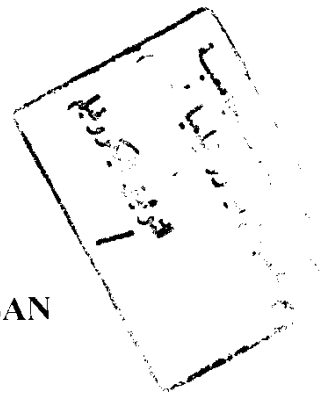
BELL'S PALSY

An essay

Submitted for partial fulfillment of

the Master degree in

Otorhinolaryngology



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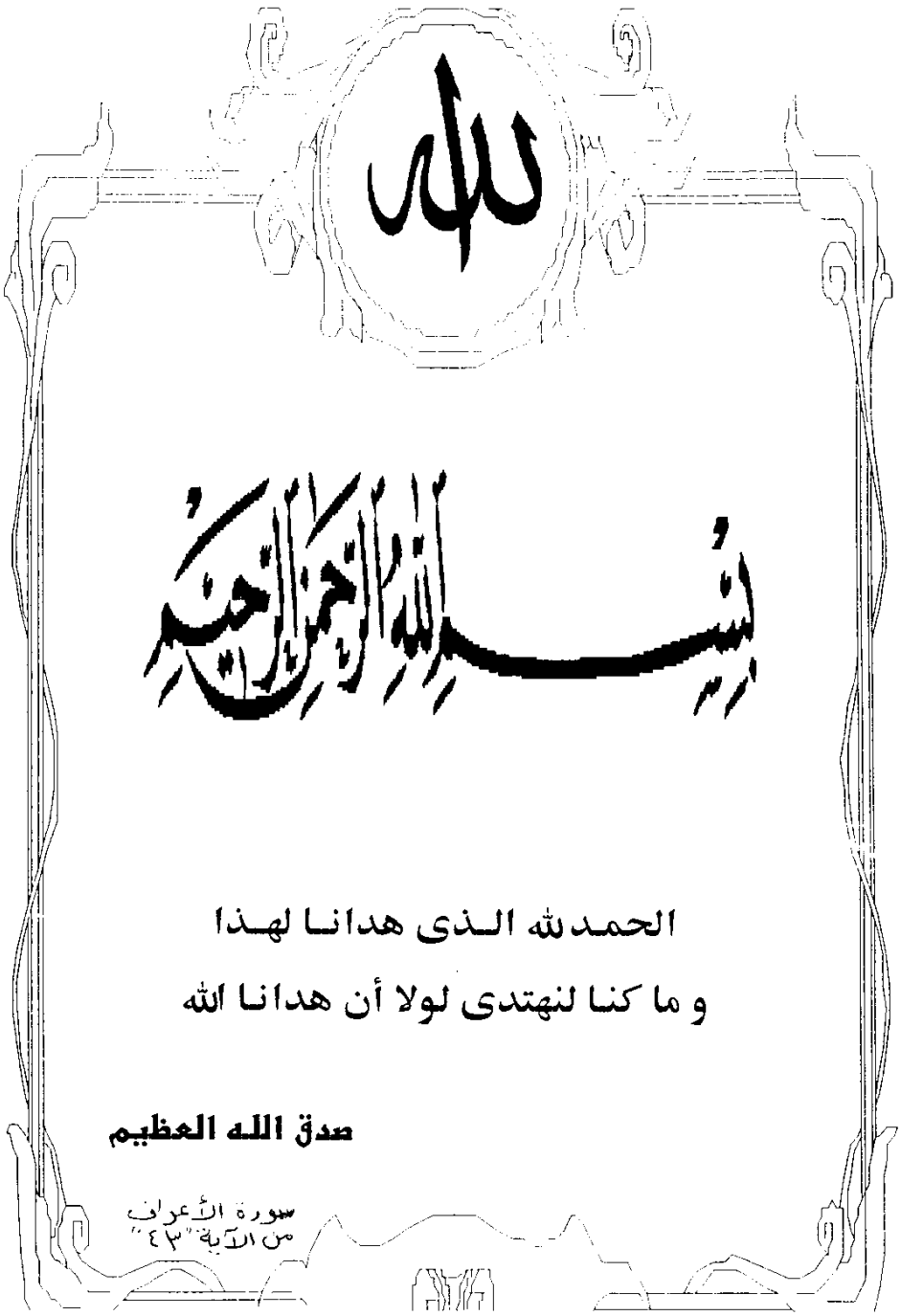

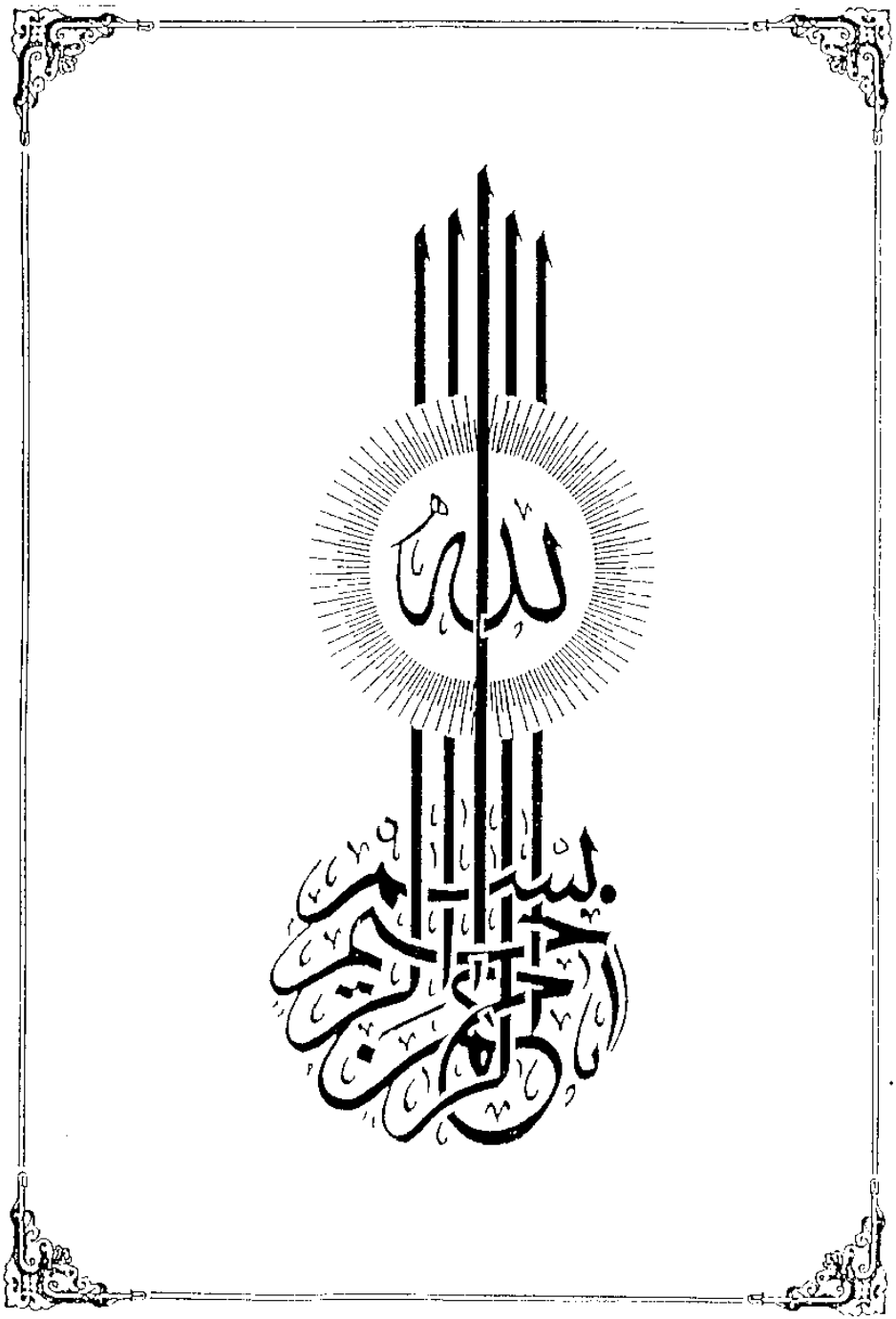

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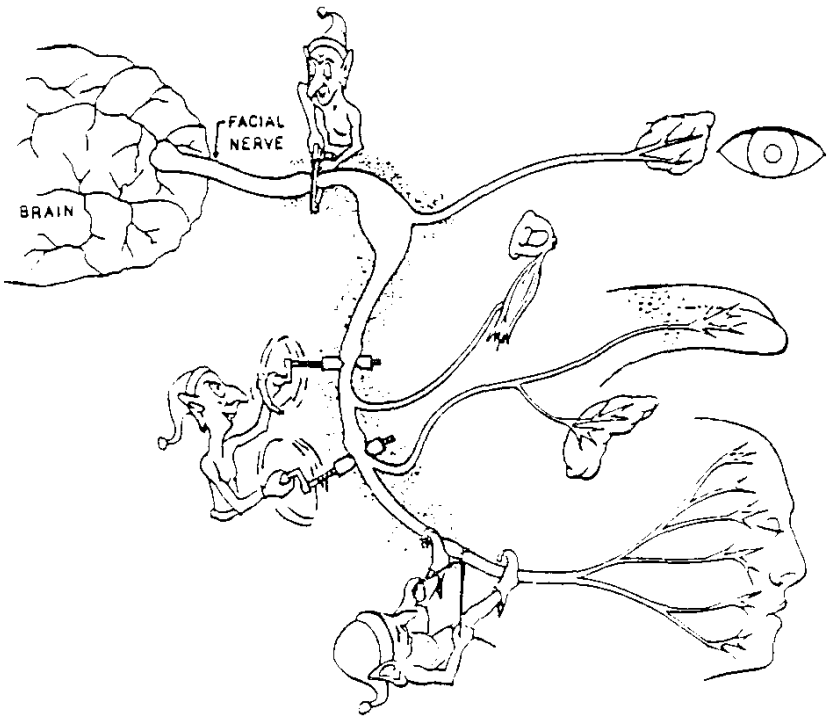
Fayek . M.



" To decompress or not to decompress, that is the question "

(Marsh and Coker, 1991)

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INTRODUCTION AND AIM OF THE ESSAY

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Bell's palsy is a continuously vivid area for research, with continuous new ideas, theories and trends for management.

In fact, Bell's palsy is still a problem facing otologists all over the world because of the fact that the exact site and pathology of the lesion is not clearly determined and its management is still controversial ***(Mattox, 1991).***

Therefore, updating of this disease is extremely necessary for the proper understanding, diagnosis and management.

The aim of this study is to discuss the following items:

1- **The anatomy of the facial nerve:**

The course of the facial nerve from its origin in the human brain stem to its end fibres in the muscles of the face, will be reviewed in detail.

The surgical landmarks which are used to lead the surgeon safely to the facial nerve will also be discussed.

2- **Pathology of Bell's palsy:**

There are many theories and ideas regarding the pathology and pathogenesis of Bell's palsy.

Nowadays, there are evidences that verify the hypothesis that the disease results from a viral geniculate ganglionitis ***(Adour, 1991).***

3- Clinical picture of Bell's palsy:

The clinical picture of Bell's palsy and related conditions will be reviewed, the focus will be on the differentiation of other causes of acute facial palsy from Bell's palsy.

4- Management of Bell's palsy:

A) Proper diagnosis:

The diagnosis no longer needs to be one of exclusion, we now are capable of establishing a positive diagnosis ***(Adour, 1991).***

B) Medical treatment:

The different treatment philosophies will be discussed. with focus on corticosteroids and antiviral therapy.

C) Surgical treatment: Disregarding the numerous theoretic causes, many evidences show that, entrapment of the nerve occurs at the meatal foramen of the fallopian canal resulting in ischemia and degeneration ***(Marsh; Cocker, 1991).***

This essay will review the various ideas regarding the benefits of facial nerve decompression.

D) Rehabilitation of the paralyzed face:

A wide range of surgical techniques exist for establishing partial rehabilitation of facial expression and motion. These techniques will be reviewed as well.

EMBRYOLOGY OF THE FACIAL NERVE

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Embryologic studies of the facial nerve help to determine the aberrant course that the facial nerve may take in patients who have congenital anomalies.

Knowledge of the embrylogy helps to understand these anomalies which can be found in any patient during otologic surgery ***(Sataloff, 1990).***

The facial nerve develops within the second pharyngeal arch during the time that the adjacent derivatives of the first arch, first pharyngeal cleft and first pharyngeal pouch are forming the external and middle ear regions.

Therefore, anomalies of the facial nerve within the temporal bone should be anticipated whenever there is an associated malformation of the external or middle ear.

For example, if the stapes or the incus is deformed the surgeon should be on guard for a possibly misplaced or exposed facial nerve ***(May, 1987).***

The development of the facial nerve can be studied in two parallel lines, the facial nerve itself and the facial canal.

Development of the facial nerve:

Early in the intrauterine life, the facial nerve starts its development by collection of neural crest cells which can be identified by the end of the third week of gestation.

Two weeks later, the facial motor nucleus appears, and by that time the chorda tympani nerve and the greater superficial petrosal nerve are identifiable.

The geniculate ganglion appears during the seventh week, the nerve to stapedius and the extracranial branches of the facial nerve appear during the eighth week.

Finally, by the end of the eighth week, all the rest of the terminal branches of the facial nerve develops ***(May, 1987).***

Development of the facial canal:

The labyrinthine portion of the facial canal is formed by the cartilagenous otic capsule which starts ossification during the sixteenth week.

By that time, the facial nerve lies in a shallow sulcus on the lateral "Tympanic" aspect of the otic capsule. This sulcus is the primordium of the facial canal. The nerve is then enclosed by the growth of the capsule, creating the facial canal ***(Wright, 1987).***

In close observation, the first portion of the canal is completed in the human fetus of eighteen weeks of age by the completion of the bony internal auditory meatus ***(Richany, 1972).***

The second portion of the facial canal is completed in the human fetus of thirty five weeks of age by the growth of the otic capsule ***(Bast et al., 1956).***

The third portion (the mastoid portion) starts development one year after birth. By that time the mstoid part of the temporal bone is flat and the stylomastoid foramen with the facial nerve lies on the external surface behind the tympanic bone **(Fig.1)**.

With the development of air cells in the mastoid, its lateral portion grows downwards and forwards, so that the stylomastoid foramen is carried on to the undersurface of the bone and the facial nerve canal is elongated ***(Wright, 1987).***