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THE E.N.T. SURGEON'S LOOK AT THE ORBIT

A THESIS

**Submitted for Partial Fulfilment of
Master Degree in Oto-Rhino-Laryngology**

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ERRATA

<u>Page</u>	<u>Line</u>	<u>Mistake</u>	<u>Correction</u>
1	6	exopohthalmos	exophthalmos
61	8	the bone	the frontal bone
226	18	contains	containing
249	25	alteration size	alteration of size
291	15	cephaloceles,	encephaloceles

INTRODUCTION

There is an intimate relationship between the orbit and ENT field and therefore due to this close anatomical relation, pathological lesions of the paranasal sinuses may present through orbital manifestation and vice versa. Sometimes the patient presenting with proptosis seeks medical advise of ophthalmologist whereas the actual pathology lies within the domain of the rhinologist. So the study of the relationship between the orbit and the nose and paranasal sinuses is of considerable importance.

In this work we shall throw light upon the subject of proptosis in general but the detailed discussion will be stressed upon diseases of the nose and paranasal sinuses which might affect the eye and causing proptosis.

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Chapter 1

Introduction

Terminology

Proptosis

Terminology:-

Proptosis and Exophthalmos :- both these terms are used interchangeably, but the term of proptosis will be used in our essay for all conditions except endocrinal causes, in which we shall use instead of it the term exophthalmos.

1- From the anatomical point of view :-

The term proptosis means literally " protrusion" , so it is a forward displacement of the globe in relation to the skull, measured from the apex of the cornea to the most prominent bony point on the outer orbital margin while the eye looks straight ahead.

The normal measurement varies from 10-20 mm. (Duke-Elder, 1974) , measurement in excess of this or less denote some degree of proptosis or enophthalmos. Wright et al., (1970) considered that an absolute reading in excess of 21 mm indicates proptosis; while a reading less than 12 mm indicates enophthalmos.

The term exophthalmos literally means " out eyes" condition . It will be used to refer to conditions that are usually fairly symmetrical and that are often associated with metabolic dysfunction e.g. in endocrinal diseases, particularly in thyrotoxicosis (thyrotoxic exophthalmos), (Dyken and Miller, 1980).

Walsh and Hoyt (1969) mentioned that, the terms (proptosis) and (exophthalmos) are considered synonymous by many clinicians; however, some prefer the former as applied to protrusion forward of the eye as a result of mass in the orbit or in the surrounding structures, and the latter to what occurs in some cases of hyper thyroidism.

Morgan and Mason (1958) mentioned that , " proptosis" indicates a passive protrusion of the globe from the socket, whereas exophthalmos indicates an active or dynamic process as well as the condition found in Graves' disease (Quoted by Duke-Elder, 1974).

2- From the pathological point of view:

Proptosis is not a disease but the presenting feature of various underlying conditions. It refers to the forward movement of the globe of the eye in relation to the skull and results from raised intra-orbital pressure in most cases, in others, the pressure may be normal and proptosis is due to the paretic flaccidity of ocular muscles as in ocular myasthenia and myopathy.

3- From the physiological point of view :

A physiological proptosis exists in infants owing to the fact that the orbital cavities do not attain their full size as rapidly as the eyes which, like the brain have a precocious development : in the foetus the eyes fill their sockets and protrude from it as in fish.

Pseudoproptosis - Pseudo Exophthalmos- Apparent type

Duke-Elder (1974) mentioned that, there are conditions which appear clinically as if the eye ball is proptosed, but really no displacement occurs. This is confirmed by measurement, this occurs in the following conditions :

- i- If the globe is enlarged e.g. staphyloma and high myopia.
- ii- Owing to muscular action, applying particularly to the upper lid as a result of its sympathetic stimulation e.g. in Graves disease.
- iii- Lower lid sags e.g. facial palsy.

Chapter 11

ANATOMY OF THE ORBIT

Important Anatomical Considerations.

1- Anatomy of the Bony orbit and its relations

- * Descriptions and contents of the bony orbit
- * Margins
 - a) Supra orbital margin
 - b) Lateral margin
 - c) Infra orbital margin
 - d) Medial margin
- * Walls
 - a) Medial wall
 - b) Lateral wall
 - c) Inferior wall (Floor)
 - d) Superior wall (Roof)
- * Communications of the orbit
- * Some points of practical anatomical importance
 - Septum orbital and palpebral fascia
 - Nasolacrimal duct
 - Surgical spaces of the orbit

2- Relations of the paranasal sinuses to the orbit.

ANATOMY OF THE ORBIT

The orbits are 2 recesses situated on either side of the root of the nose. Each orbit has the shape of a 4 sided pyramid laid on one of its sides. The base is directed anteriorly and corresponds to the orbital opening whereas the apex is directed posteriorly and corresponds to the optic foramen or to the medial end of the superior orbital fissure or to the root of the lesser wing of sphenoid which separates the optic foramen from the superior orbital fissure. The 4 sides of the pyramid are : the roof, the floor, the medial and lateral walls. (Fig. 1)

The orbital axis is directed forwards, laterally and slightly downwards. The medial walls are almost parallel to each other while the lateral walls make an angle of about 90 degrees with each other whereas the angle between the lateral and medial walls of each orbit is about 45° . (Duke elder and Mc Faul 1974).

The orbital opening (i.e margin) : The margin of the orbit is readily palpable in vivo. It is formed chiefly by 3 bones (frontal, zygomatic and maxilla) separated by 3 sutures. For descriptive purpose the margin may be subdivided into 4 continuous parts supra orbital, lateral, infra orbital and medial. Each of which is frequently referred to individually as a margin.

a) Supra orbital margin: It is formed entirely by the frontal bone. At the junction of its sharp lateral 2/3 and rounded medial 1/3 it presents the palpable supraorbital notch "or foramen" which transmits the supra orbital nerve and vessels to the forehead.

b) Lateral margin: It is formed almost entirely by the frontal process of the zygomatic bone but it is completed above by the zygomatic process of the frontal bone. A small orbital tubercle is situated just within the orbital

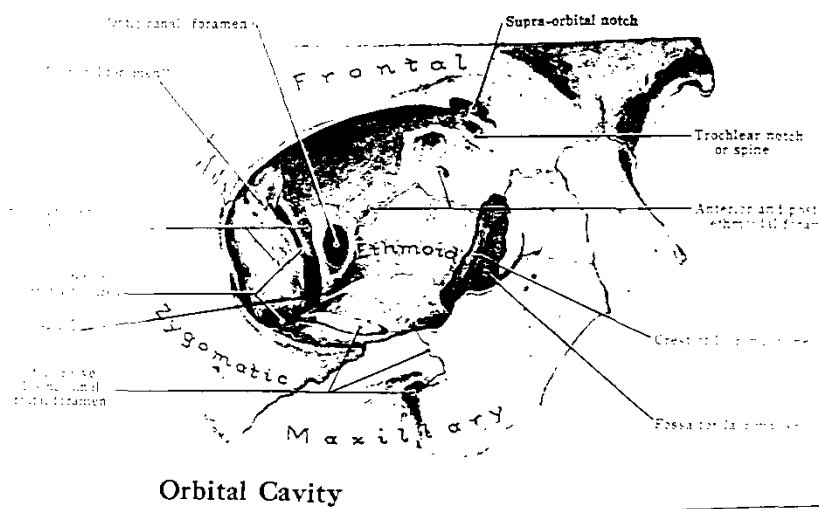


Fig. [1] Orbital Cavity