

ROLE OF C . T . , MRI IN DIAGNOSIS OF MALIGNANT NEOPLASMS OF PARANASAL SINUSES .

Essay

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Dedication

I would like to dedicate this study to my beloved family, especially my sister *Enas* and my fiance *Mohamed*.



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INTRODUCTION AND AIM OF WORK

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The imaging modalities for paranasal sinuses starting from plain radiographs as first line ending by recent techniques as computed tomography and magnetic resonance play a vital role in mapping out the extent of the diseases affecting paranasal sinuses.

Since the clinician can visualize only small portion of nasal cavity , the important role of radiologist take place in diagnosis and follow up of most of the diseases which affect the paranasal sinuses(Mormolya et al., 1991).

C.T provide a valuable information which is helpful in diagnosis , extent, operability, the surgical procedure to be used, follow up of post operative patient suffering from paranasal sinuses diseases (Bilanink L.T and Zimmerman R.A, 1982) .

M.R.I provide total coverage of the head and neck so it allow identification of paranasal sinuses lesion as well as any associated lesion

away from the primary site in the paranasal sinuses which is very important in treatment planning .(Lloyd Glyn, 1988).

The aim of work is to emphasize the role of C.T, M.R.I in diagnosis of malignant neoplasms of paranasal sinuses.

***ANATOMY OF THE PARANASAL
SINUSES***

ANATOMY OF THE PARANASAL SINUSES

Developmental anatomy

Normal development

The paranasal sinuses arise during late fetal life and early infancy as evagination of nasal mucosa which extend into the surrounding bony structure . They grow rapidly from about the age of 7 years until after puberty .

Development begins with the maxillary, followed by the ethmoid, sphenoid and frontal sinus in the direction of facial growth . The maxillary and ethmoid sinus are rudimentary at birth while the other sinuses are absent (Towbin and Dunbar, 1982).

1. Maxillary sinuses :

The maxillary antrum is the first to developed by the age of 2 years the outer wall of the antrum has extended laterally as far as the infraorbital foramen . By 8-10 years aeration is complete .(Lloyd Glyn , 1988).

They are diminutive during the post natal period measuring an average 3.3 mm vertically, 8.2 mm anteroposteriorly and 2.7 mm in transverse extent (Bassiouny et al., 1982).

The maxillary sinuses evolve rapidly during childhood when extensive pneumatization takes place at an approximate growth rate of 2 mm vertically and 3 mm anteroposteriorly each year. Enlargement progresses superiorly towards the orbit. Flattening the initially inferiorly convex orbital floor, medially towards the nasal cavity, laterally into the zygomatic process and inferiorly into the alveolar process, even when fully developed at age of 8-10 years.

The maxillary sinuses continue to enlarge until the end of puberty when facial growth ceases. In adult life, they are larger than the other paranasal sinuses measuring about 33 X 34 X 23 mm and containing nearly 15 ml of air. (Som et al., 1984).

2. Ethmoid sinuses :

They are partially developed at birth, but not completely aerated. Lack of aeration is thought to be secondary to redundancy of the mucous

membranes, a finding considered physiologic up to the age of 6 years (Towbin and Dunber, 1982).

The neonatal ethmoidal air cells continue to inflate until late childhood when several large air cell may be present on each side. Some of the anterior ethmoid air cells may extend upward and laterally to pneumatise the horizontal plates of the frontal bone (Newton et al., 1988).

3.Sphenoid sinuses :

They are absent at birth and do not extend below the planum sphenoidale until the age of 2-3 years. pneunatisation of sphenoid body may become apparant as early as 6 months of age and is present in the majority of children by 8-10 years of age. (Fujioka and Young, 1978).

4. Frontal sinuses :

The frontal sinuses can seldom be demonstrated radiographically until they have extended into the vertical portion of the frontal bone a process which varies considerably in its timing but which seldom occurs to any degree before the age of 2 years (Lloyd Glyn,1988).