



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

INTERNATIONAL JOURNAL  
OF CURRENT RESEARCH

International Journal of Current Research

Vol. 16, Issue, 06, pp.28702-28703, June, 2024

DOI: <https://doi.org/10.24941/ijcr.47352.06.2024>

## RESEARCH ARTICLE

### A RARE CASE OF ENTEROBACTER CANCEROGENUS IN A POST OPERATIVE CASE OF DACROCYSTECTOMY: A CASE REPORT

Abhilasha Borgohain<sup>1,\*</sup>, Ambica, R.<sup>2</sup> and Sathyanarayan, M.S.<sup>3</sup>

<sup>1</sup>Postgraduate student, Department of Microbiology, Bangalore Medical College and Research Institute, India

<sup>2</sup>Professor, Department of Microbiology, Bangalore Medical College and Research Institute, India

<sup>3</sup>Assistant Professor, Department of Microbiology, Bangalore Medical College and Research Institute, India

#### ARTICLE INFO

##### Article History:

Received 20<sup>th</sup> March, 2024

Received in revised form

15<sup>th</sup> April, 2024

Accepted 24<sup>th</sup> May, 2024

Published online 25<sup>th</sup> June, 2024

##### Key words:

Post operative, Ocular trauma, Chronic Dacryocystitis, Dacryocystectomy, Ciprofloxacin, *Enterobacter cancerogenus*.

##### \*Corresponding author:

Abhilasha Borgohain

#### ABSTRACT

*Enterobacter cancerogenus*, although rare, is known to cause infections in humans following a traumatic injury or crush injury. They are related to environmental contamination and are potential nosocomial pathogens. Here we report a post operative case of Dacrocystectomy with previous history of ocular trauma. A 65-year-old female patient came to the Regional Institute of Ophthalmology, Victoria Hospital campus with complaints of watering from left eye for 6 months alongwith regurgitation of mucoid fluid from punctum since 5months. It was insidious in onset and progressed gradually. Patient had a history of ocular trauma to left eye 5 years back for which she was operated. Her present medical history was diagnosed as Chronic Dacryocystitis and she underwent Dacryocystectomy under local anaesthesia. Conjunctival swab specimen was isolated under aseptic precautions and was sent for culture and sensitivity. The bacterial culture report yielded *Enterobacter cancerogenus*. She was started on Ciprofloxacin 500mg twice daily for 5 days and Moxifloxacin eye drops thrice daily. Patient improved after antibiotics and was discharged.

Copyright©2024, Koboh Sylvie N'guessan-Atsé et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Koboh Sylvie N'guessan-Atsé, Daniel Amantchi, Vazoumana Kouyaté and Attogbain Patrice Kouamé. 2024. "A rare case of enterobacter cancerogenus in a post operative case of dacrocystectomy: A case report". *International Journal of Current Research*, 16, (06), 28702-28703.

## INTRODUCTION

*Enterobacter cancerogenus* belongs to the family of Enterobacter. Currently, there are 22 species in the genus Enterobacter. Enterobacter is one of the species that have been identified over the last few years. It was initially referred to as enteric group 19 and was first categorized into genus Erwinia.<sup>1</sup> In 1985, Farmer *et al* described *Enterobacter taylorae* which was subsequently identified as junior synonym of *Enterobacter cancerogenus*.<sup>2</sup> But *Enterobacter cancerogenus* has priority in nomenclature as it was the senior subjective synonym.<sup>3</sup> Although rare, *Enterobacter cancerogenus* can cause a variety of infections like osteomyelitis, sepsis, respiratory tract infections, skin and soft tissue infections, urinary tract infections. It is a lactose fermenting bacillus sharing 61% relatedness with to *Enterobacter cloacae* differing only in Ornithine decarboxylase negative and D-arabinose positive. It is seldom isolated from blood, CSF, spinal fluid.<sup>4</sup> Enterobacter spp. are notably implicated in nosocomial infections, especially posing a threat to immunocompromised patients like neonates, premature infants, diabetic patients, patient with burns or leukemia.

<sup>5</sup>*Enterobacter cancerogenus* species is also a potential pathogen responsible for surgical site infections.<sup>6</sup> They can be diagnosed by culture alongwith biochemical reactions. They are lactose fermenters but may appear lactose negative initially, yielding pink colonies with purple centres on extended incubation.<sup>7</sup> Predominantly, they are isolated from non-sterile organic sources such as feces, respiratory tracts, and cutaneous wounds. This further complicates assessment of their genuine clinical significance in these isolates.<sup>8</sup>

#### CASE PRESENTATION

A 65 year old female patient presented to Regional Institute of Ophthalmology, Victoria Hospital campus with complaints of watering from the left eye since 6 months. She also had mucoid discharge from punctum of her left eye since 5 months. Patient is not a known case of Hypertension or Diabetes Mellitus. Patient had a history of ocular trauma 5 years ago. She was operated back then for traumatic injury under general anaesthesia. She now presented to the OPD with current symptoms and ocular examination was done.



**Fig 1. Pink, lactose fermenting colonies of *Enterobacter cancerogenus* on Mac Conkey agar**

On eye examination, her vision was normal for both the eyes. Ocular posture was normal, orthotropic. Her anterior segment examination revealed nebular keratitis of left eye and cup-to-disc ratio was 0.4 for left eye. She was diagnosed with chronic dacryocystitis of left eye and surgery was scheduled. Post operatively her conjunctival swab specimen was sent for bacterial culture and sensitivity.

## INVESTIGATIONS AND RESULTS

Conjunctival swab specimen sent for bacterial culture and sensitivity was inoculated on to Mac Conkey agar and Chocolate agar. Plates were incubated at 37<sup>o</sup> C for 24hrs. Gram staining showed Gram negative bacillus. Lactose fermenting pink colonies were seen on Mac Conkey agar plates. Pure colonies were processed by automated system Vitek2(bioMérieux). Culture yielded *Enterobacter cancerogenus* susceptible to Ciprofloxacin, Ertapenem, Meropenem, Imipenem, Piperacillin/Tazobactam, Amikacin, Gentamicin, Colistin. Patient's haemoglobin was 12.2gm/dl. Liver function test, lipid profile and serum electrolytes were within normal limits. HIV, HBsAg and HCV were non-reactive. Patient was started Ciprofloxacin 500mg twice daily for 5 days along with Moxifloxacin eye drops thrice daily for 5 days. Patient improved and was discharged with advice to follow-up after 1 month.

## DISCUSSION AND CONCLUSION

Human infections attributed to *E.cancerogenus* are infrequently found with only sporadic instances of acute or chronic illness reported. Typically, these infections manifest in context of contaminated wounds, although alternate pathways are possible.<sup>1</sup>

They exhibit natural resistance to aminopenicillins, amoxicillin/clavulanic acid and narrow-spectrum cephalosporins, the intrinsic resistance to ceftaxime is a common feature of numerous *Enterobacter* species.<sup>2</sup> It is debatable whether *E cancerogenus* is a primary pathogen or a transient colonizer as we have isolated the organism from culture. But this mainly points towards it being an environmental contaminant rather than an endogenous infection.<sup>3</sup> In our case, patient had history of ocular trauma and in present scenario had to undergo Dacryocystectomy for her symptoms. While *E. cancerogenus* may constitute a component of the normal endogenous flora of skin and respiratory system, it can emerge as an opportunistic pathogen following invasive procedures or instrumentation that enhances bacterial invasion.<sup>4</sup> This was the first case of *Enterobacter cancerogenus* isolated in our hospital. Albeit rare, timely detection and awareness of the intrinsic resistance of *Enterobacter cancerogenus* is of utmost importance in treatment and preventing further cases of drug resistance.

## REFERENCES

1. Garazzino S, Aprato A, Maiello A, et al. Osteomyelitis Caused by *Enterobacter cancerogenus* Infection following a Traumatic Injury: Case Report and Review of the Literature. *J Clin Microbiol.* 2005;43(3):1459-1461. doi:10.1128/JCM.43.3.1459-1461.2005
2. Stock I, Wiedemann B. Natural antibiotic susceptibility of *Enterobacter amnigenus*, *Enterobacter cancerogenus*, *Enterobacter gergoviae* and *Enterobacter sakazakii* strains. *Clinical Microbiology and Infection.* 2002;8(9):564-578. doi:10.1046/j.1469-0691.2002.00413.x
3. Abbott SL, Janda JM. *Enterobacter cancerogenus* ("Enterobacter taylorae"): Infections Associated With Severe Trauma or Crush Injuries. *Am J Clin Pathol.* 1997;107(3):359-361. doi:10.1093/ajcp/107.3.359
4. Demir T, Baran G, Buyukguclu T, Sezgin FM, Kaymaz H. Pneumonia due to *Enterobacter cancerogenus* infection. *Folia Microbiol.* 2014;59(6):527-530. doi:10.1007/s12223-014-0330-6
5. Davin-Regli A, Lavigne JP, Pagès JM. *Enterobacter* spp.: Update on Taxonomy, Clinical Aspects, and Emerging Antimicrobial Resistance. *Clin Microbiol Rev.* 2019;32(4):e00002-19. doi:10.1128/CMR.00002-19
6. Tena, D. et al. (2015) 'Surgical site infection caused by *Enterobacter cancerogenus*', *Infectious Diseases in Clinical Practice*, 23(6), pp. 289–291. doi:10.1097/ipc.0000000000000307.
7. Procop, Gary W., Church, Deirdre L., Hall, Geraldine S., Koneman, Elmer W. (2017). *Koneman's Color Atlas and Textbook of Diagnostic Microbiology, 7th ed.* (7):Wolters Kluwer.
8. Reina J, Salva F, Gil J, Alomar P. Urinary tract infection caused by *Enterobacter taylorae*. *J Clin Microbiol.* 1989;27(12):2877. doi:10.1128/jcm.27.12.2877-1989

\*\*\*\*\*