

## DENIG'S OPERATION FOR TRACHOMATOUS PANNUS\*†

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### Case Report

A married female, aged 34, came to the London Jewish Hospital over 22 years ago with trachoma and pannus crassus of the right eye. Treatment by the ordinary methods was unsuccessful and consequently the operation of transplanting mucous membrane of the lip on to the eye (Denig's operation) was performed. For cosmetic reasons the mucous membrane graft was placed 2 or 3 mm. above the corneal limbus so as to ensure that the upper lid would always cover it.

Within a few days the eye became quiet and it had remained so until she presented herself some 6 months ago. The graft was still freely movable and in perfect union with the bulbar conjunctiva. It still remained mucous membrane of the lip, and a few large blood vessels superficial to the substantia propria of the cornea were still visible in the cornea. The preservation of a mucous membrane graft (proved histologically,) for 22 years is a record in the literature of this subject.

*Histology.*—A section of the graft and a fragment drilled with a trephine through the whole thickness of the lid (excluding the skin surface) were sent to the Institute of Ophthalmology, where they were examined by Dr. Norman Ashton and Dr. C. H. Greer who have submitted the following report:

Section of the graft shows a strip of tissue covered partly with conjunctival epithelium and partly with stratified non-keratinizing epithelium, the junction between the two being sharply marked. Very numerous goblet cells are present in the conjunctival epithelium, while the stratified portion exhibits marked and irregular thickening due to swelling and cytoplasmic vacuolation of the prickle cells. No inclusion bodies were seen. The subepithelial tissue throughout shows fragmentation of collagen, new capillary formation, and a diffuse infiltration with plasma cells, indicating prolonged mild inflammation.

Section of the drilled fragment shows dense fibrous tissue embracing a few acini of atrophic lacrimal tissue. No inclusion bodies were seen.

### Discussion

This case raises a series of problems:

(1) *What are the indications for Denig's operation?*—Denig (1911) used the mucosa of the lip because he believed it could not be invaded by trachoma (Pines, 1948). Since the mucosa does not possess lymphatic tissue it would provide an impenetrable barrier protecting the cornea from invasion by trachoma. This postulates that the pannus results from invasion of the cornea by extension from the conjunctiva, but it is now known that the cornea can itself be infected by trachoma and in this case the operation would be of no use. Moreover Poleff and Viennot-Bourgin (1950) were successful in infecting the mucosa of the lip with the virus of trachoma.

\*Received for publication July 6, 1953

†The detailed history of this case cannot be given because the hospital records were destroyed by enemy action.

Alternatively it has been held that the pannus arises from irritation of the cornea by the inflamed upper lid, so that by interposing a barrier of healthy mucosa the cornea would be protected. This theory of the causation of pannus has been much criticized, but a case shown at the Ophthalmological Section of the Royal Society of Medicine in 1946 makes one think again:

A man of over 75 years of age was treated by x ray for an epithelioma of the left upper lid in 1943. In October 1946 he presented himself with an inflamed left eye and pannus crassus. There were signs of old healed trachoma in the right eye. Denig's operation was performed and the graft took well, but the pannus recurred within a few months. A deformity of the left upper lid was noticed in 1950, and when this was excised in 1951 it proved to be a basal carcinoma.

It may be asked whether the pannus was merely a coincidence or was caused by the friction of a slowly growing tumour.

Arkin (1926) thinks that there are two forms of pannus, one secondary to an infection of the conjunctiva, and the other secondary to a primary infection of the cornea. Be this as it may, the clinical indications for Denig's operation are that the chief lesion must be pannus crassus, and that the eye must not be much inflamed. The trachoma must be relatively inactive and the beneficial effect of the operation may be due to the deep peritomy which the performance of the operation entails, the subsequent formation of a deep scar creating a barrier.

Denig's operation is suitable only therefore for the third or fourth stage of trachoma, according to the classification of MacCallan (1936), but there is no method by which the intensity of the remaining infection can be gauged.

(2) *How is one to know whether the patient is cured?*—Spassky (1951) endeavoured to determine this by drilling (with a trephine) through the whole thickness of the upper lid (excluding the skin). If the specimen shows hyperplasia only, then the patient is cured. If inflammatory lesions are still seen, then the trachomatous process is still active. In our case the specimen shows mild inflammation, and the cure is therefore not complete.

(3) *What is the fate of the graft?*—This case shows clearly that the graft remains lip mucous membrane.

I am indebted to Mr. A. Harold Levy for his assistance in the case and for permission to publish it, and to Dr. Norman Ashton and Dr. C. H. Greer of the Institute of Ophthalmology for the histological report.

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