



UNUSUAL PATHOGEN PLURALIBACTER GERJOVIAE ISOLATED FROM A PATIENT WITH GAS GANGRENE- A CASE REPORT

Microbiology

Dr Shital Ghogale*

Assistant professor, Department of Microbiology, Symbiosis Medical College for Women (SMCW) & Symbiosis University Hospital and Research Centre (SUHRC), Symbiosis International (Deemed University), Lavale, Pune, India. *Corresponding Author

Dr Ketaki Pathak

Associate professor, Department of Microbiology, Symbiosis Medical College for Women (SMCW) & Symbiosis University Hospital and Research Centre (SUHRC), Symbiosis International (Deemed University), Lavale, Pune, India.

ABSTRACT

Gas gangrene is identical terminology used for myonecrosis and is a extremely fatal infection of deep soft tissue, caused by *Clostridium perfringens*. An evolving trend towards unusual organism isolated from gas gangrene has been found. Clinically, gas gangrene caused by *clostridium perfringens* but in this case we have isolated *pluralibacter gerjoviae* along with *enterococcus* and *clostridium perfringens*. *Clostridium* myonecrosis is most frequently found in patients of trauma or road traffic accident, any kind of surgery, and other underlying immunocompromised conditions. *Pluralibacter gergoviae* is a gram negative bacilli which is reported to be an opportunistic pathogen responsible for causing urinary and respiratory tract infections, but its association with soft tissue infection caused by *clostridium perfringens* is unusual. We report a case of gas gangrene of the pelvic wall, scrotum with sudden onset.

KEYWORDS

Gas Gangrene, *Pluralibacter Gergoviae*

INTRODUCTION

Pluralibacter gergoviae (*Enterobacter gergoviae*) is a gram-negative bacillus regularly located in beauty products. We report the first case report of *Pluralibacter gergoviae* bacteria isolated from gas gangrene patient.

Case Report

39 years old male patient admitted in ICU with complaints of pain in abdomen with abdominal distension, inability to pass urine and scrotal swelling. He had initially taken treatment in another hospital. USG was suggestive of mild hepatosplenomegaly, grade 1 fatty liver, overdistended urinary bladder with signs of cystitis. He was a known case of DM, HTN, on regular treatment. Pt was admitted under ICU with provisional diagnosis of Fournier's gangrene. Pt was taken in OT for debridement. Pus was aspirated and sent for gram stain. Report was suggestive of moderate pus cells, plenty gram positive cocci in pairs and singles seen, few gram positive cocci in chain seen, plenty gram negative bacilli and coccobacilli seen, very occasional spore bearing gram positive bacilli were seen. Report was informed to OT surgery unit. On P/A examination pt had distension, tenderness in left iliac fossa and inguinal region, subcutaneous emphysema, crepitus extending from left inguinal area till left hypochondriac area. Pt underwent debridement as gram stain picture was suggestive of gas gangrene, patient was shifted to ICU on ventilator support. Bedside debridement of lower abdominal wall and left lateral abdominal wall pocket was done. Hydrogen peroxide drip for local disinfection was started gradually. His culture report was s/o *Enterococcus* spp and *Pluralibacter gergoviae* sensitive to carbapenems, aminoglycosides. Robertson cooked meat medium turned to pink colour indicative of *Clostridium perfringens* growth after 48 hrs of incubation. Antibiotics were upgraded. Pt had intermittent bronchospasms settle after nebulization and steroid bolus, the need of hyperbaric oxygen treatment discussed with relatives and referred to higher centre for further management.

DISCUSSION

Enterobacter gergoviae (*E. gergoviae*) have its place to the family *Enterobacteriaceae*. It is a gram negative bacilli which was initially termed by Richard et al in 1976, sequestered from urinary samples during epidemic in Clermont-Ferrand University Hospital near Gergovie Highland in France. In 2013, the species was again reclassified into the novel genus, *Pluralibacter*, and is the type species for the genus. It is an unusual human pathogen, most frequently isolated as an opportunistic pathogen from hospital acquired infection. One of the hospital from Spain stated the organism to signify 0.4% of clinical *Enterobacter* isolates. Many risk factors have been considered which include long-lasting hospital stays, immunocompromised states, foreign device in body, excessive usage of anti-microbial drugs, and old age [1]. It has been isolated from urinary samples in hospital outbreaks and is always shows resistant antibiotic profile. Sideways from urinary tract, this microbe is also recurrently sequestered from the sputum and other respiratory specimens and from blood. In a case of hospital occurrence in a neonatal intensive care unit, the strain was isolated from the dextrose saline used for the reconstitution of antibiotics and from the hands of a healthcare personnel handling patients [2]. It has also been seemingly isolated from beautifying products. *Enterobacter* is known environmental pathogen, can be isolated from sewage, soil, and foods. Very scanty information is

available about this organism and its medical implication is not recognized up till now. To the best of our awareness, there has been no gas gangrene case associated with *pluralibacter* has been reported till date [3]. This bacteria has been isolated from infections like urinary tract infection, endophthalmitis and most of immunocompromised cases like HIV. This pt did not reveal any history of usage of long term antibiotic therapy and beauty products but definitely he was having history of diabetes mellitus which made him prone for opportunistic pathogen.

CONCLUSION

Excision of necrotic tissue remains the cornerstone of treatment, which should be combined with antibiotics and any other supportive treatments as soon as gas gangrene is recognised in order to prevent further deterioration. Considering uncommon bacteria as virulent pathogens rather than pollutants is also crucial, especially in patients with clinical importance. Encouragement of strong infection prevention and control practices is crucial when managing gas gangrene patients.

Ethics Statement

As we have blanket consent policy in our hospital, informed consent form was not separately filled.

Author Contributions

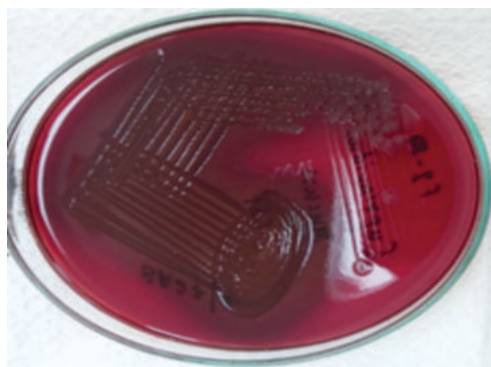
All authors revised and approved the manuscript.

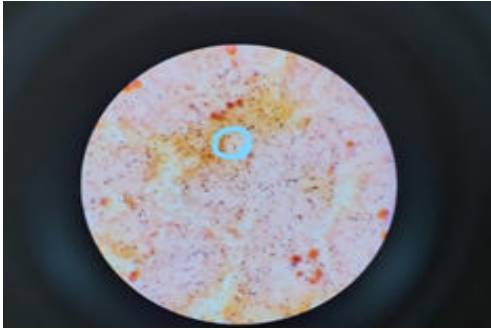
Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

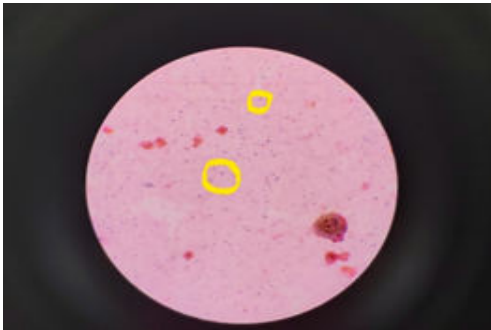
Photos of Gram stain of bacterial isolates

1. Growth of *Enterobacter gergoviae* (*Pluralibacter gergoviae*) on blood agar





2 Gram stain picture showing spore bearing gram positive bacilli



3. Gram stain picture showing very few gram positive bacilli

REFERENCES

1. Anna Misya'il Abdul Rashid , Christopher Thiam Seong. Enterobacter Gergoviae Peritonitis In A Patient On Chronic Ambulatory Peritoneal Dialysis - First Reported Case. Malaysia Mal J Med Health Sci June 2017;13(2): 67-69.
2. R Ganeswire¹, K L Thong, S D Puthuchery Nosocomial outbreak of Enterobacter gergoviae bacteraemia in a neonatal intensive care unit R Ganeswire¹, K L Thong, S D Puthuchery. J Hosp Infect. 2003 Apr;53(4):292-6.
3. MD, DSC Lawrence Cone MD Anthony F.Tormay MS, M(ASCP)Narinder K Midha. Enterobacter gergoviae Bacteremia due to a cholangitis. a case report Antimicrobics and Infectious Diseases Newsletter, Volume 15, Issue 5, May 1996; Pages 32-34.
4. Natasa boban et al. Outbreak of nosocomial bacteremias, caused by Enterobacter gergoviae and Enterobacter aerogenes, in the neonatal intensive care unit, case - control study Signa Vitae Journal of Anesthesia, Intensive Care, Emergency and Pain Medicine Vol.6, Issue 1, May 2011 pp.27-32
5. Pe'riame' M, Page's J, Davin-Regli A. Enterobacter gergoviae adaptation to preservatives commonly used in cosmetic industry. Int J Cosmetic Sci 2014;36: 386-395.2.
6. Ahmed S, Tan W, Chong Y. Surgical response to COVID-19 pandemic: A Singapore perspective. J Am Coll Surg (in press).
7. Freire M, de Oliveira Garcia D, Cury A, et al. Outbreak of IMP-producing carbapenem-resistant Enterobacter gergoviae among kidney transplant recipients. J Antimicrob Chemother 2016;71:2577-2585