

Pseudochalazion of the Upper Lid Due to Hard Contact Lens Embedding — Case Reports and Literature Review

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SUMMARY

Two cases of pseudochalazion formation secondary to hard contact lens embedding are reported. In all previously reported cases a lump, swelling, mucopurulence, and ptosis were the most common presenting symptoms. Embedding usually occurred concave to the globe in the supratarsal region.

The cases reported herein are unique in that the location of one lens was beneath the tarsal conjunctiva, and in the second case there was spontaneous release of the lens after four months of embedding.

INTRODUCTION

Migration of hard contact lenses into the superior cul-de-sac is an unusual cause of contact lens loss. The embedding of a contact lens into the surrounding tissues of the superior fornix is a rare phenomenon that has been reported on several occasions.¹⁻¹³ Notable complications of such embedding have been ptosis^{1,4,11,13} and an orbital mass.⁸

The following report describes two additional such cases. A review of previously described cases of hard contact lens embedding in the upper lid is included. The two new cases feature previously undescribed findings regarding the location of the embedded lens and the subsequent course.

CASE 1

A 29-year-old Oriental man presented to the Massachusetts Eye and Ear Infirmary with the chief complaint of an enlarging painless mass in the upper lid OD of four months

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duration. The patient had a three-year history of uncomplicated hard contact lens wear. One year prior to presentation the patient noted the atraumatic loss of his right lens. There was no history of discomfort, mucopurulent discharge, or conjunctivitis symptoms. A new lens was obtained, and usual wear was resumed with no difficulty. Eight months later the patient first noted a "lump" in the upper lid OD. There was no tenderness, discharge, redness, or foreign body sensation. Consultation with an optometrist resulted in the diagnosis of a "cyst," and the lesion was observed. Over the ensuing months the patient noted a substantial increase in the size of the lump, precipitating his presentation.

On physical examination corrected visual acuity was 20/20 OU. External examination revealed a tumor of the right upper lid that was 12 mm × 6 mm, fixed to the tarsus and slightly tender, with normal overlying skin (Figure 1). There was no preauricular adenopathy. Eversion of the upper lid OD revealed a tarsal mass with central granulation tissue surrounded by depressed, arcuate bands of fibrous tissue and cystic elevations of the tarsal conjunctiva (Figure 2). Results of a complete eye examination were otherwise entirely within normal limits OU. The patient was instructed to apply warm compresses and antibiotic ointments four times daily OD and was scheduled for surgery one week later.

Following cutaneous injection of local anesthetic, a chalazion clamp was placed and the lid was everted. A vertical incision was performed through the tarsal conjunctiva in the center of the mass. Mucopurulent fluid was expressed and immediately sampled for culture and sensitivity. Exploration of the incision revealed a hard concave disc lying just beneath the tarsal conjunctiva

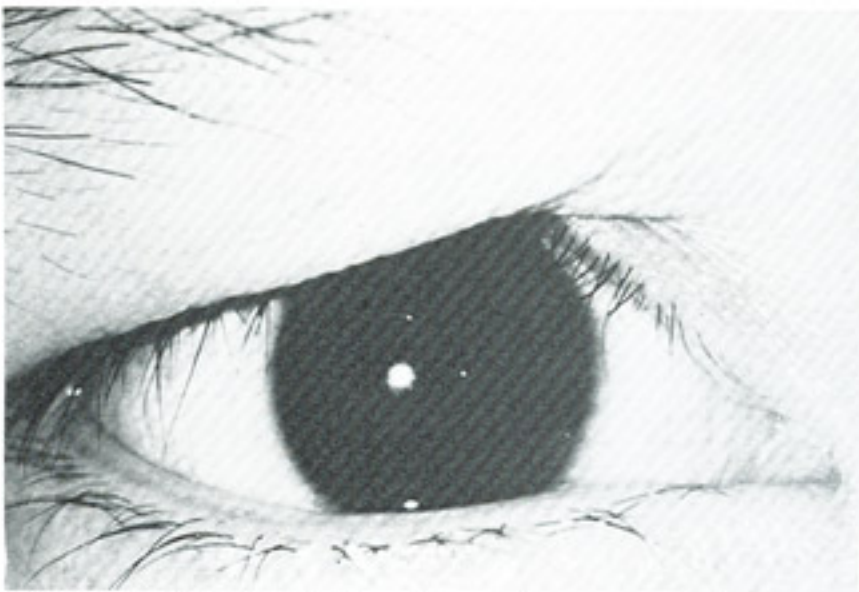


FIGURE 1: (Sebag and Albert) External appearance of upper lid OD, Case 1.



FIGURE 2: (Sebag and Albert) Appearance of everted lid, Case 1.

(Figure 3). The foreign body was removed and identified as a light brown hard contact lens.

Histologic examination of tissues surrounding the contact lens revealed chronic granulation tissue. The presence of many epithelioid cells and a few Langhans-type giant cells (Figure 4) resulted in the diagnosis of chronic granulomatous reaction secondary to foreign body.

CASE 2

A 16-year-old white woman presented with the chief complaint of a "lump" in the upper lid OS. Four months prior to presentation she claimed to have lost her hard contact lens OS. At that time she experienced "irritation" with redness and mucopurulent discharge subsiding after one week. During the ensuing four months she noted the onset of a painless enlarging mass in the upper lid OS, with no mucopurulence.

Physical examination, including lid eversion, resulted in the diagnosis of chalazion. Treatment with warm compresses and antibiotic ointment four times daily was instituted. One week later the "lump burst open" spontaneously while the patient was at school. The school nurse found a mucopurulent discharge and a hard contact lens extruding from the upper lid OS.

Upon examination at the Massachusetts Eye and Ear

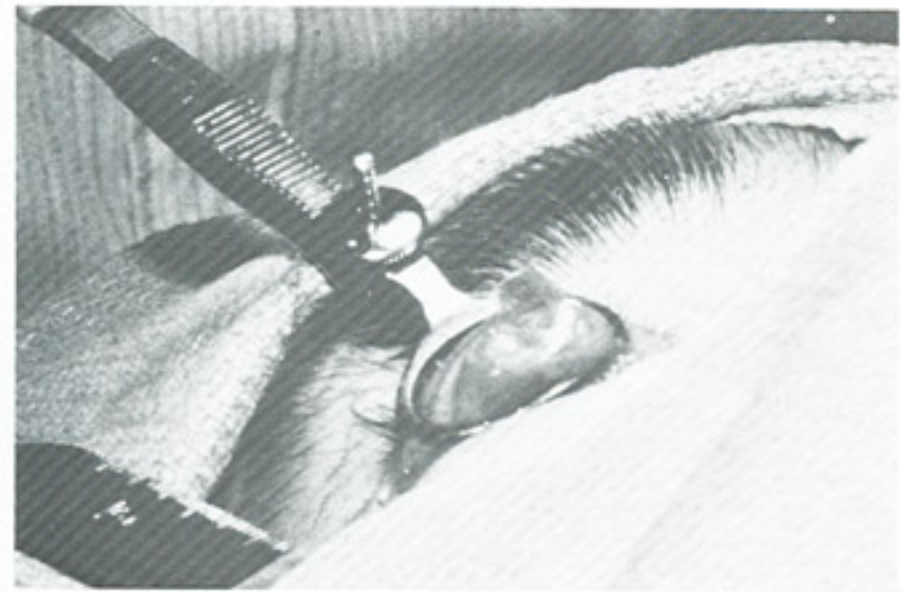


FIGURE 3: (Sebag and Albert) Case 1, upper lid OD. In the area delineated by the chalazion clamp there is a vertical incision through the tarsal conjunctiva. Through this incision a hard contact lens was removed.

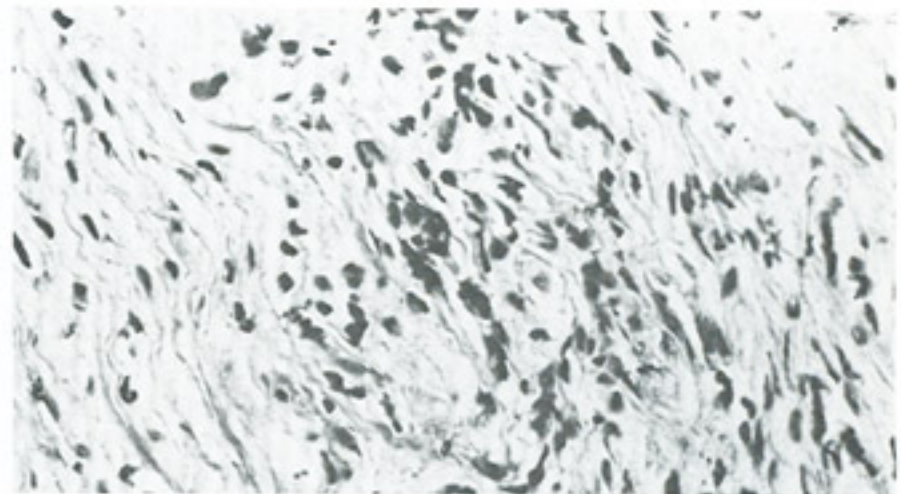


FIGURE 4: (Sebag and Albert) Histopathology of tissue surrounding embedded hard contact lens, Case 1. Chronic granulation tissue with epithelioid cells and structures suggestive of giant cells are seen. (H&E X 200)

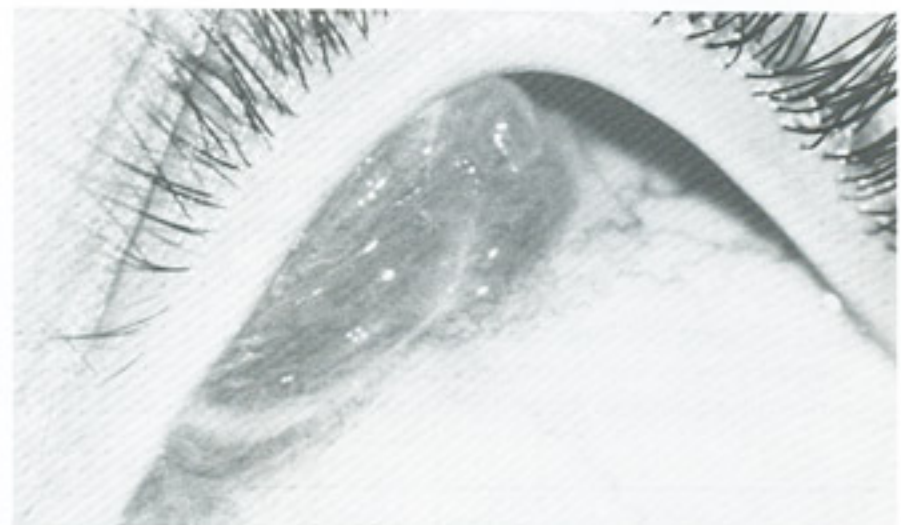


FIGURE 5: (Sebag and Albert) Appearance of upper lid OS, Case 2.

Infirmery, the patient was found to have a 10 mm × 4 mm multilobulated mass of granulation tissue on the tarsal conjunctiva (Figure 5). The appearance of the lid was consistent with contact lens embedding.

DISCUSSION

Including the cases presented herein, there have been 15 reports of hard contact lens embedding in the tissues of the upper lid and superior fornix. The following presents an analysis of the epidemiologic, clinical, and pathologic findings of these case reports.

Five men and ten women experienced this phenomenon. The mean age for males was 28, and women was 35. The three patients older than 60 years were all women (2 aphakic corrections) while the remaining 12 patients were younger than 40 years. These statistics most likely reflect the prevalence of contact lens wear by age and sex and not the prevalence of this phenomenon.

Ten individuals (67%) presented with the chief complaint of a lump or swelling of the upper lid. Six individuals (40%) complained of associated chronic mucopurulence. Ptosis was the chief complaint of two individuals, and was a finding in a total of four cases (27%). One notable case presented with the chief complaint of an enlarging mass in the superomedial orbit.⁸

The mean elapsed time between contact lens loss and discovery in the patient's lid was 20 months. There was no significant difference between males and females, 23 and 19.5 months respectively. The presence of ptosis and mucopurulent discharge did not hasten identification of the problem (26 months and 20 months, respectively). It should be noted, however, that in cases of 69-month and 40-month elapsed time between lens loss and removal from the lid, no conjunctivitis symptoms were present.

Trauma was the cause of lens loss in only two cases (13.3%). The nature of the lens lid did not appear to play a significant role, as two individuals wore aphakic correction while four were myopic. No chronic external diseases of the eye were identified as predisposing factors.

All cases but one (Case 2) were treated by surgical exploration. The lens was found embedded in the supratarsal region of the upper lid in nearly 70% of cases. All cases of ptosis were found to have embedding in this location. In the majority of cases (86.6%) the lens was positioned with the concave surface concentric to the globe. Two cases reported lens inversion, one in the pretarsal region² and one partially embedded in the supratarsal region.¹² In two cases the lens was found in the pretarsal region beneath the skin.^{2,5} Only one case (Case 1) documented the presence of the lens beneath the tarsal conjunctiva.

Histopathology was reported in only two previous cases. In one, plasma cells and lymphocytes were noted, but no granulomatous changes were found.³ The second case described a granulomatous reaction, but no giant cells were seen.⁹ A third case (Case 1) featured chronic granulomatous tissue with structures suggestive of giant cells.

COMMENTS

The phenomenon of hard contact lens (HCL) embedding in the upper lid is a rare complication of contact lens wear. The initiating event in all cases is the displacement of the lens into the superior fornix. Owing to its design, the HCL is

freely mobile across the surface of the globe. Its position in the deep recesses of the superior cul-de-sac is a cause of irritation and inflammatory response at that site.

According to Michaels and Zugsmith,⁷ this results in a sterile abscess. Lid action may cause the inflamed site to become eroded by the edge of the lens, and the HCL insinuates itself into the tissues of the lid. As a foreign body, the lens stimulates an inflammatory response ultimately resulting in chronic granulation tissue.

If it remains in the supratarsal region, the granulation tissue-encased lens could interfere with Mueller muscle and levator function, causing ptosis. Inferior migration of the mass will lead to a noticeable lid tumor. Superior migration, as in the case reported by Nicolitz and Flanagan,⁸ can lead to an orbital mass.

The two cases presented herein differ from all previous reports in several ways. Firstly, the relatively short duration of symptoms (four months) prior to discovery of the etiologic factor is in sharp contrast to the cases of chronic recurrent symptoms that went undiagnosed for long periods of time. This underscores the basic clinical principle of "believing the patient" and emphasizes the need to elucidate factors underlying complaints. Several authors emphasize the importance of double lid eversion.^{2,3,8,10,12} Secondly, Case 1 documents the first report of HCL embedding beneath the tarsal conjunctiva. Thirdly, Case 2 is the first reported case of embedding with spontaneous rupture of the cyst encasing the HCL.

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