

# Contact thermal corneal burn from exploding boiling ring – A case report.

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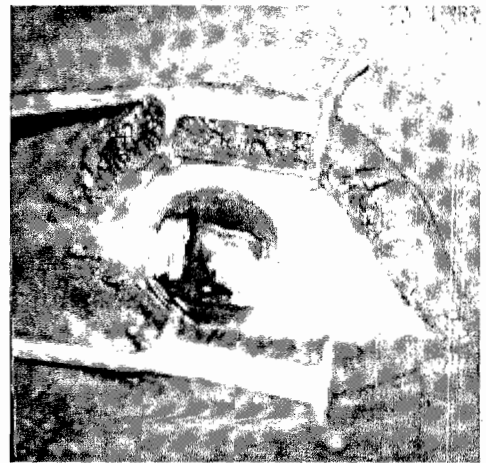
**KEY WORDS:** *Thermal injuries, corneal burn, boiling ring.*

## INTRODUCTION

Thermal injuries to the cornea appear to be less often reported in the literature than chemical injuries<sup>1,2</sup>. Most of the cases that do get reported are associated with fire outbreaks wherein the thermal corneal injury is incidental to the generalised body or facial burns<sup>3</sup>. These are usually of the flash burn type as opposed to contact burns in which a hot medium solid or fluid comes into direct contact with the cornea. References to contact burns of the cornea and in particular associated with hot water are scanty in the literature<sup>4,5</sup> and hence we believe that this short case report might be of interest.

## CASE REPORT

The patient AS was a 22 year old male who was rushed into the hospital in severe pain. The history was that while he was using a boiling ring to heat up some water the ring over heated causing an explosion consequent upon which scalding matter entered into the right eye with some force. He presented with intense blepharospasm and lacrimation but the eye was only mildly congested. In the circumstances the initial visual acuity could not be obtained there was no evident damage to the lids and the anterior chamber and lens appeared normal the left eye was unaffected and normal after application of topical bupivacaine. It was possible to calm the patient down enough to examine the eye on a slit lamp foamy gelatinous material was observed right across the midsection of the cornea partially extending into the surrounding limbus and conjunctiva. This area apparently coincided with the exposed part of the eyeball at the time of the explosion. It was noted that the necrotic material had partially sloughed centrally (figure 1). It was not possible to visualise the posterior segment at this



**Figure 1:** Contact thermal burn of right eye from exploded boiling ring indicating partially sloughed. Foamy and gelatinous material across midportion of cornea. This was subsequently debrided without problems.

time photographic documentation was made and a decision to debride the apparently necrotic material was removed quite early with the dull edge of a size 15 bard parker blade this procedure was carried out in the theatre under tropical anaesthesia..

0.5mls each of sub-conjunctival depomedrol (methyl prednisolone acetate 40mg/ml) and gentamicin (40mg/ml) were given on the table. The eye was padded after application of chloramphenicol ointment. Some aspirin was prescribed and the patient asked to report the following day. On day 2 the patient felt better and was commenced on topical gentamicin tds and oc terramycin (oxytetracycline hcl 0.5% benzocaine 5% polymyxin B sulphate 1 mg/g) nocte. On day 5 the patient still complained of pain and photophobia: there was some mild congestion but

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the cornea no longer stained with fluorescein. Indicating that re-epithelialisation had taken place. Vision was 6/9 in the injured eye un-refracted. Patient was lost to follow up subsequently.

## COMMENTS

Contact thermal injuries to the cornea appear to be scarcely documented it is not clear why this is so. It is possible that such reports have been included in larger series but most of the thermal corneal injuries described in the literature have been associated with fire burns (i.e flash burns). Of 62 time unlimited medicine citations on corneal thermal injuries only one described cases of injury from hot fluids in general especially in a domestic setting. It is also possible that injuries sustained from hot fluids have a tendency to be minor and thus unworthy of comment. A case report describing injury from exploding microwaved eggs<sup>5</sup> may suggest that more severe injuries may result from contact with other media with higher latent heat. It is possible that the origin of the injury described in this report, from exploding boiling ring may have contributed to its severity. It may also be that contact thermal corneal injuries severe enough to warrant hospital attendance is not as common as one would expect as for instance this is this author's first experience in 19 years of clinical practice. Looking at the literature prognosis of thermal corneal injuries in general appear to be good in that provided the globe remain intact at the time of the injury. Long term complications tend to be uncommon. For thermal injuries in general damage tend to be epithelial rather than stromal, the damage in this case appeared to be superficial and by day 5 re-epithelialisation had occurred. Long-term

prognosis would likely depend on the extent of limbal injury in some instances of course corneal transplant and limbal conjunctival transplant have been required<sup>5</sup>. In chemical injuries on the other hand damage to limbal stem cells is often a problem and especially in alkali burns loss of eye due to collagenase activity may occur<sup>2</sup>. It is unfortunate that the patient under review was lost to long-term follow up, but the prognosis appeared good judging from improvements by day 5. Debridement and patching with antibiotic/steroid application appeared to have sufficed in this case.

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