

The Hypoplastic Maxillary Antrum: A Pitfall For The Unwary

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Abstract

A case is reported of a Hypoplastic Maxillary Sinus which was mistaken for Chronic Maxillary Sinusitis because of the plain X-ray appearance. The correct Diagnosis was subsequently arrived at following a Computerized Tomography Scan. We report this case to alert surgeons and Radiologists, especially in developing countries, who due to the prohibitive costs of Computerized Tomography scans, rely on plain X-rays for diagnosis, to affirm the superiority of the CT scan over the plain X-ray in investigating sinus disease and also to make a case for the use of the CT scan whenever possible in the management of sinus disease.

INTRODUCTION

In the land of the blind, the one-eyed man is King. So goes an ancient Nigeria (Yoruba) proverb. This is definitely the case with the use of plain sinus films in the diagnosis of sinus disease in most places in Africa. Due to the forbidding cost of Computerized Tomography Scans, Otorhinolaryngologists and Radiologists still rely heavily on plain sinus films. For reasons of cost effectiveness, in most places, CT Scans are not routinely used in investigating sinus disease unless malignancy or other forms of invasive disease (e.g. chronic granulomatous diseases) are suspected.

Surgeons and Radiologists who live in parts of the world where the above scenario often is the case need to be wary in interpreting their plain X-rays. They need to keep in mind certain conditions, for example, Congenital abnormalities, the appearance of which may mimic that of sinus disease. The case report below illustrates this point.

CASE PRESENTATION

A 23 year old male undergraduate presented with a history of longstanding intermittent nasal obstruction and associated with clear mucoid anterior Rhinorrhoea and nasal speech. All the symptoms had been present on and off since childhood. The nasal obstruction as well as clear mucoid anterior rhinorrhoea was usually provoked by exposure to drafts, cold ambient temperature and the symptoms appeared to be worse during the dry or harmattan season. There was associated occasional itchy throat and eyes. He had headaches from time to time but did not have fever. Examination revealed engorged inferior turbinates and

scanty mucoid discharge bilaterally. Otherwise physical examination was essentially normal. Nasal smear cytology yielded eosinophilic smears bilaterally, suggestive of allergy.

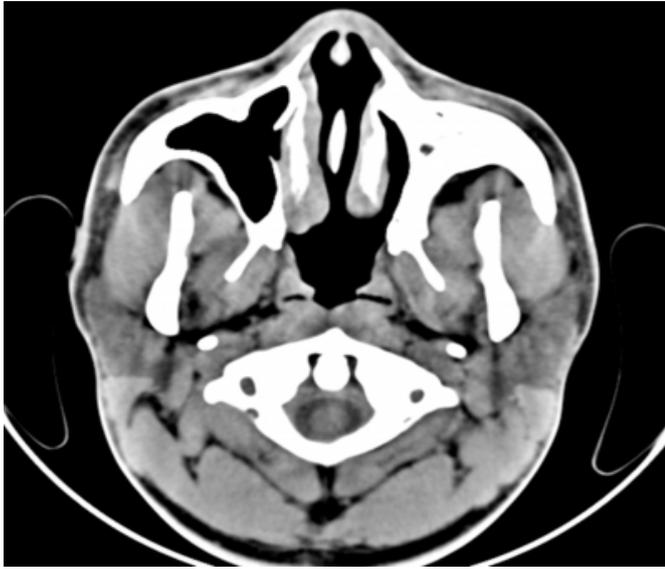
Plain X-rays were ordered and the films showed a complete opacity of the left maxillary antrum and thickened mucosa on the right antrum.

An impression of Allergic rhinosinusitis with secondary left chronic maxillary rhinosinusitis was made. He was worked up and booked for a Left Intranasal Antrostomy.

At surgery however, the left antrum could not be located. This raised the suspicion of the possibility of a hypoplastic or aplastic antrum. Post operatively when the patient was stable he was taken in for a CT of the paranasal sinuses which confirmed the impression of a hypo-pneumatized left antrum (see fig. 1). The right antrum was well developed though the mucosa was thickened.

Figure 1

Figure 1: Showing the hypoplastic right maxillary antrum. Note the almost invisible area of pneumatisation



The patient after full recovery was counseled on allergen avoidance was placed on a long acting non sedative antihistamine (Loratadine) from which he was moved to tropical Nasal steroids. He was followed up regularly and two year post CT scan and post operatively he is off the Nasal steroids and is doing well with allergen avoidance and occasional Loratadine.

DISCUSSION

The maxillary sinus, the first paranasal sinus to appear, develops from an outgrowth in the lateral wall of the ethmoid area of the nasal capsule in the third month of fetal life(1). This outgrowth enlarges slowly throughout fetal life and by birth though fluid-filled, the sinus is approximately 6 - 8ml(2). The adult size of about 15ml within the body of the maxilla is achieved in the late teens(3) with average dimensions of about 34mm x 33mm x 25mm.(4) There are however a number of variations involving the maxillary sinus. Approximately 50% have incomplete Septi. True duplication occurs in approximately 2.5% anatomic studies Accessory ostia occur in 20 -25% of adults and about 15% in children (4). Generally, the maxillary sinuses are mainly

symmetrical and although true aplasia can occur, it is extremely rare (1). Hypoplasia is also rare and the prevalence has been variously cited as approximately 6 %(5) and 1-5%(6).

Unfortunately, because of the rarity of both hypoplasia and aplasia many clinicians have never come across it and so the index of suspicion is low. Consequently, especially where diagnostic facilities are limited, the stage is set for missing the diagnosis.

This case report serves as a reminder to every Radiologist and Surgeon who relies on plain films for diagnosis in benign sinus disease especially in the developing world, of the differential of a hypoplastic antrum. This should be kept in mind especially as we do not have figures for the prevalence in our environment.

The case for vigilance is further strengthened when one considers the issue of the so called chronic maxillary sinus atelectasia, as an acquired and progressive variant of maxillary sinus hypoplasia in adults which will also appear as an opacity on plain Xray(6).

Proper management of this entity is dependent on accurate diagnosis.

Finally this case study also reinforces the superiority of the CT scan over the Plain Xray and also makes a case for the use of the CT scan whenever possible..

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