

## A RETROSPECTIVE ANALYSIS OF FACIAL FRACTURE ETIOLOGIES

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### ABSTRACT:

Because of its close anatomic relations with nasal and oral cavities, the maxillary sinus is the place of most frequent inflammatory diseases of all paranasal sinuses.

**Introduction:** The aim of this study was to establish differences in etiology and treatment of rhinogenic and odontogenic maxillary sinusitis.

**Materials and methods:** In this study, we analyzed the etiology, clinical characteristics of the disease, x-ray findings, clinical course and treatment of 188 cases, which were diagnosed and treated as odontogenic or rhinogenic maxillary sinusitis in the Departments of Maxillofacial surgery and Otorhinolaryngology – “St. Anna” Hospital, Sofia from 2005 to 2010. Patients were divided according to age and sex. Data was systematized and analyzed.

**Results:** This study clearly showed that rhinogenic diseases of maxillary sinus are three times more frequent than odontogenic diseases. Also the etiology of odontogenic sinusitis most often is due to mistakes in the treatment of the upper teeth (alien corpora, perforation after extraction), which is completely different from rhinogenic sinusitis. In the surgical treatment of rhinogenic maxillary sinusitis usually endonasal polypectomy was followed by operation according to Caldwell-Luc or functional sinus endoscopy. During the surgical treatment of odontogenic sinusitis the most frequent intervention was surgical plastic of oral-antral communication with mucogingival vestibular flap followed by operation according to Caldwell-Luck what is different from the treatment of rhinogenic sinusitis.

**Conclusion:** Maxillary sinus often suffers from inflammatory diseases and should always be examined carefully by means of anamnesis, clinic exam and x-rays to identify its origin. Upper teeth should be treated carefully in everyday's dental practice to avoid being cause of sinusitis.

**Key words:** Odontogenic Maxillary Sinusitis, Rhinogenic Maxillary Sinusitis

### PURPOSE:

In the present study, we report our clinical investigations of cases of maxillary sinusitis caused by odontogenic and rhinogenic factors in order to establish the

similarities and the differences in their etiology, diagnosis and treatment.

### METHODS:

In our study we used the data gathered from the medical records of 188 patients with maxillary sinusitis that underwent treatment (both surgical and conservative) in our clinic for the period of June 2005 to February 2010. Cases were divided according to several factors (diagnosis, etiology, underwent treatment, age, gender, etc.).

### RESULTS:

Most of the patients treated in our clinic with maxillary sinusitis were directed to us either by their general practitioner or by their dentist. Very few of them sought medical help directly into the clinic.

The common complaints for the odontogenic cases were oral symptoms such as swelling, pain and discomfort, and the formation of oro-antral communication or fistula into maxillary sinus. The most common causative tooth was the first molar, followed by the second molar and the second bicuspid. We classified the causative factors of the disease into apical lesion; post extractive oro-antral communication or fistula; intra-sinus foreign body; ectopic teeth in the maxillary sinus; odontogenic cysts disrupting Schneiderian membrane and placement of dental implants. The classification showed that the spread of inflammation due to apical lesion into maxillary sinus was the most common cause. Iatrogenic causes such as dental extractions and forming oro-antral fistula were also common.

There was no significant difference in the morbidity between males and females in both odontogenic and rhinogenic sinusitis, neither between involvement of the left or right maxillary sinus. However it should be mentioned that the rhinogenic cases were more often acute and also involved other paranasal cavities in the inflammatory process, such as ethmoidal cells, frontal sinus etc. The common x-ray findings in the Waters' projection (falling of the bottom of maxillary sinus and the cloudy shadow of maxillary sinus) showed no difference between sinusitis of odontogenic and rhinogenic source except in cases caused by impacted teeth or cysts growing into the sinus cavity.

Most of the patients with sinusitis of rhinogenic origin were treated with conservative therapy (antibiotics, endonasal washing by puncture). All cases of odontogenic source needed some surgical treatment (classical Caldwell-Luc, Rehrmann's buccal flap to close the oro-antral fistula or just extraction of the causative tooth).

	Rhinogenic maxillary sinusitis	Odontogenic maxillary sinusitis
Acute sinusitis	78	11
Chronic sinusitis	57	42
Conservative treatment	84	0
Surgical treatment	51	53
Male	61	27
Female	74	26
Age up to 21	56	5
Age between 22 and 60	61	44
Age 61 and more	18	4

### CONCLUSION:

The association between an odontogenic and rhinogenic condition and maxillary sinusitis requires a thorough dental, rhino and x-ray examination of patients with sinusitis. Concomitant management of the dental origin and the associated sinusitis will ensure complete resolution of the infection and may prevent recurrences and complications. A combination of a medical and surgical approach is generally required for the treatment of odontogenic sinusitis.

Fig. 1: Gender

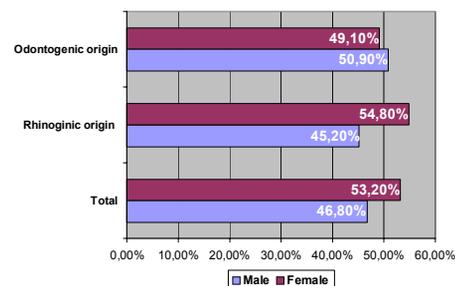


Fig. 2: Age

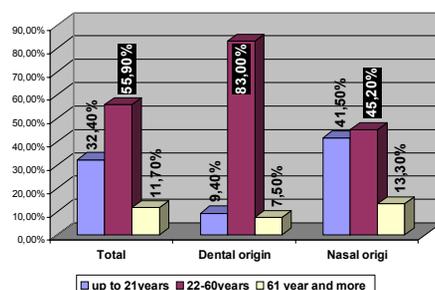
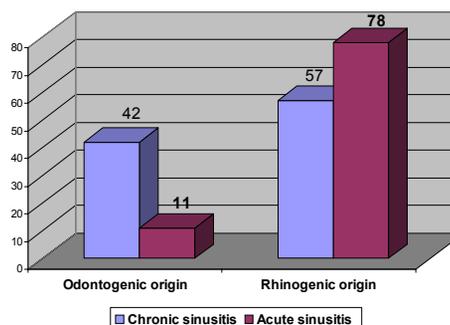


Fig. 3: Etiology and clinical course



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