GIANT PAPILLARY CONJUNCTIVITS IN CONTACT LENS WEARERS

Essay

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in Ophthalmology

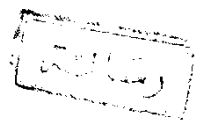
By

Hanaa Anwar Yacoub

Supervised By

Dr. Mohamed Hassan Abdel-Rehim

Professor of Ophthalmology



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CAIRO

EGYPT

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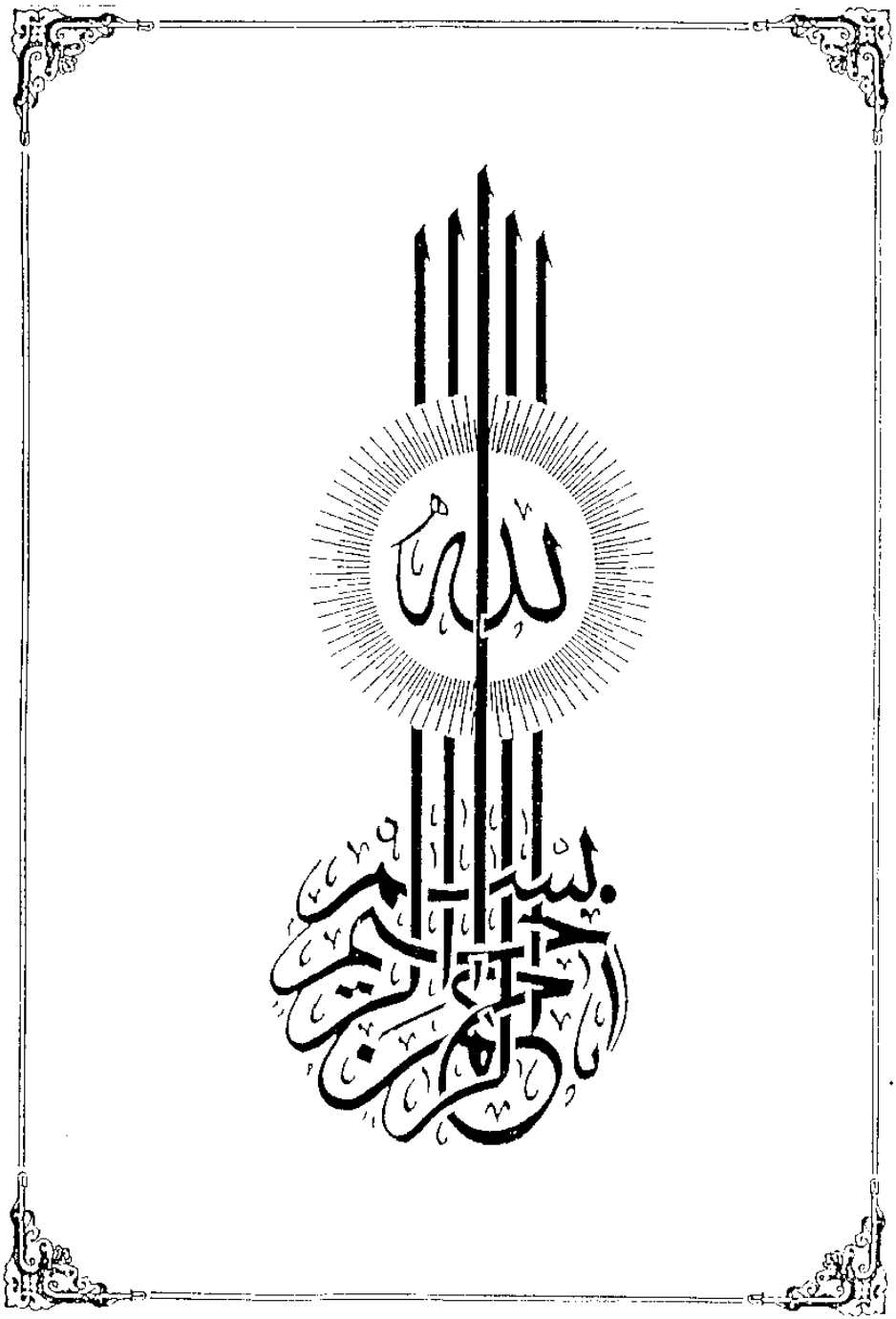
أ.د. محمد حسن الحوشي ممتحن خارجي جامعة القاهرة

أ.د. محمد عبد محمد راشد ممتحن داخلي

أ.د. محمد حسن عبد الرحيم عميد الشرقية



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INTRODUCTION

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Early contact lenses were so uncomfortable that people could wear them for only limited periods. With the advent of more comfortable lenses, wearing time was extended from hours to an entire day to several days. With longer wearing times, however came unforeseen problems of ocular itching, copious mucus discharge, hyperemia, tearing and the eruption of giant conjunctival papillae.

In 1974 Spring reported a syndrome in which lens intolerance, mucus discharge, and blurred vision associated with an inflamed tarsal conjunctiva developed after an average of 18 months of successful contact lens wear.

Subsequent studies described similar entity. However, it was not until Allansmith and Finnemore (1977) reported a detailed analysis of a series of hard and soft contact lens wearers with similar findings that the condition was named giant papillary conjunctivitis (GPC). They chose the name, giant papillary conjunctivitis for the following reasons:

Giant was used to distinguish papillae over 1 mm since smaller elevations have also by tradition been called papillae. The elevations in the upper tarsal conjunctiva were clinically papillae. Conjunctivitis was used rather than giant papillary hypertrophy to denote the symptoms and the inflammatory nature of the syndrome (Figure 1).

Additionally, GPC has been identified as a response in penetrating keratoplasty to interrupted nylon sutures with exposed ends. (Sugar and Meyer 1981).

- Allansmith et al. (1978) noted similar findings in patients with a protruding suture from a cataract wound.
- Stenson (1982) found GPC in patients with retained contact lens.
- Greiner (1988) noted giant papillae in a patient with epithelialized corneal foreign body.
- Carlson and Wilhelmus (1987) reported GPC in a patient exposed to cyanoacrylate adhesive as a line of treatment for a corneal perforation secondary to microbial keratitis.
- Srinivasan and associates (1979) have reported 7 cases of GPC associated with polymethylmethacrylate keratoprosthesis and artificial eyes.

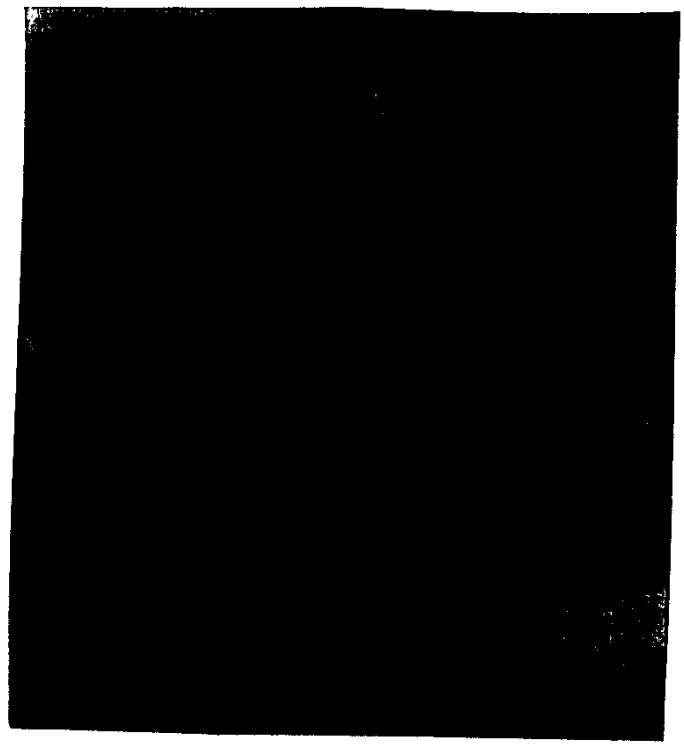

Figure 1: Giant Papillary Conjunctivitis in the upper tarsal conjunctiva associated with the wearing of a contact lens.
The CLAO Guide to Basic Science and Clinical Practice. Grune and stration, Inc. 1984
Harcourt Brace Jovanovich, Publishers.

Giant papillary conjunctivitis resembles vernal conjunctivitis, a condition of the conjunctiva long considered to be a hypersensitivity response (Allansmith et al., 1977).

CLINICAL PICTURE

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Giant papillary conjunctivitis is characterized by the appearance of abnormally large papillae (diameter greater than 0.3 mm) on the upper tarsal conjunctiva. Macropapillae (0.3 to 1.0 mm in diameter) and giant papillae (greater than 1.0 mm in diameter) are unmistakable signs of the inflammatory process associated with GPC (Figure 2 and 3).

Corneoscleral limbal form is described similar to corneoscleral limbal vernal conjunctivitis. The limbal form manifests as mucoid, gelatinous nodules and small white spots called Tranta's dots and corneoscleral limbitis have been found in individuals who wear soft contact lenses (Meisler et al., 1980).

The affected eye may develop ptosis due to its swollen state and drags the soft lens upwards so that poor and variable vision may be the first complaint (Hodd, 1981).

Clinical Classification:

For the purpose of description the conjunctival surface of the upper eye lid is divided into three areas shown in diagram (1). Zones 1, 2 and 3 are

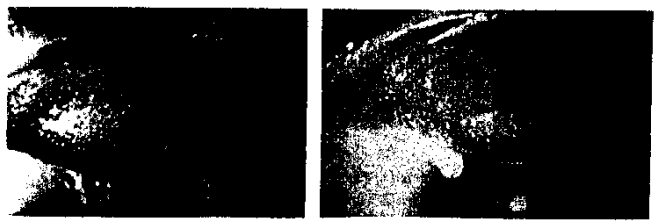

Figure 2: Papillae ranging from > 0.3 mm to < 0.5 mm. in diameter (Left) Papillae extending from nasal junctional conjunctiva to zones 1 and 2 photographed with white light and (Right) Susequently photographed with cobalt blue light after fluorescein instillation.
Korb et al., 1983.

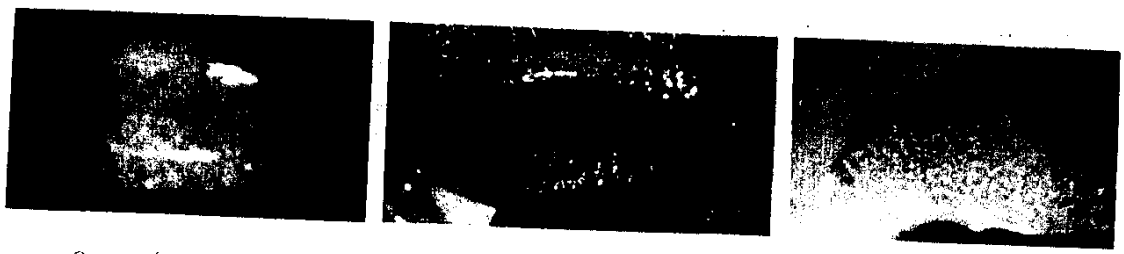

Figure 3: (Left) Papillae in all 3 zones photographed with cobalt blue light after fluorescein instillation. Papillae ranging from 0.5 mm to > 2.0 mm in diameter.
(Centre) Papillae photographed with white light.
(Right) Papillae photographed with cobalt blue light after fluorescein instillation.
Korb et al., 1983.

over the tarsal plate and are of equal size. The junctional conjunctiva adjoins but contains no tarsal plate. Papillae formed on the junctional conjnunctiva do not bear a clear relationship to the syndrome. The papillary diameter is measured with the Haag-Streit slit measuring device which has been calibrated with a micrometer. The height of the papillae is measured with a 30 gauge spring needle scored in tenth of millimeter. Giant papillae are graded on a scale ranging from 0 to 4^{+} based on the amount of mucus, erythema and the presence of fluorescein staining on the tops of the papillae.

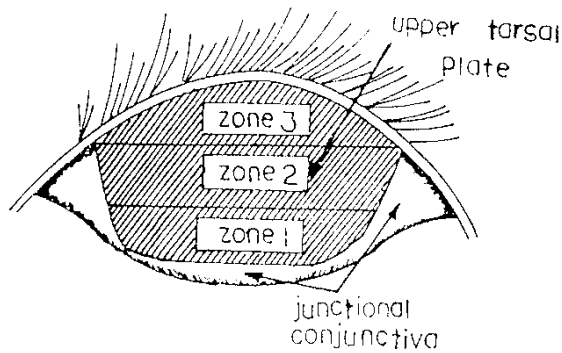

Diagram (1): Divisions of the upper tarsal conjunctiva. Allansmith et al. (1977).

The upper eye lid is everted and biomicroscopic examination of the tarsal conjunctival surface is made with white light then the light of the slit lamp is closed down to the narrowest size this is 1.0 mm. With X16 magnification 4-6 excresences should be seen. If in this 1.0 mm area 1-2 excresences only seen this means that there is macropapillae. Two drops of sterile 2% fluorescein is instilled into the lower cul-de-sac of each eye, subjects are instructed to blink completely six times to distribute the fluorescein properly on the palpebral conjunctival surfaces. The upper eye lid is then everted and the conjunctival surface is examined with 10 to 16X magnification and then in more details with 25X magnification using cobalt blue light (Figure 4). Sketch of each upper tarsal surface is made on forms. Conjunctival hyperemia is evaluated with the naked eye and is graduated on a scale of 1-3; 1 is minimal to mild, 2 is moderate and 3 is severe (Figure 5) (Allansmith et al., 1977).

Symptoms and signs:

Allansmith (1977) proved that symptoms come before signs by studying the tear films of patients with symptoms only. She found that there is already pathologic changes, and recommended starting treatment with cromolyn sodium at early stages.