Cysts in Lacrimal Glands

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A CASE report of a rare case of retention cyst of Krause glands (accessory lacrimal gland) was presented. Gross pathology and histopathological findings were described. The clinical and pathological differential diagnoses were made. A review of the literature was covered.

Epithelial cysts aberrent, ectopic or accessory of lacrimal glands has been rarely reported. These cysts may be present in any part of the orbital structures. However, most commonly these may be present in the conjunctival cul de sac (1). Anatomically these cysts represent a cystic proliferation of glands of Krause and known as a glandular retention cyst (2). Cysts of somewhat similar nature has been reported in association with the sweat and sebaceous glands of the caruncle.

These glandular retention cysts are usually small and develop in the glands of Krause in association with chronic inflammatory conditions. The ducts of the glands are blocked by the pressure from the surrounding inflammatory cellular infiltrate as well as the cicatricial contraction (2).

In this communication large cystic changes of the glandular tissue of the conjuctiva are reported in the absence of the expected chronic inflammatory condition.

CASE REPORT

A 1½-year old baby boy was seen at the eye clinic of the Salmaniya Medical Centre after the mother noticed a gradually forward bulging of the left eye of her child associated with progressive dropping of the upper lid over 1 - 3 months duration (Figure 1). There was no positive history of pre or postnatal problems nor a history of preceeding febrile illness or ocular inflammation. Ophthalmic examination revealed a soft diffuse cystic swelling of the upper fornix and conjunctiva extending to the tarsus and causing ptosis of the left eye. On everting the upper lid, a bluish reddish cyst became more apparent the surface of which is streaked with blood vessels crossing the smooth surface (Figure 2). The cystic mass was attached to the tarsus and superior sclera up to 2 mm from limbus and located in the upper conjunctival cul de sac (Figure 3).

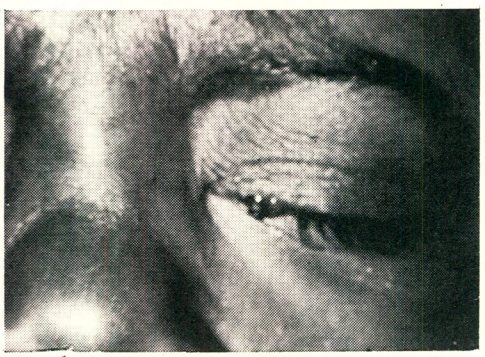

Fig. 1

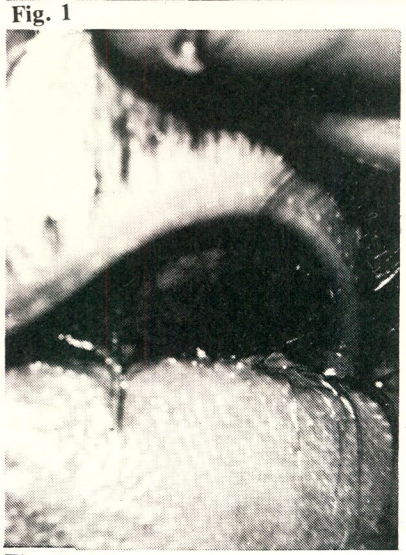

Fig. 2

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On comparing the two eyes a slight proptosis of the left eye was noticed. There was however, no limitation of the extra ocular movement and the rest of the ocular examination was unremarkable. X-ray studies revealed normal orbital walls and dimensions.

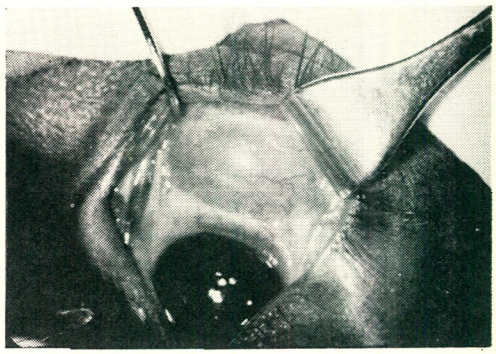
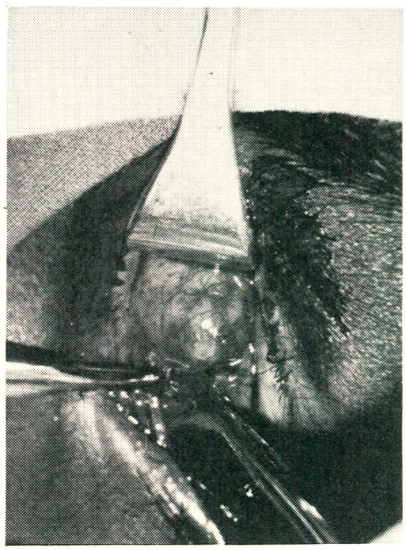


Fig. 3

It was elected therefore to perform excisional biopsy with the clinical assumption that the swelling is orbital lymphangioma and that the excision will reduce the severity of ptosis which may cause deprivation amblyopia. Before starting the conjunctival incision, the cystic mass was aspirated and 3 cc aspirate was sent for cellular pathology study.

During the surgical procedure the mass was found to be grossly polycystic extending deep into the orbital tissue (Figure 4). At a cer-

Fig. 4



tain stage it was felt that no end in dissecting this mass in toto could be reached. Therefore as much as possible of it was excised avoiding injuring the levator palpebre superiors, muller's muscle and the main lacrimal gland. After seven months, follow-up showed no recurrence of the cyst.

PATHOLOGICAL FINDINGS

The cytologic report on the aspirate came as slight turbid proteineous fluid containing sparsely a lymphocyte. The histopathology sections however, showed a large cystic spaces with epithelial infoldings in the form of a larg villae — like projection (Figure 5).

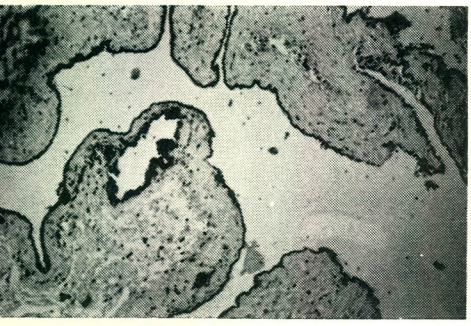


Fig. 5

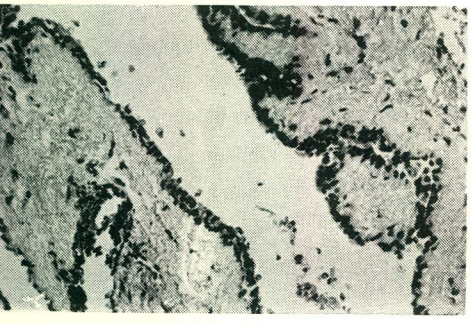


Fig. 6

The lining of the large cystic space and the small cystic areas showed a double layered cuboidal epithelium. In some places, the epithelium showed atrophy and in others hyperplasia so that epithelial irregularities was produced (Figure 6). The empty spaces of the cyst contained mucus fluid and epithelial debris. The walls of the cyst are made of fibrocollagenous tissue enclosing tiny branching ductile spaces and these were considered as ducts of the aberrent or accessory lacrimal glands (Figure 7 & 8). The latter are lined by the same type of double cuboidal epithelium. No goblet cells, keratinized epithelium or skin appendage (hair follicle, sweat and sebaceous glands were evident.

DISCUSSION

Although conjunctival cysts is a common opthalmic problem the reported cases of retention cyst of Krause glands are scarce (2). Our first clinical impression on examining that child was an orbital lymphangioma which are known to have a similar picture (3).

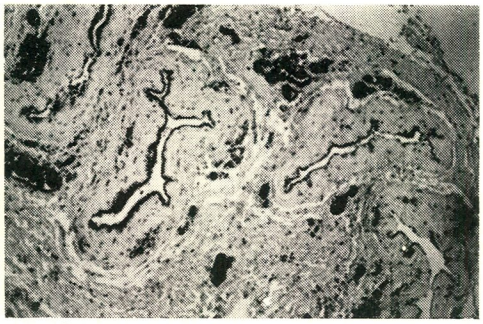


Fig. 7

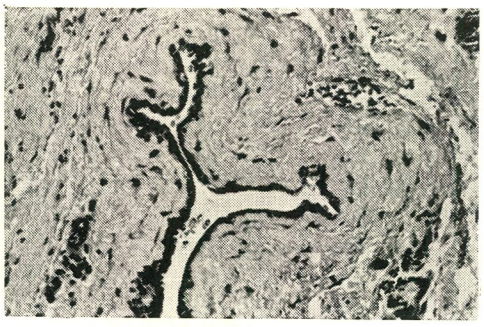


Fig. 8

The glands of Krause are accessory lacrimal glands having the same structures as the main gland (4). They are situated deep in the sub-conjunctival connective tissue of the upper fornix between the tarsus and the inferior lacrimal gland of which they are off shoot. There are some 42 in the upper and 6 - 8 in the lower fornix (4). Their duct unite into a rather long duct or sinus which opens into the fornix. Similar glands are found in the caruncle. Another similar form of glands are the glands of Wolfring or Ciaccio which are also accessory lacrimal glands (adenexal structures) but larger than the glands of Krause. They are 2 - 5 in number situated in the upper border of the tarsus of the upper lid about its middle between the extreme of the tarsal glands or just above the tarsus (4).

Conjunctival cysts may arise as a congenital cornea-scleral cysts (5), traumatic cysts (6) or orbital cysts due to histoplasmosis duboisi (7) and epithelial cysts (2). The non-traumatic epithelial cysts may be found any where in the conjunctiva and aetiologically may be of three different types (2). The histological differentiation between them is frequently difficult and some times becomes a matter of confusion even to the best ophthalmic pathologist. Glandular retention cysts are one type of them. The large cyst results in mechanical ptosis and may project from the upper palpebral conjunctiva or into the cul de sac of the fornix. In the present reported case the lining of the cystic spaces, the clinical presentation and the short duration of the mass made it possible to entertain the diagnosis of the retention cyst of Krause gland which could occur as a retention cyst in cicatrical conditions of the conjunctival scar following chronic inflammation (8, 9, 10, 11, 12, 13, 14, 15).

Michel (16) reported a case associated with ankylo-blepharon after tuberculo — conjunctivitis and paton (17) in a scar caused by the excision of chalazion. Giri (18) reported a case with no evident scarring and the examples of Butler (19) and kiffeny (20) may have been of a similar type.

Edler (2) in his description of

glandular retention cysts emphasized that they develop in the glands of Krause following chronic inflammatory conditions. The ducts of the glands are blocked by pressure from the surrounding inflammatory infiltrate and cicatrical contraction. A congenital lack of canalization may be a factor and this is further excited by the inflammatory process. The mucous secretion of the glands and epithelial debris are formed. Typically these cysts are lined by a double layered cubical epithelium which in places may undergo atrophy and in others hyperplasia and are surrounded by a fibrous capsule.

In the present reported case there is no history of inflammation or any other preceeding chronic ophthalmic problem to result in the formation of this glandular cystic swelling. The assumption therefore is to regard the aetiological factor as congenital obstruction of the small ductules resulting in the production of polycystic retention of the secretion. The clinical similarity with the orbital conjunctival lymphangioma could not easily be resolved until the histopathological structure of the specimen was studied (3). Lymphangiomas have a very thin layer of endothelium lining the lymphatic cyst (3). Another point against lymphangioma is the absence of lymphatic follicle or clumps of lymphocytes (3).

Jakobiec et al (21) reviewed all the case diagnosed as cystic adenexal lesions in the files of the Algernm B Reese laboratory of ophthalmic pathology — Edward S.Harknes Eye Institute. The review covered 128 cases representing all the material collected from 1929 to 1977. The cases were classified as epidermoids, dermoids or cholesteatoma. Out of the 128 cysts diagnosed clinically and pathologically as epidermoids and dermoids were found to be lined by non-keratinizing squamous epithelium with a variable number of adenexal goblet cells. Out of the twelve, five lesions contained no adenexal structure in their walls and were designated as simple conjunctival cysts and seven displayed appendages in their wall and were diagnosed as conjunctival dermoids. Jackobiec et al (21) proposed that these non-keratinizing cysts represent sequestrations of conjunctival type of epithelium analogous to the displacement of keratinizing surface epidermis responsible for the formation of classic epidermoids and dermoids. Considering the clinical and pathological variables it is possible to confuse conjunctival cysts and dermoids with mucocele (8).

In the present reported case the possibility of conjunctival cyst and conjunctival dermoids was ruled out because of the absence of goblet cells, hair shafts, sebaceous glands, hair follicles and lymphoid aggregates.

In a mucocele there is an obligatory bony defect which is totally absent in conjunctival cysts and dermoids.

Although these retention cysts of Krause glands are most commonly the result of chronic cicatrical inflammation of the conjunctiva, in the present case it is clear that the cyst has developed spontaneously and it is therefore plausible to postulate that it is a a congenital obstruction of accessory lacrimal glands causing the retention cyst.

ACKNOWLEDGEMENT

I would like to thank Dr. G.Morgen, M.D., Ph.D., F.R.C.path., Institute of Ophthalmology, University of London for his kind advice in preparing this paper. I also thank my Senior Resident Dr. (Mrs.) Vaidya for helping me to study this case and also to Dr. Ahmed A. Ahmed, M.D., for reviewing the final manuscript of the paper. I am grateful to the staff of the Department of Pathology, Salmaniya Medical Centre for reviewing the cytology and histology slides and taking the microphotographs.

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