SECRETORY IMMUNOGLOBULIN A IN ATOPIC VERSUS VASOMOTOR RHINORRHOEA

THESIS

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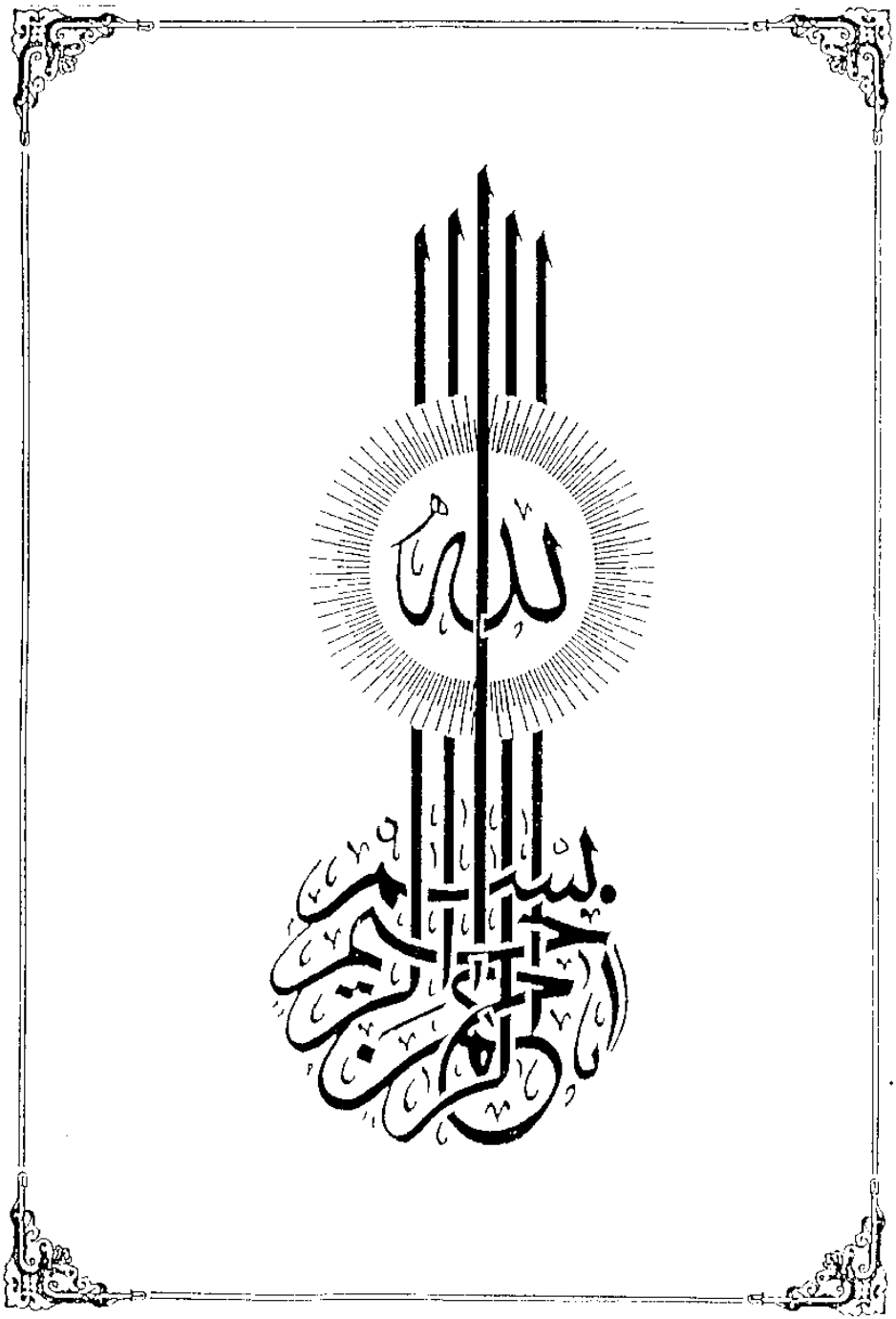

C O N T E N T S

INTRODUCTION AND AIM OF WORK

Nasal allergy is a common disease met with in Egypt. It is considered as one of the frequent causes of sneezing, rhinorrhoea and nasal obstruction. It is classified into specific and nonspecific allergic rhinorrhoea. In this work the eosinophilic count in nasal secretion will be taken as the differentiating point between cases of the two diseases.

In recent years the role of the secretory immunoglobulin system has recieved increasing attention and, at the present time, its importance in systemic host defence mechanisms cannot be overemphasized. In all the cited research, antibodies were of the IgA class. Of major importance is the evidence of local synthesis of nasal SIgA and the consequent independence of the local immunity pattern from the systemic one.

AIM OF WORK:

This research was done to prove the relationship between nasal SIgA level in both diseases and it was also directed to found the immunological status of secretory immune system in both diseases.

ANATOMY OF THE NASAL CAVITY

The nasal cavity, as a whole is divided by the midline nasal septum into right and left nasal cavities.

Each cavity has a medial wall formed by the nasal septum, a lateral wall, a roof, a floor, and it extends from the nares "nostrils" anteriorly to the posterior nasal aperture or choanae posteriorly where it communicates with the nasopharynx.

Nasal Septum:

It is formed of:

1 - Perpendicular plate of the ethmoid above and posteriorly.

2 - Vomer bone below and behind.

3 - Septal cartilage antero-inferiorly.

These articulate with other bones which contribute in a minor way to the formation of the septum.

They are:

(a) Anterior nasal spines of maxillae.

(b) Nasal crests of maxillary and palatine bones.

(c) Rostrum and crests of spheroid bone.

(d) Nasal spine of frontal bone.

(e) Crests of nasal bones.

The septum is often deflected at the vemero-ethmoid suture, causing disparity in the size of the two nasal cavities.

Immediately above the nostril, the septum shows a slight depression. That portion of the septum is the medial wall of the vestibule of the nose, and is clothed with skin from which a number of stiff hairs, termed vibrissae - project into the cavity.

The rest of the septum is covered with mucous membrane which is closely adherent to the subjacent periosteum and perichondrium and it is separable into two districts, a lower or respiratory portion, and a much smaller upper or olfactory area in which branches of the olfactory nerve spread out.

The Roof:

The anterior part of the roof is formed by the nasal part of the frontal bone, the nasal bone, and by the lateral cartilage of the nose and the septal cartilage where

1 - The vestibule of the nose:

Is the part immediately above the nostril.

It is bounded laterally by the ala of the nose and the lateral nasal cartilages.

The vestibule can be furtner subdivided into a lower part lined with skin and containing sebaceous glands and long strong hairs, the vibrissae, and an upper part, also lined by skin, but which is smooth.

2 - The atrium of the nose:

Is above and slightly behind the vestibule.

It is marked by a depresssion on the lateral wall anterior to the upper end of the middle turbinate.

The atrium is defined above by a ridge of mucous membrane, the agger nasi, which runs from the upper end of the middle turbinate above the atrium and then downwards towards the vestibule and it may contain "agger cells".

3 - The region of the Nasal Conchae and Meatuses:

Behind the vestibule and the atrium there is the region of the conchae and the meatuses.

On the lateral wall of the middle meatus there is a deep curved groove which begins at the infundibulum and runs from above downwards and backwards.

The groove is termed the hiatus semilunaris, and in it there are the opening of the maxillary sinus and anterior ethmoidal sinuses. The upper boundary of the hiatus semilunaris is the bulla ethmoidalis.

On or above the bulla there is the aperature of the middle ethmoidal sinuses.

(c) Inferior Nasal Concha and Inferior meatus:

The inferior nasal concha :

Is an independent bone and it extends from the body of the maxilla to the ethmoid crest on the perpendicular plate of the palatine.

The Inferior Meatus:

Lies beneath and lateral to the inferior concha. The nasolacrimal duct opens in the inferior meatus usually in the anterior portion.

(d) Spheno - Ethmoidal Recess:

Lies above the superior turbinate and receives the ostium of the sphenoidal sinus.

A fibro-elastic basement membrane separates the epithelium from the underlying fibro-connetive tissue, the lamina propria, in which are both mucous and serous glands, the glands provide a proper medium for the contineous action of cillia in sweeping the air-borne particles deposited on its surface towards posterior naris and the nasopharynx.

The deepest layer of the lamina propria blends into, and is continuous with, the periosteum or perichondrium of bone or cartilage in the wall of the nasal cavity.

The lamina propria contains both collagenous and elastic fibres, and fibroblasts, macrophage, lymphocytes, plasma cells, and granular leucocytes. Mast cells are seen up to 2 or 3 per a high power field (El-Mofty et al., 1969). Small collections of lymphatic tissue are characteristic, especially posteriorly near the nasopharynx.

The ciliated nasal mucosa extends backwards into nasopharynx to become replaced by stratified squamous epithelium in the lower half of nasopharynx. It also extends into the sinuses, through, their ostia, and is thinner there, it is also continuous with the epithelium of the nasolacrimal duct and eustachian tube.

3 - The olfactory Region:

This membrane lines the upper third of the nasal septum, the roof of the nose, and the lateral wall, above and including the superior turbinate.

The olfactory epithelium is of non-ciliated pseudo-stratified columnar, lacks goblet cells, and yellowish in colour but it contain the serous glands of Bowman.

The cribriform plate of the ethmoid bone forms the roof of the nose through which the olfactory neurons goes directly to the brain.

THA NASAL BLOOD SUPPLY

The nasal cavity derives its blood supply from several sources.

Both the internal and external carotid arteries share in supplying the nose.

The anterior and posterior ethmoidal branches of the ophthalmic artery supply the antero-superior part of the nasal cavity. The rest of the nasal cavity is supplied by branches from the maxillary artery.

The venous drainage is by means by veins following the arteries.

Swendle (1935, 1937) and more recently, Dawes and Prichard (1953) have described the detailed architecture of the nasal vascular bed.

The arrangement of the blood vessels in the mucous membrane of the nose is said to be consists of a superficial venous plexus and a deeper arteriolar system, arranged parallel to the long axis of the nose.