

# Tarsoconjunctival 'Hughes' flap for repair of globe perforation: a modified technique in the management of severe scleral necrosis.

Hughes L, Saxby E, Wright M, Princess Alexandra Eye Pavilion, Edinburgh, UK.

## INTRO

Tarsoconjunctival pedicle 'Hughes' flaps are typically used in the reconstruction of full-thickness lower eyelid defects. We describe the use of a Hughes flap in providing tectonic support and sealing an aqueous leak in an unusual case of scleral and lid necrosis.

## CASE

A 66 year old man presented with rapid onset right periocular inflammation, inflammatory scleritis, conjunctival necrosis and right upper and lower lid necrosis. He was anophthalmic on the left due to childhood trauma.

A provisional diagnosis of necrotising fasciitis was made. Despite intensive topical, oral and intravenous steroid and antibiotic therapy, his lower lid tarsal ischaemia progressed with an area of inferior bulbar necrosis and underlying sclera pallor (Figure 1). Lid debridement was not necessary.

All investigations (Table 1) excluded the presence of systemic inflammation or infective cause. A Tutoplast® pericardium patch graft was used to cover the thinning scleral defect but, by four weeks post-operatively, had degraded. The progressive necrosis resulted in breach of the sclera with subsequent uveal exposure and aqueous leak (Figure 2).



Figure 1



Figure 2

## THE HUGHES FLAP

Under general anaesthetic, a tarsoconjunctival 'Hughes' flap taken from the ipsilateral upper lid was then used to patch the perforation (Figure 3). The 5mm x 6mm pedicle was secured with five 6.0 absorbable Vicryl sutures directly to healthier surrounding conjunctival and scleral tissue. Care was taken to avoid excessive tension on the sutures and to avoid placing the bites into unhealthy tissue, reducing the risk of the suture cheesewiring.

The distal end of the flap covered the site of the focal melt and aqueous leak, tarsal conjunctival side down. A decision not to rotate the flap was deliberately made to reduce the likelihood of compromising the flap's blood supply.



Figure 3

Inferior symblepharons were divided; a buccal mucous membrane graft was inserted to restore forniceal depth and a focal, right, upper lid cicatricial entropion was corrected with a grey line split and anterior lamellar recession.

Given the poor health of the ocular tissue surrounding the leak, the flap was left in-situ for two months. At multiple reviews, and on division of the flap, there was no active leaking. However, the eye remained hypotonous, likely reflecting aqueous hyosecretion from chronic inflammation. An ocular ultrasound excluded a ciliochoroidal detachment.

## OUTCOME

Eventually, the eye became phthisical and the patient elected for an evisceration. Histopathological examination of his uveal tissue revealed normal retinal architecture, features consistent with chronic anterior uveitis and hyalinised ciliary processes, substantiating clinical suspicions of a toxic injury.

## DISCUSSION

Necrotising scleritis is a severe and destructive disease. Various surgical techniques have been described (1) in the treatment of non-infectious scleral necrosis. Reinforcement of the sclera (2) alongside high doses of systemic immunosuppressive therapy are recommended (3). Amniotic membrane grafting has been successfully described in scleral ischaemia secondary to chemical burns (4) but was avoided, for this patient, due to concerns of inflammatory degradation. With Tutoplast® failure, a Hughes flap afforded the benefits of a tectonic repair carrying its own blood supply.

## CONCLUSIONS

Despite the eventual outcome, our experience supports evidence that a tarsoconjunctival 'Hughes' flap can provide tectonic support and help to restore globe integrity in cases of scleral necrosis where conventional methods of 'patching' have failed.

Investigations	Table 1
<b>Screening bloods</b> (including ANCA, CCP, Rheumatoid factor, PR3, MPO, C3 & C4, CRP, ESR and FBC).	Normal
<b>CT orbits and sinuses</b>	No consistent findings with granulomatous with polyangiitis, vasculitis or sinus disease.
<b>Punch biopsy</b> of the of the inflamed lower lid tarsal conjunctiva and underlying tarsal plate	Unusual appearances of infarction and coagulative necrosis without vasculitis and with no pathologically identifiable cause.
<b>Scleral biopsy</b>	Necrotic tissue with appearances in keeping with non-infective, acute inflammation.
<b>Inferior turbinate biopsies</b> taken by ENT colleagues	No evidence of necrosis, vasculitis or granulomatous inflammation.

## References

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