Acta Scientific Otolaryngology

Volume 2 Issue 12 December 2020

Case Report

Alloiococcus otitis - An Unusual Cause for Bacteremia: A Case Report

Jonathan M Yaghoubian*, Alfredo Tirado, Robert Falkowski, Vladana Aleman, Olu Oyesanmi and Veronica Tucci

Oak Hill Hospital/HCA, USA

***Corresponding Author:** Jonathan M Yaghoubian, HCA Healthcare / USF Morsani College of Medicine GME: Oak Hill Hospital Program, USA.

Received: November 11, 2020

Published: November 28, 2020

Abstract

We present a case in which a patient initially came to the emergency department (ED) with influenza-like symptoms. The patient was incidentally found to have *Alloiococcus otitis* (*A. otitis*) grown from a blood culture. She was called back into the ED approximately a week later due to positive blood cultures. At this follow-up visit, although her work-up was unremarkable, antibiotics were administered based on the blood culture results. We believe translocation from the middle ear into the blood stream was the proposed mechanism of inoculation which is also an interesting and unusual presentation. This case should raise awareness about different means of inoculation as well as this unusual organism that caused the patient to be bacteremic.

Keywords: *Alloiococcus otitis*; Fever; Sleep Apnea

Introduction and Case Description

Patient is a 58-year-old female with past medical history significant for hypertension, obstructive sleep apnea, hyperlipidemia, and depression who presented to the Emergency Department (ED) for influenza-like symptoms. She reports fever, body aches, fatigue, and diarrhea for one day. She received her influenza vaccine this year. Patient denies chest pain, shortness of breath, nausea, vomiting or other related symptoms. Her vital signs were within normal limits except for tachycardia at a rate of 120 beats per minute (See table 1). Her physical exam was unremarkable.

Initial Vital Signs	
Pulse Oximetry	95%
Blood Pressure	130/75
Blood Pressure Mean	93
O2 Delivery	Room Air
Temperature	37.4°C
Pulse	120
Respirations	17

Table 1

Her workup included a complete blood count (CBC), which showed a mild leukocytosis, a complete metabolic panel (CMP) which demonstrated mild hyponatremia, hypokalemia as well as a normal point of care lactate of 1.3 mmol/liter (See table 2 and 3). A nasal influenza swab was negative for both influenza A and B. A chest X-ray was unremarkable and a computed tomography with iodine contrast demonstrated left-sided colitis, gastritis, minimal mesenteric adenitis, hepatomegaly and mild splenomegaly, cystitis, and a 1 mm nonobstructive right kidney stone.

The patient met the criteria for systemic inflammatory response syndrome (SIRS) based on her elevated pulse rate and leukocytosis and was given a dose of intravenous (IV) ceftriaxone. She was also given IV ketorolac for pain control as well as normal saline for fluid resuscitation. Her hypokalemia was managed with 40 milliequivalents of *per os* (PO) potassium chloride. Based on her signs and symptoms, and the fact that she met sepsis criteria at our institution, she was offered admission for intravenous antibiotics, which she declined. She was sent home with a course of PO metronidazole and ciprofloxacin.

Seven days later the patient was notified to return to the ED based on blood cultures that were positive for *Alloiococcus otitis* (*A. otitis*). She came into the ED looking well and without complaints. Upon further questioning, she admits to mild abdominal pain and diarrhea which has vastly improved since her last visit. She also now reported being treated for an ear infection three weeks ago. She denies any symptoms such as fever, chills, nausea, vomiting, diarrhea, chest pain, and shortness of breath; however, she reported

Chemistry	
Sodium (136 - 145 mmol/L)	134 L
Potassium (3.5 - 5.1 mmol/L)	3.0 L
Chloride (98 - 107 mmol/L)	99
Carbon Dioxide (21 - 32 mmol/L)	27
Anion Gap (7 - 16 mmol/L)	8
Blood Urea Nitrogen (BUN) (7 - 18 mg/dL)	8
Creatinine (0.6 - 1.0 mg/dL)	0.7
Glomerular Filtration Rate Calculation (>60.0)	85.95
BUN/Creatinine Ratio (4 - 33)	11
Glucose (74 - 106 mg/dL)	115 H
Point of Care Lactic Acid Ven (0.4 - 2.0 mmol/L)	1.3
Calcium (8.5 - 10.1 mg/dL)	8.4 L
Magnesium (1.6 - 2.6 mg/dL)	1.8
Total Bilirubin (0.2 - 1.00 mg/dL)	0.4
Aspartate Aminotransferase (15 - 37 UNITS/L)	16
Alanine Aminotransferase (13 - 61 UNITS/L)	25
Alkaline Phosphatase (45 - 117 UNITS/L)	57
Total Protein (6.4 - 8.2 g/dL)	7.1
Albumin (3.4 - 5.0 g/dL)	3.5
Globulin (1.4 - 4.8 g/dL)	3.6
Albumin/Globulin Ratio (0.7 - 3.6)	1
Coagulation	
Prothrombin Time (9.5 - 12.5 secs)	11.4
International Normalized Ratio	1.1

Table 2

mild neck pain along her right sternocleidomastoid muscle (SCM) without associated ear pain.

Her physical examination was grossly unchanged with the exception of mild bilateral lower lobe wheezing, mild diffuse abdominal tenderness. During this visit a focused head a neck exam was performed which was unremarkable. Airway is patent and atraumatic, mucous membranes are moist. Right ear examination revealed only tenderness to palpation of right mastoid region. Vitals signs were only positive for mild tachycardia with a heart rate of

Hematology	
White Blood Cell (4.5 - 11.0 x10^3/uL)	13.0 H
Red Blood Cells (3.40 - 5.50 x10^6/uL)	4.81
Hemoglobin (11.0 - 16.0 g/dL)	13.5
Hematocrit (35.0 - 47.0 %)	40.4
Mean Corpuscular Volume (77.0 - 96.0 fl)	84
Mean Corpuscular Hemoglobin (27.0 - 33.0 pg)	28.1
Mean Corpuscular Hemoglobin Concentration (30.0 - 35.0 g/dL)	33.4
Red Cell Distribution Width (35.0 - 55.0 fl)	40.2
Platelet Count (125 - 400 x10^3/uL)	209
Mean Platelet Volume (9.4 - 12.3 fl)	11.2
Immature Gran % (0 - 2.0 %)	0.3
Neutrophils % (38.0 - 82.0 %)	85.8 H
Lymphocytes % (16.0 - 42.0 %)	8.4 L
Monocytes % (0.0 - 14.0 %)	5.1
Eosinophils % (0.0 - 7.0 %)	0.2
Basophils % (0.0 - 2.0 %)	0.2
Nucleated RBC % (0 - 0 %)	0
Immature Gran # (0 - 0.10 x10^3/uL)	0
Neutrophils # (1.5 - 8.2 x10^3/uL)	11.2 H
Lymphocytes # (1.0 - 4.0 x10^3/uL)	1.1
Monocytes # (0.0 - 1.6 x10^3/uL)	0.7
Eosinophils # (0.0 - 0.7 x10^3/uL)	0
Basophils # (0.0 - 0.4 x10^3/uL)	0
Nucleated RBCs # (0.03 - 0.11 x10^3/uL)	0 L
Serology	
Influenza Type A Ag (NEGATIVE)	Negative
Influenza Type B Ag (NEGATIVE)	Negative

Table 3

Vital Signs	
Pulse Ox	95%
Blood Pressure	143/77
Blood Pressure Mean	99
Temperature	37.2
Pulse	105
Respiratory Rate	18

Table 4

105 beats per minute, other vital signs were as noted in table 4.

Given her recent history of ear infection and her SCM pain, a repeat blood culture was ordered as well as CBC, CMP, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) and computed tomography of the face. There was a mild elevation her CRP, otherwise all other studies were within normal limits.

An infectious disease specialist was consulted who then recommended admission. Patient was admitted for continued workup and was commenced on IV vancomycin and ciprofloxacin. Further chart review showed the patient had earlier been diagnosed with *clostridium difficile* (*C. difficile*) colitis after her initial ED visit. She was treated with PO Levofloxacin per infectious disease initially, however a gastroenterology consultation recommended treatment with PO vancomycin as a fluoroquinolone would likely exacerbate the *C. difficile* infection.

The infectious disease physician noted possibilities of her infection to be related to either continuous positive airway pressure device (CPAP) forced introduction of *A. otitis* through the eustachian tube versus translocation from colitis to the blood stream. The patient's symptoms resolved, and her blood cultures were negative. Her leukocytosis normalized. She was discharged home with seven more days of PO vancomycin.

Discussion and Conclusion

Although we did not come across any confirmed reported cases of *A. otitis* causing bacteremia, many noted cases of this bacterium were isolated from the middle ear and have been well documented [1-4]. The bacterium itself is well known, particularly in middle ear infections, however this was an unusual case. Other areas of isolation include endophthalmitis [5], endocarditis [6] and even leading to heart valve replacement [7]. It is possible that the isolated bacterium in this patient was a contaminant since it was not identified on a repeat culture. The repeat culture may have also been negative because *A. otitis* was sensitive to the antibiotics administered. Our hypothesized inoculation via CPAP as such was quite unusual. Other sources of contamination may have been from the middle ear/sinuses without the aid of the CPAP or contamination during blood collection or during laboratory process.

Clinicians should be aware that cases of *A. otitis* will likely involve the middle ear and the likelihood of confirmation might be challenging. This should still be diagnosed with a proper otoscopic examination and empiric antibiotics; rarely, if at all, should this be cultured to confirm infection with *A. otitis*. The sequence of events and actions taken throughout this case were appropriate and we do not foresee any different actions that should have been taken if this case were to present again.

Disclosures

This research was supported (in whole or in part) by HCA Healthcare and/or an HCA Healthcare affiliated entity. The views expressed in this publication represent those of the author(s) and do not necessarily represent the official views of HCA Healthcare or any of its affiliated entities.