

# Panophthalmitis following Gun Powder Blast Injury in a 70-year-old rural dweller in Southern Nigeria- A Case Report

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## Abstract

Gun-powder fireworks are used for festivals and celebrations in most developing countries, especially in the rural areas and country-sides. Ocular injuries that are sustained through gun-powder (cannon-gun) blasts are usually horrible and often results in structural and functional damage of the eyes and, in some cases, cause a permanent visual loss.

Here, we report a case of Mr. A.N., a 70-year-old male rural dweller in Southern Nigeria who sustained gun-powder blast injury in both eyes following careless and improper use of fireworks during a burial ceremony. Mr. A. N. was apparently enjoying good ocular health in both eyes until 10 days prior to presentation in the Eye Clinic, University of Port Harcourt. The index patient fired gun-powder cannon during a burial ceremony in a remote village in South-South Nigeria which mistakenly splashed onto the face and both eyes. He obtained some form of first aid treatment from a near-by Chemist's shop; and presented to the Eye clinic after 10 days with complications- Right Panophthalmitis and Corneal Opacity on the left eye. Mr. A.N. declined admission into the Eye ward due to financial reasons. He was treated with Ceftazidime and Gentamycin sub- conjunctively and topical moxifloxacin, cycloplegic and chloramphenicol ointment as well as vitamins A & C, analgesics and anxiolytics. Mr. A.N. was lost to follow-up after the initial visit to the hospital.

**Keywords:** Gun-powder eye injury, panophthalmitis, rural dweller, Southern Nigeria

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## I. Introduction

Blast injuries to the eye are rare in times of peace, though common in times of war. Ocular trauma remains one of the common causes of unilateral blindness [1] and is associated with significant emotional stress as well as numerous emergency room [2] and outpatient visits [3]. Worldwide, approximately 1.6 million people are blind from various causes of injuries to the eye and an additional 2.3 million people with bilateral low vision from ocular trauma [4]. The incidence of eye injuries may be higher in poorer and developing countries [5]. In China today, the risk of firework blast injuries is high because the people of China traditionally lights fireworks during Spring Festival to bring good luck [6].

Cannon firework-related eye injuries cause great harm to the patient and could place a significant medical and socio-economic burden on the family [7-10]. It is therefore a public health issue and deserves greater attention. In addition to minor eye injuries, fireworks can cause various serious ocular injuries, including Corneal Opacity, Endophthalmitis, Panophthalmitis, traumatic cataract, uveitis, sympathetic ophthalmitis, intraocular foreign body and retinal detachment [6, 11, 12].

There are reported male preponderance in the incidence and prevalence of ocular trauma with a male-to-female ratio of 5.1 to 1 and associated risk factors related to occupational exposure, participation in dangerous sports and hobbies, alcohol use and risk-taking behavior [13-16].

Patients with such serious injuries require hospitalization for surgery. An injured eye must be repaired immediately to restore its structure. Regarding functional recovery, additional complex operations may be necessary, depending on the follow-up condition [6]. Poverty, ignorance and lack of access to eye care service are major contributors to blindness [17, 18].



Figure 1: Mr. A.N.- Ten days post-gun powder blast injury in both eyes and face.

## II. Discussion

The use of gun powder as a life-extending elixir dates back to 9<sup>th</sup> century when the Chinese monks discovered and utilized the technology. “Gunpowder,” as it came to be known, is a mixture of saltpeter (potassium nitrate), sulfur, and charcoal [19]. Together, these materials will burn rapidly and explode as a propellant. The key ingredient, saltpeter, had been in use by this same culture since the late centuries for medicinal purposes [20]. It was found to be incendiary and immediately applied to warfare. As the European powers emerged into the Early Modern Period, saltpeter came into high demand as the key tool for warfare [21].

In climes of poor-economic settings and developing countries of the world, fireworks with gun powder are frequently used during festivities such as burials, installation of rural majesties on thrones, conquest from inter-tribal wars, the celebration of significant success by heroes, illustrious sons and daughters.

Blast injuries to the eye are rare but often devastating, sometimes leading to blindness directly or indirectly via accompanying complications. In our index patient, the ocular injuries sustained were complicated with panophthalmitis and corneal opacity due to mismanagement and late presentation to qualified expert management. Ocular trauma from gunpowder blasts is often associated with occupational exposure, participation in dangerous sports and hobbies, alcohol use, carelessness and risk-taking behavior [22-25]. Our index patient attributed his ordeal to “slight carelessness”. He however denied the use of alcoholic beverages prior to the incident.

Patients with such serious injuries require hospitalization for surgery. An injured eye must be repaired immediately to restore its structure. Regarding functional recovery, additional complex operations may be necessary, depending on the follow-up condition [6]. Our index patient, however, turned down the offer of hospital admission even though he sought expert ophthalmic attention late. Poverty and ignorance are major contributors to blindness [17]. Our index patient exhibited both, worsened by his lost to follow-up.

Management of our patient was limited to available finance and his decline to accept hospital admission despite persuasions from medical personnel. However, he was treated conservatively with Ceftazidime and Gentamycin sub-conjunctively, topical moxifloxacin, cycloplegic and occ chloramphenicol as well as vitamins A & C, analgesics and anxiolytics. He was counselled to return to the Eye Clinic for reevaluation in a week time. He was lost to follow up and further evaluation and monitoring was stalled.

### III. Conclusion

Ocular trauma from gun-powder (cannon-gun) blasts are usually horrible and devastating, often leading to irreversible blindness. Its use in festivities and ceremonies should be outlawed.

#### Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

#### Authors' Contributions

Azubiike Alfred Onua, Godswill FubaraPeppe and Confidence ChizireAmadicontributed equally to this work.

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