Anatomical Variations of the Human Nasal Osteomeatal Complex, Studied by CT

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ABSTRACT

Background: Precise information of the anatomical variants of the osteomeatal complex is critical for clinicians, especially with the advent of functional endoscopic sinus surgery. This study aimed to determine the incidence and morphology of these variations in adult Saudi patients, using computed tomography (CT).

Methods: The anatomical variations of the osteomeatal complex were studied in one hundred adult Saudi patients with clinical suspicion of sinusitis, using oblique CT scan. They were explored in the radio-diagnostic department of Al-Majma'ah, King Khalid Hospital, K.S.A.

Results: There was a great number of variations in the anatomy of studied part of the nasal region. Deviated nasal septum was the most common type of variations (78%), followed by pneumatized middle concha (38%). These variations were frequently accompanied with reduction of the osteomeatal complex.

Conclusions: Oblique CT scan is a good method to evaluate the osteomeatal complex. This region shows a wide prevalence of anatomical variations. Determination of these variations aids in providing a better surgical orientation and avoiding or minimizing the possible complications.

Key Words: Osteomeatal complex, Computed tomography, Anatomical variations.

INTRODUCTION

Osteomeatal complex is a term, referring to the maxillary sinus ostium, ethmoidal infundibulum, hiatus semilunaris and frontal recess. It comprises the region of the middle meatus with the anterior air cells. It represents the final common pathway for drainage of the frontal, maxillary and anterior ethmoidal sinuses. A patent osteomeatal complex is essential for the improvement of patients with sinus disease.

An accurate knowledge of the anatomy of this region is essential in order to understand the pathophysiology of diseases affecting sinuses and their subsequent management. Moreover, the revolutionary changes in the surgical treatment of sinusitis in the recent years, particularly in nasal endoscopic surgery, require the clinicians to have precise information of the large numbers of the anatomical variants of this region, many of which are