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Case Report

A case report on Port-a-Cath related bacteremia with Pantoea species in a cancer patient

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Abstract:

Pantoea species are gram negative rods that rarely effects human. They usually cause infection in immunocompromised hosts. The cause is usually due to trauma by vegetative material or contamination of medical devices. Here we report a case of bacteremia due to Pantoea species in patient with malignancy having a Port-a-Cath. The infection was detected by blood culture from both chemo port and peripheral line. The clinical outcome was good with intravenous antibiotics and chemo port removal.

Key words: *Port-a-Cath, bacteremia, Pantoea.*

Introduction

Pantoea species are gram negative bacilli that belong to Enterobacteriaceae family.[1] They can be found in faeces, plants and soils as pathogens or commensal organisms.[2] Human infections are rare and can occur via trauma associated with plant material such as thorns and also with contaminated medical devices such as intravenous fluids, intravenous catheter, parenteral nutrition, anaesthetic agents and blood products.[1,3,4] Infections usually occurs in immunocompromised hosts, newborns and comorbid patients but can effect immunocompetent individuals as well.[5] The organism can cause septic arthtritis, synovitis, osteomyelitis, cholelithiasis, respiratory infection, skin allergy, peritonitis, bacteremia, endophthalmitis, acute dacryocystitis, periostitis, wound infections, sepsis, urinary tract infections, meningitis, endocarditis in paitents with valvular heart disease, pneumonia in patients with lung transplantation and chronic kidney disease.[3,6-8] Here we report a case of bacteremia due to Pantoea species in a patient with history of carcinoma of ampulla of vater and lung metastasis, having a Port-a-Cath.

Case

A 49-year-old man, known case of diabetes mellitus with history of carcinoma of ampulla of vater with secondary metastasis to lungs, admitted with intermittent, high grade fever for 10 days. The fever was associated with chills and rigor and subsided after taking antipyretic. The highest recorded temperature was 103°F. There was no history of burning sensation during micturition, cough, breathlessness, joint pain, loose motion, headache or altered level of consciousness. A Port-a-Cath was placed 13 days prior to admission for administration of chemotherapeutic agents. He had history of Whipple's operation about 8 years back and received 14 cycles of chemotherapy till date. On examination, the patient was febrile with temperature of 102°F, heart rate of 140 beats/min (regular), blood pressure of 130/80 mmHg and SpO_2 of 98%. The patient had a Port-a-Cath in right upper chest and the overlying skin was normal. The patient was ill looking and toxic but other systemic findings revealed no abnormality. His initial biochemical investigations are shown on Table I. Blood was sent for culture and sensitivity. Since the patient was immunocompromised, broad spectrum empirical antibiotic intravenous meropenem was started. Ultrasonogram of the chest was done to exclude any collection or abscess around the Port-a-Cath. Meanwhile, the culture and sensitivity report arrived which showed growth of Pantoea species and sensitivity pattern is showed in Table II. Though the patient was treated with a sensitive antibiotic for 3 days his fever still persisted. Since fever was not resolving, second blood culture and sensitivity was sent from both Port-a-Cath and peripheral line. Echocardiography was also done to exclude infective endocarditis. Both blood culture reports showed growth of Pantoea species with sensitivity similar to the same group of antibiotics as before (Table II). The Port-a-Cath was removed and the patient became afebrile soon after. Meropenem was continued for a total of 14 days. His investigations after being afebrile are shown in Table I. His repeat blood culture was sterile.

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Table I: Biochemical investigations of the patient

Investigation	Results at admission	Results after being afebrile
Complete blood count		
Haemoglobin	12.7 g/dl	11.9 g/dl
Total count	13,400/mm^3	10.600/mm^3
Neutrophil	84.7%	68.1%
Lymphocyte	10.3%	23.3%
Monocyte	5%	5.7%
Eosinophil	0%	0.9%
Platelet count	1,37,000/mm^3	3,24,000/mm^3
ESR	113 mm	
CRP	162 mg/l	77 mg/l
Renal function test		
S. creatinine	1.08 mg/dl	
Liver function test		
S. bilirubin	1.4 mg/dl	0.9 mg/dl
AST	73 U/L	27 U/L
ALT	92 U/L	30 U/L
ALP	151 U/L	103 U/L
Serum electrolytes		
Na	136 mmol/l	
K	4.1 mmol/l	
Cl	101 mmol/l	
CO_2	23 mmol/l	
Urine RME		
Pus cell	0-1/HPF	
Epithelial cell	1-2/HPF	
RBC	nil/HPF	

Table II: Sensitivity reports of Pantoea species

Antibiotic	First blood culture from peripheral line at admission			Second blood cultures from both Port-a-Cath and peripheral line		
	MIC (mcg/ml)	Breakpoint (mcg/ml)	Interpretation	MIC (mcg/ml)	Breakpoint (mcg/ml)	Interpretation
Amikacin	16	≥16	Resistant	<2	≥16	Sensitive
Amoxicillin/ Clavulinic acid	4	≥32	Sensitive	<2	≥32	Sensitive
Cefepime	<1	≥16	Sensitive	<1	≥64	Sensitive
Cefoperazone/ Sulbactam	<8	≥64	Sensitive	<8	≥64	Sensitive
Ceftriaxone	<1	≥4	Sensitive	<1	≥4	Sensitive
Cefuroxime	32	≥32	Resistant	32	≥32	Resistant
Ciprofloxacin	<0.25	≥1	Sensitive	<0.25	≥1	Sensitive
Colistin	<0.5	≥4	Intermediate	<0.5	≥4	Intermediate
Ertapenam	<0.5	≥2	Sensitive	<0.5	≥2	Sensitive
Gentamicin	4	≥8	Intermediate	<1	≥8	Sensitive
Imipenem	0.5	≥4	Sensitive	<0.25	≥4	Sensitive
Meropenem	<0.25	≥4	Sensitive	<0.25	≥4	Sensitive
Nalidixic acid	<2	≥32	Sensitive	16	≥32	Sensitive
Nitrofurantoin	<16	≥128	Sensitive	64	≥128	Intermediate
Pipercillin/Tazobactem	<4	≥32	Sensitive	<4	≥32	Sensitive
Tigecycline	<0.5	≥2	Sensitive	<0.5	≥2	Sensitive
Trimethoprim/Sulfamethoxazole	< 20	≥80	Sensitive	<20	≥80	Sensitive

Discussion:

Here we demonstrate a case of Pantoea species bacteremia due to Port-a-Cath contamination. Similarly seven cases of bacteremia were also found in Italy.[9] There are other case reports depicting central line associated Pantoea bacteremia.[10-12] Our patient has both cancer and receiving chemotherapy, making him immunocompromised as a result he is susceptible to infection with unusual organisms.[13] Bacteremia can be associated with active malignancy, uncontrolled diabetes, chronic renal failure, chronic heart failure, chronic liver disease, cerebrovascular disease, chronic obstructive pulmonary disease, autoimmune or connective tissue disease.[4] The exact reason of contamination of the chemo port could not be identified in our patient but there is a possibility it may have occurred during usage of pre-prepared heparin solution or the use of contaminated gauge or cotton for disinfection of the point of catheter access.[9] Cotton balls are commonly used by nurses and doctors which can get contaminated in many ways and also can retain Pantoea species, that can even survive after autoclaving process.[13] The diagnosis of Pantoea can be done with positive culture of blood, pus, urine, bile, sputum or tracheal aspirate.[4,14] Antibiotic treatment of Pantoea species of 10-14 days is very effective and susceptibility testing was done in a cohort of adult patients which showed susceptibility to amikacin, cefotaxime, ceftazidime, ciprofloxacin, gentamicin, imipenem and piperacillin-tazobactam.[1,4,14] The removal of central venous catheter was also an important part of management.[10] In our patient meropenem treatment of 14 days along with Port-a-Cath removal showed to be highly effective, leading to quick recovery with no complication.

Conclusion

Bacteremia with Pantoea species is rare entity. To our knowledge this is the first case report in Bangladesh. The infection usually occurs in immunocompromised patients and the route of entry is usually trauma with plant material such as thorns or contaminated intravenous lines, intravenous fluids, parenteral nutrition and blood products. With early diagnosis and appropriate treatment the clinical outcome is favourable.

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