRACT

Paediatric pneumonia can be caused by a variety of different organisms but S.mitis/oralis is rare finding. The latter is usually a cause of disease in immunocompromised patients thus highlighting the need of presenting our unique case report.

KEYWORDS

Streptococcus mitis/oralis, pneumonia, paediatric pneumonia

1.CASE REPORT

I. **Presenting concerns:** A 5 year old male child was brought to our emergency department byhis mother on 28/03/2017 with complaints of intermittent cough and coryza for last 2-3 months, fever with increasing shortness of breath and right-sided chest pain since 2 days and intermittent right shoulder tip pain.

ii. **History and clinical findings:** He had a past history of Varicella infection (Nov 2012) and dental caries. Antenatal and post natal history was unremarkable. There was no delay in growth and development and he was immunized till age but didn't receive pneumococcal vaccine.

On physical examination:
He was sick looking and irritable.
Pulse: 145 beats/min
Blood pressure: 100/60 mmHg
Respiratory rate: 40/min, intercostal recessions seen during breaths
sPO2: 96% in air
Temperature: 100o F

Respiratory examination
Dull note at right infra-scapular region, air-entry decreased on same side, bronchial breath sounds and wheeze were heard.

No other significant findings.

Previous investigations (done at another hospital) showed polymorphonuclear leukocytosis and increased erythrocyte sedimentation rate.

Chest skiagram showed right sided mid/lower zone consolidation and pleural effusion. (Figure 1)

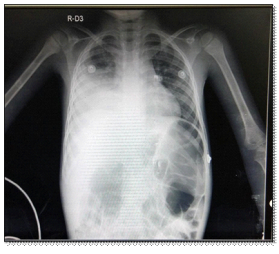

Figure 1

iii. **Interventions started:**Keeping in mind an infective etiology, he was started empirically on syrup Cefpodoxime, syrup Levosalbutamol and syrup ibuprofen+paracetamol. Appropriate investigations were sent.

iv. **Initial investigations reports:**
CBC: Hb-9.9g/dl , TC- 17000/cumm, N-79%, L-18% platelets-adequate
ESR: 74mm/hr
CRP: 28mg/dl
Repeat Xray chest: Right-sided mid+lower zone opacity
Mantoux test(5TU): No induration after 72 hrs.
Pleural fluid routine: Hazy & straw coloured, TC- 6400, Neut-70%, Ly-20%, Mesoth-10%, RBC(+), protein- 4000mg/dl, sugar-25mg/dl
Pleural fluid LDH: 2122 U/L
Pleural fluid ADA: 4.5 U/L
MTB-PCR (pleural fluid): Negative
Pleural fluid for aerobic (Bactec) culture
Blood culture

v. **Progress:** Even after starting empiric antibiotics, he was clinically quite ill, spiking fever, tachypneic and dependent on O2 inhalation. He had one episode of hypotension and bradycardia but recovered within 24hrs. After 24 hours, pleural fluid showed growth in BD-BACTEC FX40. A direct stain from culture fluid (figure 2) showed gram positive cocci in chains. After subculture on sheep blood agar, we saw alpha-hemolytic colonies (figure 3), suggestive of streptococcus species, but it was optochin resistant thus ruling out Streptococcus pneumoniae. Vitek 2 compact identified the isolate as Streptococcus mitis/oralis (figure 4). Antimicrobial susceptibility report is shown in figure 5.

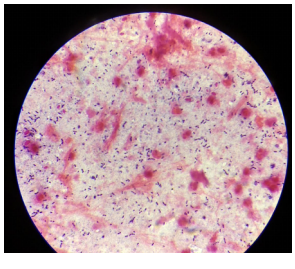

Figure 2

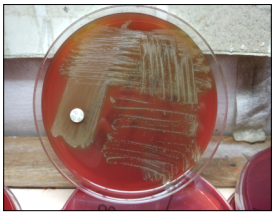

Figure 3

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bioMerieux Customer: Laboratory Report Printed May 22, 2017 12:56 CDT
System #: Printed by: user

Patient Name: [redacted] Patient ID: BB3/5381/17
Isolate Group: 2000199625-1

Card Type: GP Testing Instrument: 0000139C2CD2 (B373)

Bionumber: 0611303643054 11
Organism Quantity:

Comments:

Identification Information	Card:	GP	Lot Number:	2420162103	Expires: May 7, 2018 13:00 CDT
	Completed: Mar 31, 2017 17:08 CDT		Status: Final		Analysis Time: 6.00 hours
Selected Organism	95% Probability		Streptococcus mitis/Streptococcus oralis		
	Bionumber: 0611303643054 11				Confidence: Very good identification

Figure 4

The Calcutta Medical Research Institute

bioMerieux Customer: Laboratory Report Printed May 22, 2017 12:25 CDT
System #: Printed by: user

Patient Name: [redacted] Patient ID: BB3/5381/17
Isolate Group: 2000199625-2

Card Type: AST-ST01 Testing Instrument: 0000139DC2D2 (0373)

Organism Quantity:
Selected Organism: Streptococcus mitis/Streptococcus oralis

Comments:

Identification Information					
Selected Organism	Streptococcus mitis/Streptococcus oralis				
	Entered: Apr 1, 2017 09:41 CDT		By: user		

Analysis Messages:
The following antibiotic(s) are not claimed:
Inducible Clindamycin Resistance, Trimethoprim/Sulfamethoxazole.

Susceptibility Information	Card: AST-ST01		Lot Number: 540399822		Expires: Nov 14, 2017 12:00 CST
	Completed: Apr 1, 2017 05:18 CDT		Status: Final		Analysis Time: 18.25 hours
Antimicrobial	MIC	Interpretation	Antimicrobial	MIC	Interpretation
Benzylpenicillin	0.25	I	Erythromycin	>= 8	R
Ampicillin	0.5*	I	Clindamycin	0.5	I
Cefotaxime	<= 0.12	S	Linezolid	<= 2	S
Ceftriaxone	0.25	S	Vancomycin	0.5	S
Levofloxacin	2	S	Tetracycline	0.5	S
Inducible Clindamycin Resistance			Trimethoprim/Sulfamethoxazole		

Figure 5

2.DISCUSSION:

Paediatric pneumonia is caused by following common organisms:

Typical	Atypical
Streptococcus pneumoniae	Mycoplasma
Staphylococcus aureus	Legionella
Mycobacterium tuberculosis	Chlamydophila
Hemophilus influenzae	Listeria

S.mitis/oralis is usually considered an oral commensal. It uses several strategies to colonize the human oropharynx like adhesins, immunoglobulin A, proteases and toxins, and modulation of the host immune system. These factors may allow S. mitis to compete for space and nutrients. However, it may be possible that in immune compromised patients S. mitis will use the same factors for pathogenesis7. There are reports of serious illness like abscess at mitral valve base along with bacteraemia1 , streptococcal toxic shock syndrome2,3, bacteraemia8, gastrointestinal focus, skin/soft tissue focus and Infective endocarditis in cancer patients4 and also implant infection5. In another study, St. mitis was the most common isolate in blood/pleural fluid cultures from 27 patients presenting with CAP caused by Viridans streptococci6. Our patient was apparently immunocompetent with only a significant history of dental caries which could be a source of transient bacteraemia/aspiration and further seeding of lung.

3.Outcome:

Empiric antibiotics were switched to accordingly on D4 (2/4/17) to Linezolid.

He was still febrile for 3 more days after which air entry started improving on D8 (6/4/17). Patient was discharged (9/4/17) after improvement of symptoms, counts and a repeat x-ray (figure 6).

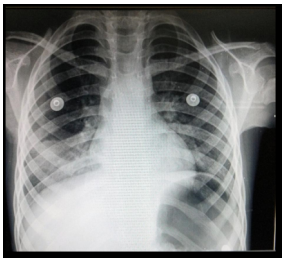

Figure 6

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