



Ophthalmia " Adultorum" Secondary to Cytomegalovirus and Candida albicans Isolates from Right Eye Ulcer of an Alcoholic: The Benin City Experience

Patrick Lofor ^a and Ejime Ebeigbe ^{b*}

^a Department of Medical Microbiology, University of Benin/University of Benin Teaching Hospital, Benin City, Nigeria.

^b Department of Medical Microbiology, University of Benin Teaching Hospital, Benin City, Nigeria.

Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Background: Eye injuries are more common and have more severe effects when they occur in developing countries. The factors responsible for these eye injuries can be linked to socioeconomic status, insufficient safety precautions, a lack of ideal treatment facilities, the use of conventional eye medication, and low levels of education. Ocular trauma has been identified in studies from Nigeria and other African countries as a major contributing factor to monocular blindness.

In neonates, conjunctivitis within the first 28 days of life is termed "Ophthalmia neonatorum". Conjunctivitis arising from either viral, bacterial or fungal causes in an adult is what we termed as "Ophthalmia Adultorum".

In our study the individual was a chronic alcoholic who was already immunosuppressed from his large alcohol intake. This study therefore is a case report of a traumatic inoculation causing Ophthalmia Adultorum in a male alcoholic, a University of Benin Teaching Hospital experience.

*Corresponding author: Email: ejimenicholas@googlemail.com;

Methods: This is a case report.

Results: A 57 year old man who was admitted on 25 September, 2023, as a case of *Cytomegalovirus* (CMV) and *Candida albicans* associated Conjunctivitis, after a traumatic sandball inoculation to his right eye. Conjunctiva swab for microscopy and culture was sent to the medical microbiology laboratory. Gram stain showed yeasts cells, while 10%giemsa staining of the eye swab showed ztanck cells. Culture yielded *Candida albicans*.

He was placed on chloramphenicol eye drop, steroid eye drops, Acyclovir (patient could not afford gangcylovir the specific antiviral drug due to high cost) and fluconazole eye drops. Patient was managed by the ophthalmologists and the Medical Microbiology team.

Patient was discharged home on the 5th day and was asked to come for follow up after one week. On follow up visit, previous symptoms had resolved and right and left eyes were both normal on examination.

Conclusion: We are unaware of any previous reports of Ophthalmia Adulteriorum involving *Cytomegalovirus* and *Candida albicans* in patients with sandball eye accidents. Patients with sandball injuries should be assessed quickly and antibiotic and antifungal therapy should be considered if cultures are positive.

Keywords: Immunosuppression; alcoholism; 57years old; male; sand ball inoculation; Eye ulcer; cytomegalovirus; *Candida albicans*.

1. INTRODUCTION

One of the main causes of avoidable monocular blindness and a main contributor to visual impairment is ocular trauma [1]. Approximately 1.6 million persons worldwide are blind due to eye injuries, 2.3 million more have bilateral low vision due to this cause, and almost 19 million have unilateral blindness or impaired vision.

Eye injuries are more common [2] and have more severe effects when they occur in developing nations. These factors can be linked to socioeconomic status, insufficient safety precautions, a lack of ideal treatment facilities, the use of conventional eye medication, and low levels of education [2]. Ocular trauma has been identified in studies from Nigeria and other African countries as a major contributing factor to monocular blindness [3-6].

Ocular injuries can range in severity from very minor, non-threatening injuries to very serious injuries that could result in blindness. Recent studies [7-9] have classified open-globe injury types as rupture, penetrating, intraocular foreign body, perforating, and mixed; closed-globe injury types are contusion, lamellar laceration, superficial foreign body, and mixed. These classifications are based on the more comprehensive Birmingham Eye Trauma Terminology system (BETTS) [10-12]. The goal of classifying ocular trauma is to assess and record the degree of damage.

Additionally, it offers a standardised, well recognised description and language for the

injury. The mechanism and force of the trauma determine the kind and degree of damage an eye sustains [13]. Ocular blunt trauma frequently results in cataracts, hyphaema, orbital fractures, subconjunctival haemorrhage, periorbital lid ecchymosis/haematoma, corneal abrasions/ulcers, contusions, lens dislocation/subluxation, retinal detachments, and globe rupture. Injuries that penetrate or pierce the skin may result in cuts to the eyelids, cornea, or sclera. These injuries may be linked to internal bleeding, stuck foreign objects, or tractional retinal detachment [13, 14].

Ocular trauma in Nigeria arises from a peculiar combination of causes, including domestic violence, trauma from industrialised employment, trauma from road traffic accidents, trauma from hunting and farming, and assault [15-18]. The literature that is now available in Nigeria has also determined the usually impacted ocular structures and the relationships between gender, bilateral participation, and psychological status, as well as domestic trauma and ocular structures [15, 19, 20].

In situations of acute eye injuries, the conjunctiva, eye lids, and cornea have been documented to be the most impacted ocular structures [20-22]. Infections affecting the conjunctiva in Adults leading to conjunctivitis is what we termed "Ophthalmia Adulteriorum". Conjunctivitis can be infectious or non-infectious (traumatic) or mixed (traumatic inoculation of Infectious agents). Conjunctivitis can result from many causes, including viruses, bacteria,

allergens, contact lens use, chemicals and fungi. Bacteria involved in Ophthalmia Adulorum “include; *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Staphylococcus epidermidis*, *Neisseria gonorrhoea* [23], the Fungi organisms implicated include; *Candida albicans*, *Histoplasma capsulatum*, *Aspergillus spp*, *Fusarium spp*, and *Coccidioides immitis* [24], while the viral causes of conjunctivitis are *Herpes simplex virus*, *varicella zoster virus*, *Cytomegalovirus* and *Adenovirus* [23].

In neonates, conjunctivitis within the first 28 days of life is termed “Ophthalmia neonatorum”. It may be caused by *Neisseria gonorrhoea*, *Herpes simplex virus 1*, and 2, and *Chlamydia trachomatis* serovar D to K [25].

This study therefore is a case report of a traumatic inoculation causing “Ophthalmia Adulorum “in an adult male alcoholic, a university of Benin Teaching Hospital experience.

2. CASE REPORT

A.O.J was a 57 years old male who presented to the Ophthalmology Clinic and was admitted into the ward on the 25/9/2023, with eye discharge, eye pain and eye ulcer of 5 days duration following a traumatic inoculation from sand balls from a moving vehicle. Patient is an alcoholic who takes 4 bottles of beer (5% alcoholic content) daily. This he said he takes as a way of coping with the pressures of life.

He is a Commercial motorcyclist from Ondo state Nigeria. He is a Christian in a monogamous family setting.

Blood pressure remained normal 120/80mmHg on average throughout admission. Admitting Random Blood glucose by digital glucometer was 119mg/dl and his FBG remained below 120mg/dl throughout his 4 days of admission.

The clinical findings on eye examination on the day of admission:

- a) Right periorbital Oedema, left Eye normal.
- b) Visual acuity: Right Eye: 6/6, left eye: 5/6
- c) Slit lamp examination: right eye: hypopion with breaching of Descemet's membrane. Left eye: Normal.

He is HIV 1 and 2 negative. Right eye swab Microscopy showed yeasts cells and 10% giemsa staining of eye swab showed ztanck cells

(Fig. 1). Culture yielded *Candida albicans*. Patient was managed as a case of Right Eye Conjunctivitis and Endophthalmitis associated with *Cytomegalovirus* (Human herpes virus 5) infection and *Candida albicans* in an adult with sociopsychomedical pressures of Life who recourse to alcohol intake as a way to cope.

He was placed on chloramphenicol eye drop, steroid eye drops, Acyclovir (patient could not afford gangcyclovir, the specific antiviral drug, due to high cost) and fluconazole eye drops. Patient was managed by the ophthalmologists and the Medical Microbiology team.

Patient was discharged home on the 5th day and was asked to come for follow up after one week by the Medical Microbiology team.

3. DISCUSSION

A major contributor to monocular vision impairment globally [26] and in Nigeria [3, 27] is still ocular trauma. Tertiary hospitals handle nearly all cases of eye injuries in the surrounding area and offer cost-effective specialised eye care services throughout the state.

According to research conducted in Nigeria and Malaysia [28, 29], ocular injuries are thought to happen in younger age groups when people are more mobile and engaged in economic activities. This is in contrast to the case study where our patient, a 57-year-old motorbike rider, was still rather nimble.

Numerous research [30–32] have revealed that men are two to five times more likely than women to suffer from ocular damage.

Our case study was a male.

Again, for him to have succumbed to inoculating eye infections by *Candida albicans* and *Cytomegalovirus*, this could be due to his immunosuppressive state as a result of chronic alcohol intake.

There are many potential sources of eye injury during daily activities.

Sadly, a large number of these injuries are unintentional and result from non-hazardous activities. It appears plausible that the current socioeconomic climate influences the trajectory and prevalence of eye injuries. However, public health initiatives are tried-and-true means of preventing preventable vision loss at a reasonable cost.

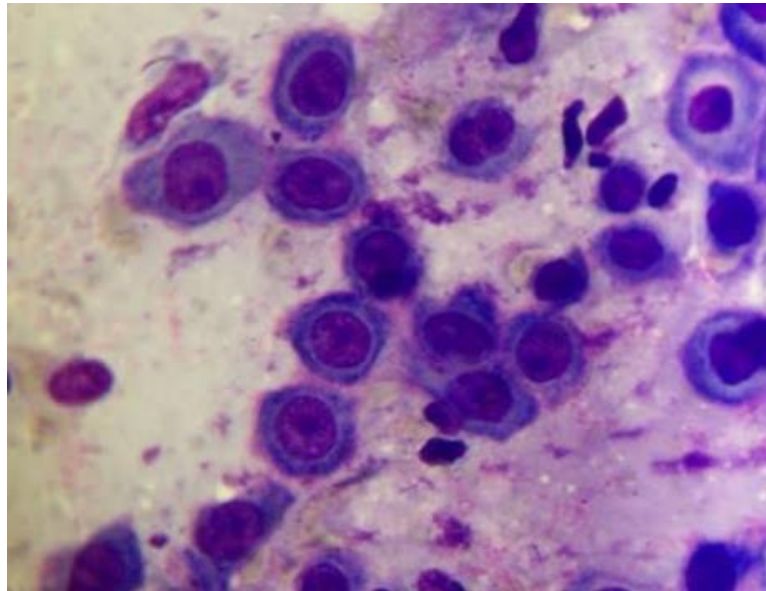


Fig. 1. Tzanck cells on 10% Giemsa stain x40

4. CONCLUSION

It can be seen from the management of this low income earner that inpatient stay was just four days which was short and treatment was specific, apt and devoid of guess work in the choice of drugs due to its specialized well coordinated multi specialist (multidisciplinary) approach considering the importance of the human eye as the window to the human Body.

If this new Eye infection called Ophthalmia "Adultorum" is peer reviewed, approved and published ,it will be a new Breakthrough in Medicine as such terminology as Ophthalmia " Adultorum" associated with Cytomegalovirus (Human herpes virus 5) infection is novel in literature found in Adults with sociopsychomedical pressures of Life, who recourse to alcohol intake as a way to cope with these stressors compared to the old terminology Ophthalmia neonatorium found in Neonates.

5. LIMITATION OF STUDY

- a) Blood alcohol level was not assayed throughout admission but drinks average of more than four bottles of about 5% alcoholic content of beer a day.
- b) CD4+ cell count to assess immunity status was not assayed throughout admission due to lack of funds by patient to do CD4+ assay from

specialized laboratory outside UBTH as UBTH only does CD4 + cell count for only confirmed retroviral patient since it is subsidized for HIV patients and dedicated for HIV patients only.

CONSENT

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Aghadoost D. Ocular trauma: an overview. Arch Trauma Res. 2014;3(2):e21639. DOI: 10.5812/at.21639. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
2. Congi L.,Yongyan F.,Shunming L.,Honghua Y.,Xiaohong Y.,Meixia Z., et al.Global incidence and disability of eye injury; An analysis from The Global Burden of Disease Study 2019.eClinicalMedicine. 2023;62:102134.
3. Azonobi I.R. Monocular blindness in Bayelsa state of Nigeria. Pan Afr Med J.

- 2010;4(6):152. [PMC free article] [PubMed] [Google Scholar]
4. Duke R, Lewallen S, Courtright P. Estimated prevalence of monocular blindness and monocular severe visual impairment in children of Cross Rivers State, Nigeria. *Niger J Ophthalmol*. 2014;22(2):66. DOI: 10.4103/0189-9171.154610. [CrossRef] [Google Scholar]
 5. Addisu Z. Pattern of ocular trauma seen in Garbet Hospital, Butajira, Central Ethiopia. *Ethiop J Heal Dev*. 2011;25(2):150–155. [Google Scholar]
 6. Duke R.E, Faal H.B, Duke R.E. Uniocular blindness among children in the Gambia. *Port Harcourt Med J*. 2007;1(3):167–170. DOI: 10.4314/phmedj.v1i3.38878. [CrossRef] [Google Scholar]
 7. Okeigbemen V, Kayoma D. Visual outcome of childhood ocular injuries in a tertiary hospital in Benin city. *Asian J Med Sci*. 2013;5(5):105–107. [Google Scholar]
 8. Rao L, Ninan A, Rao K. Descriptive study on ocular survival, visual outcome and prognostic factors in open globe injuries. *Indian J Ophthalmol*. 2010;58(4):321. DOI: 10.4103/0301-4738.64116. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
 9. Ojabo C.O, Malu K.N, Adeniyi O.S. Open globe injuries in Nigerian children: epidemiological characteristics, etiological factors, and visual outcome. *Middle East Afr J Ophthalmol*. 2015;22(1):69. DOI: 10.4103/0974-9233.148352. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
 10. Kuhn F, Morris R, Witherspoon C.D, Mester V. The Birmingham eye trauma terminology system (BETT) *J Fr Ophtalmol*. 2004;27(2):206–210. DOI: 10.1016/S0181-5512(04)96122-0. [PubMed] [CrossRef] [Google Scholar]
 11. Scott R. The ocular trauma score. *Community Eye Heal J*. 2015;28(91):44–45. [PMC free article] [PubMed] [Google Scholar]
 12. Shah M, Shah S, Agrawal R, Patel K. Validation of a modified Birmingham eye trauma terminology classification for mechanical eye injuries. *Trauma*. 2018;20(3):217–20.
 13. Scott R. The injured eye. *Philos Trans R Soc Lond Ser B Biol Sci*. 2011;366(1562):251–260. DOI: 10.1098/rstb.2010.0234. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
 14. Kanski J, Bowling B. *Clinical Ophthalmology: A Systematic Approach*. 7. Edinburgh: Elsevier Limited. 2011;872–892. [Google Scholar]
 15. Odugbo OP, Wade P, Ewuga RO, Mpyet C. Pattern of Ocular and Adnexal Injuries Requiring Surgical Intervention among Children in a Tertiary Center in North-Central Nigeria: A 14 Year Review. *Journal of BioMedical Research and Clinical Practice*. 2019;2:138-143. DOI:10.46912/jbrcp.114.
 16. Fiebai B, Awoyesuku EA. Ocular injuries among industrial welders in Port Harcourt, Nigeria, *Clinical Ophthalmology*. 2011; 5:1261-1263. DOI: 10.2147/OPHTH.S20297
 17. Kyari F. Challenges of agriculture-related eye injuries in Nigeria. *Community Eye Heal J*. 2015;28(91):52. [PMC free article] [PubMed] [Google Scholar]
 18. Oluyemi F. Epidemiology of penetrating eye injury in Ibadan: a 10-year hospital-based review. *Middle East Afr J Ophthalmol*. 2011;18(2):159–163. DOI: 10.4103/0974-9233.80706. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
 19. Adepoju F.G, Monsudi K.F, Adekoya B.J. Bilateral blindness from ocular injury: a 15 year review. *Afr J Trauma*. 2014;3(1):35–38. DOI: 10.4103/1597-1112.139467. [CrossRef] [Google Scholar]
 20. Abraham E.G, Ekanem U.S. Prevalence of traumatic ocular injuries in a teaching hospital in south-South Nigeria – a 2 year review. *Adv Trop Med Pub Heal Int*. 2012;2(3):102–108. [Google Scholar]
 21. Omolase C.O, Omolade E.O, Ogunleye O.T, Omolase B.O, Ihemedu C.O, Adeosun O.A. Pattern of ocular injury in Owo, Nigeria. *J Ophthalmic Vis Res*. 2011;6:114–118. [PMC free article] [PubMed] [Google Scholar]
 22. Jac-okereke, C.C, Jac-Okereke, C.A, Ezegwui, I.R, Ifeoma, R.E, Rich, E.U. Current pattern of ocular trauma as seen in tertiary institutions in south-eastern Nigeria. *BMC Ophthalmol* 21, 420(2021). Available: <https://doi.org/10.1186/s12886-021-02162-4>.

23. Azari A.A, Arabi A. Conjunctivitis: A Systematic Review. J Ophthalmic Vis Res. 2020 Aug 6;15(3):372-395. DOI: 10.18502/jovr.v15i3.7456. PMID: 32864068; PMCID: PMC7431717.
24. Castano G, Elnahry A.G, Mada P.K. Fungal Keratitis. StatPearls. 2022 Jan. [QxMD MEDLINE Link].
25. Tan A.K; Ophthalmia Neonatorum. N Engl J Med. 2019 Jan 10380(2):e2. DOI: 10.1056/NEJMicm1808613.
26. Aghadoost D. Ocular trauma: an overview. Arch Trauma Res. 2014;3(2):e21639. DOI: 10.5812/atr.21639. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
27. Duke R, Lewallen S, Courtright P. Estimated prevalence of monocular blindness and monocular severe visual impairment in children of Cross Rivers State, Nigeria. Niger J Ophthalmol. 2014; 22(2):66. DOI: 10.4103/0189-9171.154610. [CrossRef] [Google Scholar]
28. Okoye O.I. Eye injury requiring hospitalization in Enugu, Nigeria. A one-year survey. Niger J Surg Res. 2006; 8: 34-7.
29. Mallika P.S, Tan A.K, Asok T, Faisal H.A, Aziz S, Intan G. Pattern of ocular trauma in Kuching, Malaysia. Malaysia Fam Phys. 2008;3:140-145.
30. Georgina C.C, Trent .M.S,Somsak L.,Magdalene G,Peter ,J.M. Epidemiology of ocular trauma hospital Presentation in Sydney , Australia:Insights For Management and Prevention. Asian J Ophthalmol. 2014;13:151-161.
31. May DR, Kuhn FP, Morris RE, Witherspoon C.D, Danis R.P, Matthews G.P, et al. The epidemiology of serious eye injuries from the United States Eye Injury Registry. Graefes Arch Clin Exp Ophthalmol. 2000;238:153-157.
32. Woo J.H, Sundar G. Eye injuries in Singapore--don't risk it. Do more. A prospective study. Ann Acad Med Singapore. 2006;35:706-718.

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