

A Case Report of an Unusual Bacteremia in an Infant- *Wautersiella Falsenii*

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Abstract

Wautersiella Falsenii is an unusual organism isolated from human samples. Its clinical relevance needs to be defined. Solitary identification of this microorganism in a clinical sample explains an etiological link between it and the disease. We present such a case that came to us with respiratory distress and later on diagnosed to have pneumonia, mediastinal abscess and bacteremia. Aetiological work up isolated *Wautersiella Falsenii* from the blood which was sensitive to ofloxacin. No any other organism was isolated. The patient responded well to the ofloxacin treatment and was discharged in good general condition. Solitary identification and clinical improvement on effective antibiotic; supports that it is a clinically significant infection. In this case report we discuss the clinical spectrum of diseases caused by this organism and its antibiotic sensitivity pattern.

Keywords: *Wautersiella Falsenii*; CHROM Agar; Pneumonia; Mediastinal Abscess; Bacteremia.

Introduction

Wautersiella falsenii is an aerobic, Gram-negative rod rarely isolated from clinical samples [1]. There is limited data on its clinical significance and its antibiotic sensitivity-resistance pattern. We report a case who was admitted to PICU in view of respiratory distress. During the PICU stay, she was diagnosed as a case of pneumonia and mediastinal abscess on imaging. Microbiological aetiology work up detected *Wautersiella Falsenii* in the blood specimen.

Case Summary

A year old female child was admitted to our PICU with complaints of fever, cough, respiratory difficulty for last 10 days and decreased oral intake for last 3

days. Fever was continuous, high grade (104°C), not associated with chills/rash and relieved by antipyretics. Cough was progressive, non-productive with no diurnal or postural variation. The parents sought treatment when she stopped taking orally. There was no history of seizures, altered sensorium, burning micturition or any skin rash/swelling. She was on some oral antibiotics from a local practitioner. Birth history was normal. Child was immunized as per the age and had a normal development. At the time of admission, child had tachypnea (RR-62/min) and tachycardia (HR-164/min) with signs of respiratory distress (Intercostal, subcostal retractions and nasal flaring). SPO₂ on room air was 82%, BP was 84/56 mmhg. She looked pale, irritable and malnourished. Respiratory system showed findings consistent with collapse/ consolidation in left lung. Abdomen examination revealed hepatomegaly with liver span of 7 cm. Cardiovascular and nervous system examinations was within normal limits. The child was immediately stabilised by positioning, humidified oxygen, IV fluids and anti-pyretic. Empirically IV ceftriaxone was started. Initial work up showed:- Hb-8.6, TLC-6600 with P₆₀, L₃₇, M₂, E₁; PS and RBC indices showing microcytic hypochromic picture; and positive CRP. Serum electrolytes, liver and kidney functions were normal. Chest X-ray showed collapse and consolidation of whole left lung (Figure1). Echocardiography showed minimal

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pericardial effusion. After 48 hours of no improvement in clinical condition and worsening of chest X-ray, IV vancomycin was added (after taking blood culture samples). Bronchoscopy was done and bronchoalveolar lavage (BAL) was sent for gram stain and cultures. Bronchoscopy had shown normal anatomy of respiratory tract and BAL C/S and gram stain had not shown any organism growing. A CECT chest showed a large multi-loculated collection/abscess in the anterior mediastinum, anterior to pericardial wall; loculated empyema on right chest (maximum thickness-11mm) with mild pleural

effusion bilaterally; and marked pericardial effusion with enhancing pericardium (Figure 2). On day 5, there was still no clinical improvement so blood culture was collected. It showed growth of *wautersiella falsenii*, done by rapid automated aerobic culture, sensitive to ofloxacin (Table 1). Antibiotics were upgraded to the ofloxacin and vancomycin was continued. After 36 hours the child became afebrile and respiratory distress decreased. Mediastinal mass and pericardial effusion resolved gradually. Child was discharged in good general condition from PICU after 26 days of stay.

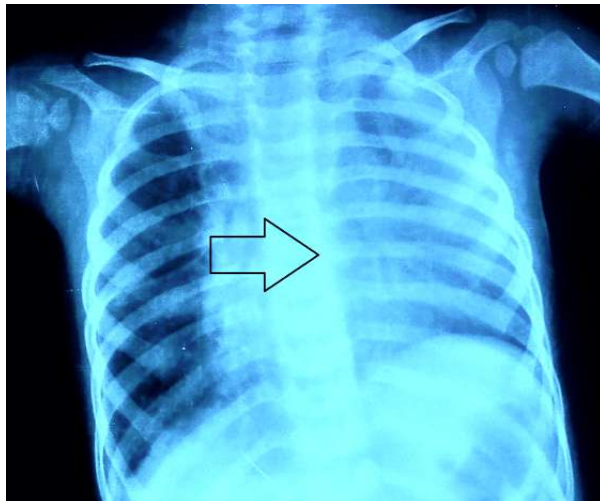


Fig. 1: Arrow showing homogenous opacity on chest X-ray in left lung field



Fig. 2: CT scan showing- anterior mediastinal mass (M), pericardial effusion (PE)

Table 1: Antibiotic sensitivity pattern of *Wautersiella falsenii* isolated from different samples

Antibiotic sensitivity pattern of <i>Wautersiella falsenii</i> isolated from different samples			
Year	Lieven et al (2012)	German Matías et al (2015)	Current case (2015)
Sample Pathology	Urine UTI-pyelonephritis	Pus cervical neck abscess	Blood Empyema, anterior mediastinal mass, pericardial effusion S-sensitive, R-resistant
Antibiotics	MIC ($\mu\text{g}/\text{mL}$)		
Nitrofurantoin	128	-	-
Ampicillin	-	>32	-
Amoxicillin-clavulanic acid	>8	-	-
Cephalothin	-	>32	-
Piperacillin-tazobactam	>16	64	R
Ticarcilin	-	-	R
Ceftriaxone	>4	-	-
Ceftazidime	>8	16	S
Meropenem	>8	>16	R
Imipenem	-	8	R
Tobramycin	>4	-	-
Colistin	32	8	R
Gentamicin	4	2	S
Amikacin	8	8	S
Ciprofloxacin	1	2	S
Cefepime	-	4	S
Trimethoprim-sulfamethoxazole	0.025	2	-
Ofloxacin	-	-	S

Discussion

Wautersiella falsenii is a rare organism detected in clinical samples. It was first described in 2006, based on 26 clinical isolates collected over more than 2 decades from various laboratories. It was named after, Georges Wauters, a Belgian microbiologist, who identified it as a separate genus. The organism has been isolated from almost every clinical specimen like blood, ear discharge, oral cavity, pleural fluid, pus, respiratory tract, surgical wound and vaginal swab [1]. It has been described as one of the atypical bacteria causing infection of respiratory tract in cystic fibrosis patients [2]. Recently it was demonstrated to cause pyelonephritis in an infant [3], and cervical neck abscess in a young female with otitis media. [4] It has also been isolated on CHROMagar from rectal swab samples screening [5]. The non-human isolation has been reported from poultry. It is a non-motile gram negative rod which is oxidase positive, indole negative and grows in aerobic media such as tryptic soy agar or blood agar at 20, 30, and 37°C [1]. It has got two genomovars. In 2014, taxonomic data showed that it has more structural resemblance with the genus *Empedobacter* (16S rRNA gene sequence similarity up to the extent of 97.2 % and DNA-DNA relatedness) [6]. Now scholars have classified it under *Empedobacter* genus.

The isolate grown in our patient has been isolated from blood culture. We could not take pus sample from the anterior mediastinal collection mass due to close proximity of vascular structures. Similarly, on pleural tapping, sample could not be obtained due to thick organized loculated empyema. The sensitivity and resistant pattern is shown in table 1 and compared to that of the available two case reports. In our case it was sensitive to ofloxacin. We decided to give ofloxacin as there was no improvement with ceftriaxone and vancomycin. The patient responded well to antibiotics (ofloxacin-20 days, vancomycin - 24 days) within 36 hours. This is important to note that it is resistant to many 2nd and 3rd line antibiotics used in PICU like piperacillin-tazobactam, meropenem, imipenem and colistin. So a careful clinical assessment and judgement is necessary before labelling it as non-significant.

The usual organisms grown in our intensive care unit are *Pseudomonas*, *Acinetobacter* and *Klebsiella* which are hospital acquired infections. This organism has not been previously isolated at our unit, pointing the source more likely to be community acquired. On literature search we found that there can be many community sources of this microorganism. To locate the source we reviewed the history again but there

was no history of exposure to poultry [2], swine feedlot or living near water body, [7] industrial exposure [8], history of pica or travel to Himalayas [9].

In this case *Wautersiella falsenii* was the sole organism detected; there was no clinical improvement on empirical antibiotics and the patient improved rapidly and completely after starting appropriate antibiotics. This makes it a noteworthy organism for the intensivists. However the confirmatory diagnosis is made on the basis of 16S PCR but this facility was not available at our place. This case and the available literature suggest that *Wautersiella falsenii* is an organism of clinical significance with a varied spectrum of clinical presentation. This calls for detailed analysis of this organism to learn about antibiotic resistance pattern.

Key Messages

Wautersiella falsenii can cause a wide variety of clinically significant human infection.

Abbreviations

PICU: Pediatric Intensive care unit,
 MIC: Minimal Inhibitory Concentration
 CECT: Contrast Enhanced Computer Tomography,
 BAL: Bronchoalveolar Lavage
 C/S: Culture Sensitivity,
 PS: Peripheral Smear
 CRP: C reactive protein,
 IV: Intravenous fluid
 HR: Heart rate,
 RR: Respiratory rate
 BP: Blood Pressure,
 TLC: Total Leucocyte Count
 RBC: Red Blood Cell.

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