SYMPATHETIC OPHTHALMITIS

THESIS

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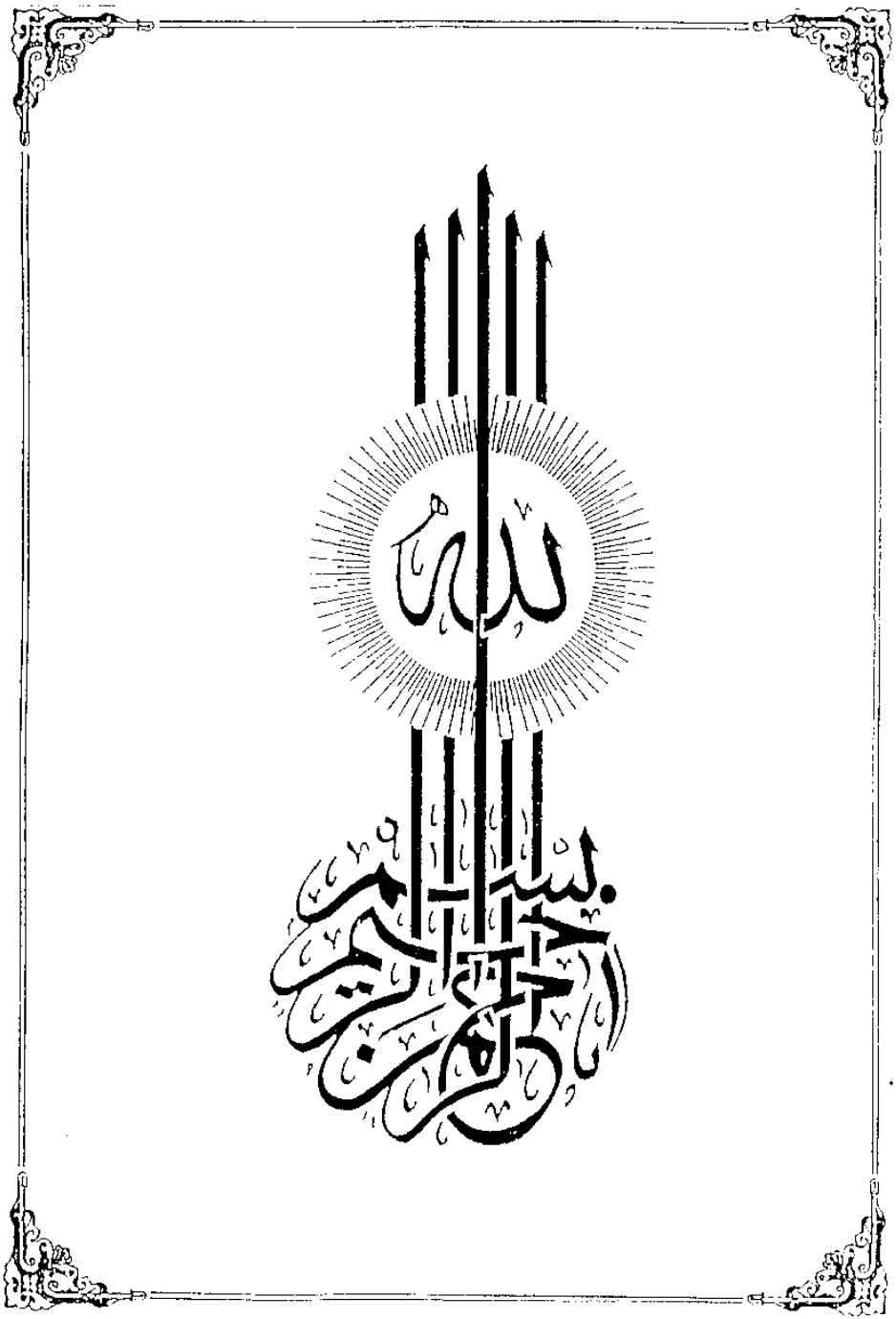

CONTENTS

INTRODUCTION

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We speak of sympathetic ophthalmitis when eye perforation of traumatic, surgical or destructive origin leads to recurrent inflammation of the anterior eye-ball involving in very rare cases the second eye after a period extending from a number of days to as much as 40 years, and progressively leading to blindness (Kraus-Mackiw et al., 1980).

The cause is not known but the two most common theories are that the disease represents an autoimmune response to uveal pigment or is caused by an, as yet, unidentified infectious agent (Duke-Elder, 1966).

The sharp reduction in the incidence of sympathetic ophthalmitis in recent years may be attributed to improvements in surgical techniques regarding the repair of penetrating ocular injuries and complications arising from intraocular surgery (Jaffe, 1981).

The aim of this work is to throw the light on this important and interesting condition, and to point out to the methods of diagnosis, prevention and management, accumulated over years by numerous observers.

REVIEW OF LITERATURE

* Definition, history, incidence
* Aetiology
* Clinical picture
* Pathology
* Diagnosis - Differential diagnosis
* Prophylaxis
* Treatment
* Prognosis

I-DEFINITION

Sympathetic ophthalmitis is a specific bilateral inflammation of the entire uveal tract of unknown oetiology, characterized clinically by an insidious onset and a progressive course with exacerbations, and pathologically by a nodular or diffuse infiltration of the uveal tract with lymphocytes and epithelioid cells, it almost invariably follows a perforating wound involving uveal tissue (Duke-Elder, 1966).

History :

The first mention of possible sympathetic ophthalmitis is in the anthology compiled by Constantius Cephalis. A.D. 1000, where in a quotation from Agathias, volume II, page 352 is this observation. "The right eye when diseased often gives its suffering to the left" (Woods, 1936).

Hippocrates knew that persons who had lost one eye from injury frequently became blind in the other eye (Rahi et al., 1978).

Ibn Sina, a thousand years ago, said : "Some physicians are accustomed to remove the iris prolapsus. But it is better not to do so, and not to touch it, for at times the other eye will become affected" (De Grosz, 1926).

Bartisch (1583), stated that in painful phthisis bulbi after injuries, the other eye is in great danger (Woods, 1936).

The possibility of involvement of an injured eye after perforation of the opposite eye was recorded in the 18th century by Duddell (1729) and Le Dran (1737). However a century elapsed before Mackenzie (1830), presented an orderly clinical description of the disease and provided the name "Sympathetic ophthalmia".

Wardrop (1818), drew attention to the fact that veterinary surgeons had been in the habit of destroying the injured eye of a horse in order to save the good one, but Prichard (1851), was the first to practise excision as a therapeutic measure.

Critchett (1863), demonstrated that enucleation was ineffective once the inflammation commenced and thus advocated prophylactic removal of the injured eye.

Fuchs (1905) first clearly described the histological changes in the injured and uninjured eyes. The subject was later extensively reviewed by Lowenstein (1945).

Incidence :

The exact incidence of sympathetic ophthalmitis is difficult to evaluate because of the rarity of the disease, the variable course, and the probable need of histopathologic verification of diagnosis (Wolken, 1974).

Because of the increased awareness of this complication and the wide usage of antibiotics and corticosteroids the incidence of typical sympathetic ophthalmitis appears to have fallen considerably (Shammas et al., 1977). The average of most early writers brought the percentage up to between 0.1% and 0.15% of clinic patients (Duke Elder, 1966).

Fewer than ten new cases of sympathetic ophthalmitis are identified each year in the United States (Aronson and Elliot, 1972). No cases were seen in 4,100 ocular injuries (Weekers, 1917; Remky et al., 1963).

Liddy and Stuart (1972) reported that the incidence was 0.19% after perforating injury and 0.007% after intraocular surgery.

Sex incidence :

Males are over twice as susceptible as females, may be because they are more exposed to accidents and industrial injuries (Woods, 1936).

In a study of 257 cases of sympathetic ophthalmitis, Winter (1955), found that the number of male patients were 176, that of females were 81, i.e. 69% and 31% respectively.

Age incidence :

Schirmer (1905), explained that the young are especially susceptible to sympathetic ophthalmitis owing to the frequency of perforating wounds among them.

The collected, proved statistics of Fuchs (1905), Verhoeff (1927) and Joy (1935); was carefully studied by Woods (1936) who concluded that : when compared with the age incidence of the general population, the presumed greater susceptibility of the young to the disease was not true.

Table 1, shows the age incidence in 136 cases collected by Woods :

Age (yrs.)	0-11	11-20	21-30	31-40	41-50	51-60	61 +
Authors							
Fuchs	4	5	6	5	3	5	5
Joy	7	3	9	3	3	7	8
Verhoeff	8	3	2	6	7	4	5
Woods	9	7	5	1	2	2	2
Total	28	18	22	15	15	18	20
Percentage	20.6	13.3	16.1	11	11	13.3	14.7
% of age in the population	21	17	17.6	14.8	12.8	8.8	8.5

In this study, Woods reported a slightly higher incidence in the early decades, when traumatism was more common, and in the later decades, when operative insult to the uvea of the exciting eye was the most frequent cause.

Race incidence :

In his study on 257 cases of sympathetic ophthalmitis, Winter (1955), found an incidence of 11% occurring in Negroes; which is the same incidence of Negroes to white population.

Sorsby (1972), stated that Negroes are rarely affected. Bartholomew (1976), however, had the impression that the disease was not uncommon in Negroes, and that its apparent rarity in Africans may be due to defective diagnosis than to any real difference in incidence.

Geographical incidence :

Sympathetic ophthalmitis is rare in Australian Aborigins; New Guinea; Northern Rhodesia; Southern Rhodesia, Nigeria, Nyasaland (Bartholomew, 1976 and Evans, 1963). It is more common in the south-west Pacific (Duke-Elder, 1966). The condition is reported to be rare in arid climates (Sorsby, 1972 and Lister, 1926).

According to El-Naggar and Abou-Shousha (1968), in the Egyptian literature, little was mentioned about sympathetic ophthalmitis during the last 30 years. The majority of ophthalmic surgeons in Egypt consider that sympathetic ophthalmitis is an academic curiosity and is not a practical and a clinical incident, a rather doubtful consideration.

II- AETIOLOGY

Predisposing Causes :

Sympathetic ophthalmitis practically always follows ocular injuries with prolapse of iris and ciliary body (Hogan and Zimmerman, 1962).

Perforating wounds account for about 65% of cases in the literature (Jaffe, 1981), surgical wounds for 25% (Wolken, 1974).

In a recent study of 53 cases of sympathetic ophthalmitis by Gass, in 1982, the summary of the initial perforating wounds was as seen in table 2.

Wounds	N° of cases.
- Accidental injury	29
- Non accidental injury	
. cataract extraction	10
. filtering operation	3
. scleral buckle alone	3
. vitrectomy lensectomy and scleral buckle.	2
. vitrectomy and lensectomy	1
. combined cataract extraction and filtering operation	1
. not stated	4

Table 2 : Summary of initial penetrating ocular wounds in 53 eyes with sympathetic ophthalmitis (Gass, 1982).

In another study of 257 histologically proved cases gathered by Winter, in 1955, from the files of the American Registry of pathology, Armed forces Institute of Pathology, and the Wilmer institute. Traumatic wounds accounted for 54% of cases, and 43% were associated with operative wounds.

Roper-Hall, 1962, reported that sympathetic ophthalmitis in more frequent after planned surgery than after industrial accidents.

The remaining 10% is made up of cases which follow : perforation of corneal ulcer (Joy, 1935; Woods, 1936 and Winter, 1955); subconjunctival rupture of the sclera (Joy, 1935; Woods, 1936); contusion without rupture of the globe; intraocular malignant melanoma (Easom, 1963) and iridocyclitis (Duke Elder, 1966). However much controversy has centered around these last three listed causes; the presence of a perforation or a spontaneous extraocular communication has been shown in many of these cases (Easom, 1963).

A- **Perforating Wounds :**

Sympathetic ophthalmitis is estimated to occur in approximately two of 1.000 eyes after accidental perforation (Liddy and Stuart, 1972).