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# Accidental Dispersion of Chlorhexidine Responsible for Bilateral Cecitis: A Case Report and Review of the Literature

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**Abstract** **Case Report**

***Purpose:*** The aim of our work is to demonstrate the need for medical staff to be made aware of the non-use of 7.1% chlorhexidine digluconate in the eye, in order to prevent serious accidents which can inevitably lead to functional and total loss of vision. Patient and method: This was a 4-month-old male infant, the 2nd of 4 siblings, all in good health. His parents took him to their local integrated health center for an ophthalmological consultation. Instead of a consultation with a health worker from the health center matron, out of ignorance on her part, suggested that the parents use chlorhexidine digluconate for ocular application, which led to total and definitive corneal opacity in the hours following application, causing inevitable blindness. ***Conclusion:*** Accidental use of chlorhexidine on the eyes, or use of chlorhexidine without knowledge of the product, will inevitably have serious consequences for eyesight. Staff must therefore be made aware of the precautions for use in order to prevent avoidable blindness caused by its use.

**Keywords:** blindness, umbilical cord, chlorhexidine.



## INTRODUCTION

Chlorhexidine digluconate 7.1%, an inexpensive antiseptic, prevents life-threatening infections from entering an infant's body via the umbilical cord, which has just been cut [1]. Paediatric ocular trauma is a frequent and serious condition, sometimes leading to blindness in children [2]. We report a case of accidental dispersion of this product, which caused bilateral blindness in a 4-month-old infant. The aim of our work is to demonstrate the need for medical staff to be made aware of the non-use of 7.1% chlorhexidine digluconate in the eye, in order to prevent serious accidents which can inevitably lead to functional and total loss of vision.

**RESULT:** This was a 4-month-old male infant, the 2nd of 4 siblings, all in good health.

His parents took him to their local integrated health center for an ophthalmological consultation. Instead of a consultation with a health worker from the health center matron, out of ignorance on her part, suggested that the parents use chlorhexidine digluconate for ocular application, which led to total and definitive corneal opacity in the hours following application, causing inevitable blindness. An Ophthalmological examination in our unit: as it was impossible to measure visual acuity given the infant's age, inspection and palpation of the orbital framework of both eyes revealed the presence of an unremarkable bony framework. Examination of the adnexa of both eyes revealed normal palpebral dynamics and statics. The oculomotricity of both eyes was preserved, and examination of the lacrimal apparatus revealed open and empty lacrimal points.

Slit lamp examination of both eyes revealed cloudy corneas with total opacification due to the application of chlorhexidine digluconate (Figure 1).

Examination of the other structures of both eyes was impossible given the state of the corneas, namely the anterior chamber, iris, pupil, crystalline lens and fundus

of both due to the ocular use of chlorhexidine ointment (Figure 2).

**Figure 1: bilateral total corneal opacity (Right eye and the left eye)**


**Figure 2: Chlorhexidine ointment**

## DISCUSSION

Ocular burns constitute true ocular emergencies and both thermal and chemical burns represent potentially blinding ocular injuries. Thermal burns result from accidents associated with firework explosions, steam, boiling water, or molten metal (commonly aluminium).[3]

The WHO recommends the daily application of chlorhexidine to the umbilical cord stump during the first week of life in the case of home births, in places where neonatal mortality is high (at least 30 neonatal deaths per 1,000 live births) [1]. Under no circumstances is the use of this product recommended from an ophthalmological point of view, and so the etire health care chain in general and ophthalmology in particular must be aware of the dangers to patients of its use in ophthalmology. Paediatric eye injuries account for 38.8% of all eye injuries in the ophthalmology department of Bouaké University Hospital. [2] They are responsible for the majority of blindness in children, making them a frequent and serious pathology in our countries. [2] Ocular trauma is a major public health problem. Every year, 55 million eye injuries result in temporary incapacity for work [4]. In our environment, chemical eye burns are common, mostly due to failure to observe safety measures when using them, or simply through ignorance, as in the case of our observation. Acids: form complexes with the proteins of the stroma, which delays and hinders their penetration, and explains the moderate to medium severity of these burns (battery water), which can be serious in an industrial environment with the use of highly concentrated acids (pH < 2.5). [4] Alkalis: react with fatty acids (saponification) and destroy cell membranes, allowing them to penetrate underlying tissues very quickly. All burns caused by concentrated bases are potentially serious (ammonia). [4] Chemicals are part of everyone's life. There are an estimated 5 to 7 million different chemicals known worldwide. [15] Our case of observation being due to a base of or the gravity of the ocular damage having led to a total and definitive loss of vision.

The classification of burns is based on the degree of damage to the limbus and conjunctiva (Table I) [3].

*Table 1 Classification of severity of ocular surface burns by Roper-Hall*[2]

| *Grade* | *Prognosis* | *Cornea* | *Conjunctiva/limbus* |
|---|---|---|---|
| I | Good | Corneal epithelial damage | No limbal ischaemia |
| II | Good | Corneal haze, iris details visible | <⅓ limbal ischaemia |
| III | Guarded | Total epithelial loss, stromal haze, iris details obscured | ⅓–½ limbal ischaemia |
| IV | Poor | Cornea opaque, iris and pupil obscured | >½ limbal ischaemia |

According to this classification, our case is a stage 4 with a serious prognosis.

## CONCLUSION

Accidental use of chlorhexidine on the eyes, or use of chlorhexidine without knowledge of the product, will inevitably have serious consequences for eyesight. Staff must therefore be made aware of the precautions for use in order to prevent avoidable blindness caused by its use.

**Conflict of interest:** None

**Ethical considerations:** We had the free and informed consent of the parents for the publication of this case.

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