



**PANTOEA AGGLOMERANS AS RARE CAUSE OF ACUTE BACTERIAL PYELONEPHRITIS IN IMMUNOCOMPETENT PATIENT: CASE REPORT**

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**ABSTRACT**

*Pantoea agglomerans* is an environmental Gram-negative bacilli that is rarely responsible for opportunistic infections in humans. It is regarded as a "Mysterious bacterium of Evil and Good" that is usually multi drug resistant. We report a rare case of Urinary Tract Infection (UTI) - Acute bacterial pyelonephritis due to *Pantoea agglomerans* in Immunocompetent patient.

**KEYWORDS :** Pyelonephritis, oppurtunistic, bacilli, complications

**INTRODUCTION:**

*Pantoea agglomerans* is a Gram negative bacilli, facultative anaerobic and motile by peritrichous flagella belonging to Enterobacteriaceae family and previously known as *Enterobacter agglomerans*.<sup>[1]</sup> It was reclassified into a new genus in 1989.<sup>[2]</sup> *Pagglomerans* is an environmental and agricultural organism that is frequently isolated from plants, soil, water and food.<sup>[3]</sup> This organism is a rare opportunistic human pathogen and infection usually requires an immunocompromised host.<sup>[4]</sup> In this report we present a rare case of Acute bacterial pyelonephritis caused by *Pantoea agglomerans* in Immunocompetent patient.

**CASE REPORT:**

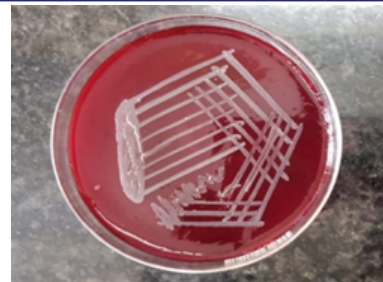
A 70 year old normotensive and non-diabetic female was admitted in ward No.4 of Female General Medicine Department with complaints of burning sensation with discomfort during micturition, increased urine frequency with pain in the flanks for 3 days. There were no other complaints and comorbidities. Abdominal examination revealed moderate Suprapubic tenderness without rebound. Midstream clean catch urine sample collected under strict aseptic precautions was sent to Microbiology laboratory of Government Medical College Gondia.

**Lab Investigations:**

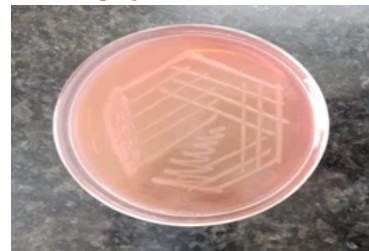
Her complete hemogram demonstrated Leucocytosis-WBC Count-16600Cells/Cu mm, Hb-7.7gm/dl Platelets-6.33 Lakhs/Cu mm. The Liver and Renal parameters were normal.

**Microbiological Investigations:**

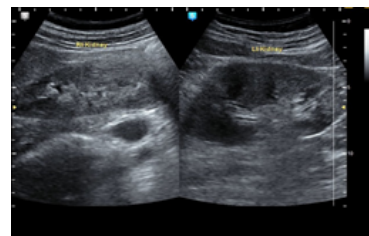
Urine appeared cloudy with foul smell on macroscopic examination. Routine microscopy of Centrifuged urine revealed presence of Motile bacilli, many pus cells and leucocyte casts. No RBC's, crystals, budding yeast cells were seen. The sample was cultured on Blood agar, Mac Conkey agar plate and incubated at 37°C for 24 hrs. Colonies were found to be 1-1.5mm diameter, Pink, mucoid and lactose fermenting as shown in FIGURE.1 and 2. These isolates appeared as Gram negative bacillary forms in Gram staining. Further identification and antibiotic sensitivity was done by Conventional and automated method (BD Phoenix M50 automated identification and susceptibility testing system) using NMIC/ID panels. Conventional methods done were + motility(motile), Citrate utilized, Urease not hydrolysed, Indole negative, MR and VP Positive, Maltose and sucrose fermented.



**Figure 1&2: Colonies Of *Pantoea Agglomerans* In Blood Agar And Macconkey Agar**



**Radiological investigations:** Ultrasonogram (USG) of urinary tract revealed Diffuse renal enlargement with decreased echogenicity and loss of corticomedullary differentiation as shown in FIGURE 3.



**Figure 3: Usg Demonstrating Pyelonephritis With Renal Enlargement**

Lab Report				
Antibiotic	MIC	I	S	S
Ampicillin	>16	S	S	S
Amoxicillin	>16	S	S	S
Cefazolin	>16	S	S	S
Cefepime	>16	S	S	S
Ceftriaxone	>16	S	S	S
Colistin	>16	S	S	S
Clindamycin	>16	S	S	S
Doxycycline	>16	S	S	S
Fluoroquinolones	>16	S	S	S
Gentamicin	>16	S	S	S
Linezolid	>16	S	S	S
Mupirocin	>16	S	S	S
Netilmicin	>16	S	S	S
Polymyxin B	>16	S	S	S
Trimethoprim	>16	S	S	S
Tigecycline	>16	S	S	S

**Figure 4: Antibiotic Sensitivity Report**

The isolate was identified as *Pantoea agglomerans* and was Extensive-drug resistant (resistant against all antibiotic classes except one or two classes of antibiotics). The isolate was sensitive to Piperacillin/tazobactam (PIT) with Minimum Inhibitory Concentration (MIC) -16/4µg/mL as shown in Antibiotic sensitivity report (Figure 4). The patient was started with PIT at dosage of 4g/500mg every 8 hrs Intravenously (IV) and was discharged satisfactorily after complete resolution of her symptoms.

#### DISCUSSION:

UTI is one of the most common infections affecting people in the community and hospital with increased morbidity and mortality rates. In literature previous reports have described pathogenic *P. agglomerans* being isolated from cases of wound infection, abscess, bacteremia, pneumonia, septic arthritis, osteomyelitis, peritonitis, choledocholithiasis, dacryocystitis, and endophthalmitis<sup>[5]</sup>. However, there are very few reports of urinary tract infections that involved *P. agglomerans* especially in Immunocompetent patients. UTI increases in the presence of risk factors leading to severe complications and subsequent high morbidity, poor quality of life and reduced life expectancy. In conclusion, Early diagnosis is important to preserve renal functions from severity of complications. Special attention should be given for the correct identification of *Pantoea* species as they are pathogen in various nosocomial as well as community acquired infections which will contribute to the better knowledge regarding the epidemiology and clinical impact of these species as human pathogens.

**Funding:** Nil.

**Conflicts of Interest:** None declared.

**Ethical approval:** Not needed

#### REFERENCES:

- [1] Cheng A, Liu CY, Tsai HY, Hsu MS, Yang CJ, Huang YT, et al. Bacteremia caused by *Pantoea agglomerans* at a medical center in Taiwan. *J Microbiol Immunol Infect* 2013;46(3):187-94.
- [2] Tindall BJ. *Enterobacter agglomerans* (Beijerinck 1888) Ewing and Fife 1972 and *Pantoea agglomerans* (Beijerinck 1888) Gavini et al. 1989. Judicial Commission of the International Committee on Systematics of Prokaryotes. *Int J Syst Evol Microbiol* 2014;64(Pg: 3582-3)
- [3] Walterson AM, Stavriniades J. *Pantoea*: insights into a highly versatile and diverse genus within the Enterobacteriaceae. *FEMS Microbiol Rev* 2015;39(6):968-84.
- [4] Flores Popoca EO, Miranda Garcia M, Romero Figueroa S, Mendoza Medellin A, Sandoval Trujillo H, Silva Rojas HV, et al. *Pantoea agglomerans* in immunodeficient patients with different respiratory symptoms. *ScientificWorldJournal* 2012;2012:156827.
- [5] Rave O, Assous MV, Hashkes PJ, Lebel E, Hadas-Halpern I, Megged O. *Pantoea agglomerans* foreign body-induced septic arthritis. *Pediatr Infect Dis J* 2012;31(12):1311-2.