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The Severity of Ophthalmic Damage Following Plantain Sap Used in the Treatment of Febrile Convulsion (A Case Report)

Ibanga A. A[1*], Ochigbo S. O[2], Osong A. O[1]

[1]Dept of Opthalmology, University of Calabar Teaching Hospital, Nigeria
[2]Dept. of Paediatrics, University of Calabar Teaching Hospital, Nigeria

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***Corresponding author:** Ibanga A. A

Abstract **Case Report**

In the course of both conventional (orthodox) and non-orthodox (trado - spiritual, etc) health care service delivery we encounter patients that may present with conditions that require eye care intervention primarily or with eye ailments alongside other systemic ailments. The initial interventional measure may be deficient and sometimes results in severe ocular morbidity. This case report is the instillation of substance (sap from plantain stem) into the eyes of a one-month old male child by a non-orthodox health care provider in the treatment of febrile seizure with the aim to subside twitching of the eye lid that usually accompany other generalized tonic clonic activities in febrile seizures which the child presented with to the spiritual practitioner. This resulted in severe ocular chemical injury as presented here with bilateral symblepharon and corneal ulceration. Intervention by rodding with copious antibiotic ointment under topical anaesthetic reversed the symblepharon while institution of topical vitamin C fortified tear substitute, cycloplegic and antibiotics achieved positive results with resolution of the corneal ulcer. The case report identifies one of such of so many conditions where the larger health care service primary intervention interferes negatively with proper eye care service intervention, hence the need for universal health services where eye care service needs to be properly integrated into the larger health care service including the non-orthodox health care providers by way of health education and awareness.

Keywords: Childhood blindness, plantain sap, traditional eye medications, febrile convulsion, malaria, ophthalmic damage.

INTRODUCTION

It is estimated that approximately 1.4 million children are blind worldwide. In Africa and parts of Asia, up to 15/10,000 children are blind, compared to 3/10,000 children in Europe and North America [1]. The causes of blindness in children vary from region to region and can be either prevented or treated. In Africa, corneal ulceration leading to corneal scarring is associated with measles infection, acute vitamin A deficiency, conjunctivitis of the newborn (ophthalmia neonatorum), herpes simplex infection, and the use of harmful (traditional) eye medicines [2].

Traditional eye medicines (TEM) are used for multitude eye diseases. These include herbal medicines, juice of squeezed plant leaves, lime juice, kerosene, toothpaste, breast milk, and urine (either animal or human). The clinical picture following the use of TEM may have an atypical appearance with possible chemosis, descemetocele, and corneal ulceration.

Some of the substances used may not be harmful, but others may cause chemical or caustic keratoconjunctivitis. Introduction of bacterial infection like Neisseria Gonorrhoea from human urine, or fungi from plant materials may occur [2].

This case involved the application of plantain stem sap to the body and eyes of our patient as a way of treating febrile convulsions. Instilling these harmful substances into the eyes of a child portends great danger as it may lead to visual loss.

CASE PRESENTATION

A one-month old male infant presented at the Children Emergency Room (CHER) of the University of Calabar Teaching Hospital (UCTH) with a one-week history of fever, multiple generalized tonic-clonic seizures, and altered sensorium 2 days after the onset of fever. He was taken to a worship center where a

mixture of unknown herbs, onions, and olive oil were applied to his eyes and body.

Of note was the application of copious amount of plantain stem sap to the body and eyes for the treatment of febrile seizures. At presentation, he was conscious but irritable, had a febrile temperature of 38.3^0C, was severely pale, and had bilateral opacity of the cornea with corneal ulceration and early symblepharon. There was no sign of meningeal irritation, though the child had hypotonia and hyporeflexia. The respiratory rate was 60cycles/min and vesicular breath sounds. Had tachycardia with a pulse rate of 144beats/min, gallop rhythm, and tender hepatomegaly. His packed cell volume level was 16%. His blood film revealed plasmodium falciparum+. An Ophthalmology examination revealed hypopigmented lids with blepharospasm. Severe hyperemia with perilimbal vascular blanching, symblepharon, and the corneal epithelial defect was noted on both corneas which were stained with Fluorescein. There was cornea edema and the presence of sloughs.

A diagnosis of severe malaria with anemic heart failure and bilateral chemical (herbal) keratoconjunctivitis (bilateral corneal ulcer and symblepharon) was made.

He was transfused with packed red cells, received parenteral arthemeter (artesunate), and other supportive management for heart failure. In addition, the ophthalmology team performed debridement using saline-soaked cotton buds under topical anesthesia (0.5% proparacaine). He received gutt cyclopentolate 12hly, gutt moxifloxacin 1hourly, gutt natamycin 1hourly, gutt Hypromellose (fortified with vitamin C) 6hourly, capsules of vitamin A 100,000 i.u stat, and syrup vitamin C. Daily rodding with tetracycline ointment was done.

Wound swab m/c/s and corneal scrapings could not be done due to financial constraints. He was discharged home after 4 days of admission was followed up in the paediatric and ophthalmology clinics.

Within one week of ocular treatment, there was a remarkable improvement. There was good eye-opening, the corneal defect had reduced, corneal edema regressed, and the fornices were relatively free. Further review was not possible as the patient and the caregivers defaulted and were lost to follow-up.

DISCUSSION

Traditional eye medicine use has been documented as far back as the early 50s for the management of eye conditions especially among the people of rural residence [3]. There is limited information on community-based practices related to the use of traditional medicine, especially traditional eye medicine [4]. This has erroneously achieved some successes but the damage to the body system outweighs its benefits [3] Eye-related health information is usually obtained from the villagers themselves, neighbours, relatives, and traditional healers. People usually tend to consult local healers or elders of the community in the event of ocular disease as they believe that diseases are caused by violating traditional societal rules [3]. Plantain (*Musa paradisiaca Linn)* is among the cheap staple foods common in Nigeria and other African countries. A hospital-based study from Sao Paulo, Brazil reported the use of homemade, traditional products like boric acid, normal saline, and herbal infusions for ophthalmic emergencies [5]. Noor Gupta *et al*., [6] also noted that TEM was being applied more frequently by people who sustained ocular trauma. The plantain stem and leaves are used for the treatment of kidney stones, weight loss, control acidity, aids constipation, control of diabetes, treatment of Urinary Tract Infections, ulcers, regulates Blood Pressure, and prevents clotting [7]. Plantain stem juice is the transparent solution contained in the pseudostem of the plant which turns pale brown after prolonged exposure to air. This fluid forms the greater weight of the tree trunk. The chemical composition of pseudostem was determined through the elemental analysis and was found to contain lignin (15-16%), cellulose (31-35%), and hemicellulose (14-17%) [8]. The plantain juice is usually mixed with milk or alcoholic spirit and drank or applied on areas of the body intended for treatment. In our patient, the plantain stem juice was rather applied to the body and eyes for the treatment of fever and convulsion. In the locality of study, it is believed that application of such is the remedy for convulsion especially when it involves ocular movement. Etim *et al*., 2019 [9] described the effect of plantain splash on the eyes in this same environment which leads to stromal corneal edema and corneal epithelial defect. The corneal and the epithelial defects completely resolved after 4 and 12days after treatment respectively. Our patient showed remarkable improvement within one week of ocular treatment. There was good eye-opening, the corneal defect had reduced, corneal edema regressed, and the fornices were relatively free. Unfortunately, we couldn't continue the follow up management because the patient and caregiver defaulted and all efforts to track them proved abortive. Hence, the long-term effect and outcome on the eyes could not be ascertained.

In the Nigerian population, mass media was the source of eye-related health information in 53.3%, relatives or family members in 20%, and eye specialists in 13.3% [10].

We, therefore, highlight this study to create awareness, advise the health care workers and the populace on the potential danger posed by plantain juice for the treatment of eye conditions through the mass media and other forms of communication.

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