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Research Article

**A STUDY TO DETERMINE THE OROANTRAL FISTULA (OAF)
FORMATION IN TERMS OF SITE, SIDE, FREQUENCY, AGE
BRACKETS AND GENDER DISTRIBUTION****Dr. Aqsa Khalid, Dr. Qurat-ul-ain Amina, Dr. Muhammad Awais**
Allied Hospital Faisalabad**Abstract**

We aimed to determine the involvement of the most vulnerable side and site in the creation of an oroantral fistula. OAC (Oroantral Communication) and its subsequent oroantral fistula formulation one of the repeated complications of dental maxillary molars extraction. There may be an involvement of the complications due to chronic oroantral fistula into sequelae of the chronic sinusitis.

We carried out this research at Allied Hospital, Faisalabad from August 2016 to November 2017 on a total of sixty oroantral fistula patients in the Department of Maxillofacial and Oral Surgery. Our research diagnostic criteria consisted of history, periapical views, clinical examination, PNS (Paranasal Air Sinuses) and orthopantomogram. The involvement of the first maxillary molar was among sixty percent of the patients, thirty percent cases were of the second molar, six percent in the last molar and four percent cases were of premolars. The involvement of right and the left side was respectively reported among 52% and 48% of the cases.

Keywords: Molar, Premolar, Dental Extraction, Maxillary, Sequelae, Chronic, Sinusitis and Oroantral Fistula (OAF).

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INTRODUCTION:

Oroantral Fistula (OAF) refers to an abnormal communication between the maxillary sinus and oral cavity which is lined by epithelium [1]. Oroantral communication with a subsequent oroantral fistula formulation is among various repeated maxillary molars dental extraction complications experienced by the patients [2]. A chronic state of oroantral fistula may also pose the complications chronic sinusitis with its associated sequelae [3]. An oroantral fistula develops as maxillary molars extraction complications among ninety-five percent of the cases [4]. The most repeated reason for the oroantral fistula is the first permanent molar removal among patients which is followed by the removal of second and third molars among patients [5, 6]. Oroantral fistula predisposing formation factors are because of dental extraction which is in the shape of an enlarged maxillary sinus that results as very thin distribution between oral cavity and antrum. It is possible the sometimes the length of the posterior teeth roots is long enough or it is very close to the antrum inside region especially in case of palatal root. It is also reported in a few research studies that second upper premolar has an intimate association with maxillary sinus [7]. Maxillary posterior teeth's chronic periapical infection has a possible predisposition of the oroantral communication after the act of extraction of the tooth. An unnecessary application of the instruments near to the maxillary sinus floor may cause an act of oroantral communication with a subsequent onset of oroantral fistula [8]. The occurrence of oroantral fistula among patients is reported in the 3rd and 4th decade of their life; whereas, it is less frequent and rarely reported in the 2nd decade of life and before fifteen years of age respectively [9]. The male population is dominantly affected than females as the oroantral fistula is higher in males with a significance over females (male to female ratio = 1.70:1.00) [8].

We aimed to determine the involvement of the most vulnerable side and site in the creation of an oroantral fistula. OAC (Oroantral Communication) and its subsequent oroantral fistula formulation one of the repeated complications of dental maxillary molars extraction. There may be an involvement of the complications due to chronic oroantral fistula into sequelae of the chronic sinusitis. There is a strong association of morbidity with a persistent oroantral fistula state which also results in a proper intake of drinks and diet among the affected individuals. The patient is unable to take an intake of regular drinks and diets properly. The patient may also face severe

respiratory infection along with extra burden and restricted social life as well. Oroantral communication development and an onset of subsequent oroantral fistula are preventable through preoperative patient's evaluation.

METHODOLOGY:

We carried out this research at Allied Hospital, Faisalabad from August 2016 to November 2017 on a total of sixty oroantral fistula patients in the Department of Maxillofacial and Oral Surgery. Our research diagnostic criteria consisted of history, periapical views, clinical examination, PNS (Paranasal Air Sinuses) and orthopantomogram. We used a proforma to document all the required information about the patient which included gender, age, site, side and an affected tooth for oroantral fistula. Descriptive statistical analysis of the collected data was carried out through SPSS software. We also calculated frequencies and percentages for various variables such as gender, age, side, site and an affected tooth for oroantral fistula and presented these outcomes in tabular and graphical form as well in the research outcomes.

RESULTS:

The research sample consisted of sixty patients. The age of the patients was in the age bracket of (17 – 68) years with a mean age factor of (34.03 ± 10.56) years. In the total research sample, the distribution of decade of life was such that third decade, a fourth decade and fifth decade were respectively 41.6%, 36.67% and 10%. Whereas, five percent were in the second decade of their life and a meagre strength of 3.3% of patients was in the age of above 50 and 60 years. The involvement of the first maxillary molar was among sixty percent of the patients, thirty percent cases were of the second molar, six percent in the last molar and four percent cases were of premolars. The involvement of right and the left side was respectively reported among 52% and 48% of the cases. The involvement of both gender that is male and female in oroantral fistula was respectively 61.7% and 38.3% as shown in Table – I. Male population was dominating females in the onset of oroantral fistula occurrences. A most common site for oroantral fistula creation was maxillary first molar among sixty percent of the patients followed by second molar, last molar, second premolar and first premolar having respective proportions of 30%, 6%, 2% and 2% as reflected in Table – II. The involvement of right and the left side was respectively reported among 52% and 48% of the cases.

Table – I: Gender Distribution (Number and Proportion) among Oroantral Fistula

Gender	Number	Percentage
Male	37	62 (61.70%)
Female	23	38 (38.3%)

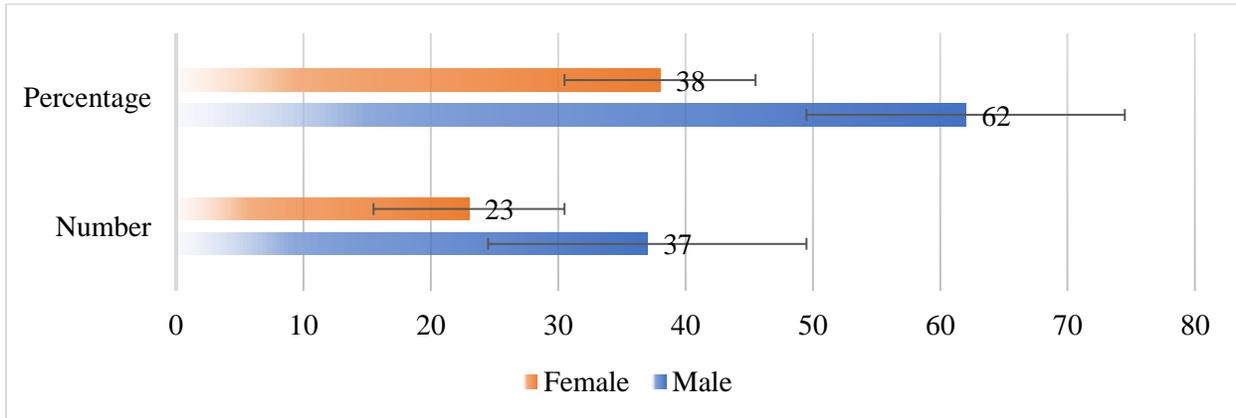


Table – II: Molar and Pre-Molar Percentage among Oroantral Fistula

Molar and Premolar	Percentage
First Molar	60%
Second Molar	30%
Third Molar	6%
First Premolar	2%
Second Premolar	2%

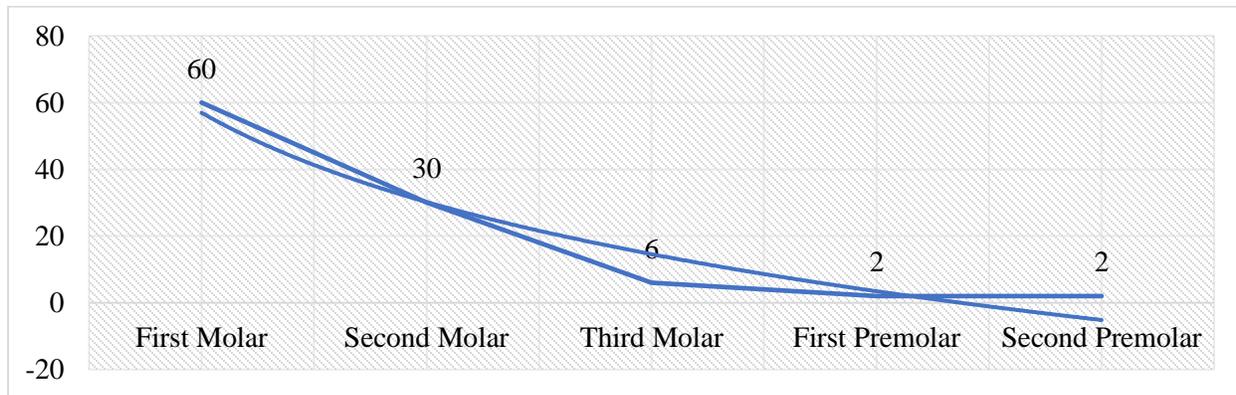
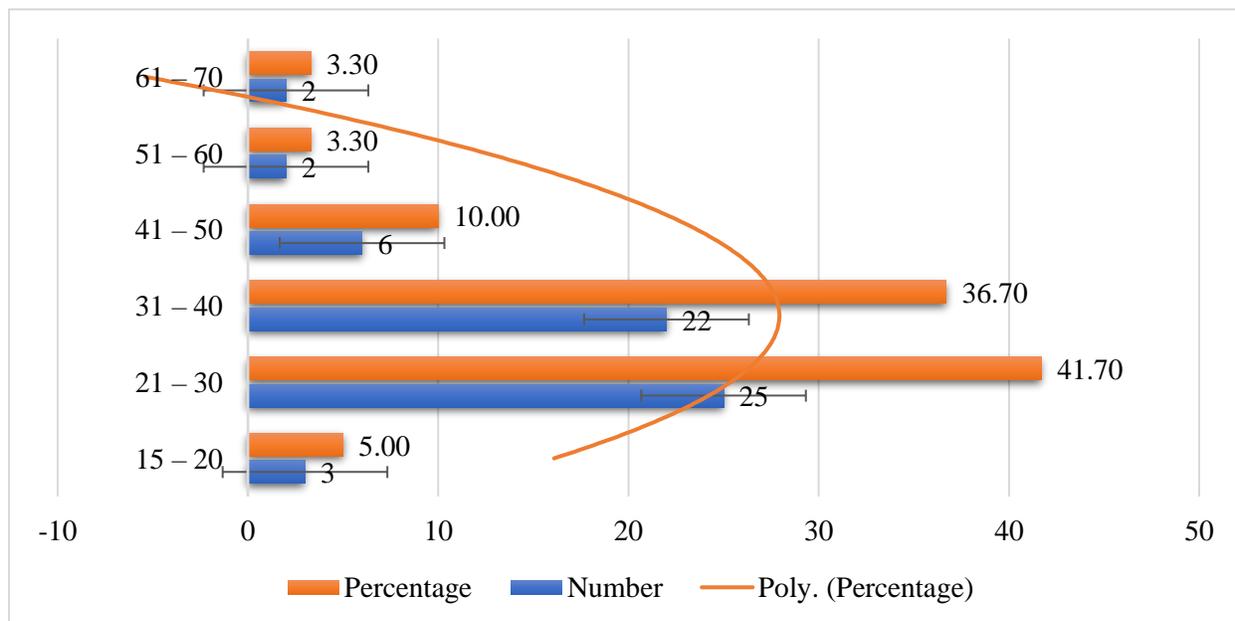


Table – III: Years Distribution (Number and Percentage) among Oroantral Fistula

Years	Number	Percentage	Mean	Range (Years)
15 – 20	3	5.00%	34.03 ± 10.56	17 years – 68 years
21 – 30	25	41.70%		
31 – 40	22	36.70%		
41 – 50	6	10.00%		
51 – 60	2	3.30%		
61 – 70	2	3.30%		
Total	60	100%		

**DISCUSSION:**

The research sample consisted of sixty patients. The age of the patients was in the age bracket of (17 – 68) years with a mean age factor of (34.03 ± 10.56) years. In the total research sample, the distribution of decade of life was such that third decade, a fourth decade and fifth decade were respectively 41.6%, 36.67% and 10%. Whereas, five percent were in the second decade of their life and a meagre strength of 3.3% of patients was in the age of above 50 and 60 years. The same kind of higher incidences in the third and fourth decade is also reported by two different research series conducted by Goven and Elarbi which supports our research outcomes [9]. However, the age of twenty-five years and forty-five years was reported by Delgado Gonzalez conducted on the onset of the oroantral fistula with a mean factor of 35.5 years; he also reported a higher OAF incidence in the second decade of life. The male population is dominantly

affected than females as the oroantral fistula is higher in males with a significance over females (male to female ratio = 1.70:1.00). The involvement of both gender that is male and female in oroantral fistula was respectively 61.7% and 38.3%. These outcomes are comparable with the outcomes of Elarbi as he reported seventy percent involvement of the male population [10]. According to Hirata and Delgado, the oroantral fistula rate was also high among males and males dominated females [11].

In our series, the involvement of the first maxillary molar was among sixty percent of the patients, thirty percent cases were of the second molar, six percent in the last molar and four percent cases were of premolars. Male population was dominating females in the onset of oroantral fistula occurrences. A most common site for oroantral fistula creation was maxillary first molar among sixty percent of the

patients followed by second molar, last molar, second premolar and first premolar having respective proportions of 30%, 6%, 2% and 2%. Hirata reported upper first molar extraction as the most repeated cause of the oroantral fistula. According to Dannan A and Yabroudi F, about eighty percent of the communications are attributed to the upper first molar extraction [12]. Goven presented different outcomes in his research which was conducted on a sample of ninety-eight patients. He reported the most common involvement of the upper second molar and first molar. According to Del Rey-Santamaria, there was a relation between extraction of the third molar and oroantral communication reported after 389 extractions of the upper third molars. Among these patients, oroantral communication was present in the upper third molars (5.1%) which is comparable with our research outcomes (6%) [13]. In terms of oroantral fistula side involvement, the involvement of right and the left side was respectively reported among 52% and 48% of the cases. Cortez and Abu Bara studied the dominance of left side (51%) in oroantral fistula development [4].

CONCLUSION:

OAC (Oroantral Communication) and its subsequent oroantral fistula formation one of the repeated complications of dental maxillary molars extraction. There may be an involvement of the complications due to chronic oroantral fistula into sequelae of the chronic sinusitis. The involvement of the first maxillary molar was among sixty percent of the patients, thirty percent cases were of the second molar, six percent in the last molar and four percent cases were of premolars. The involvement of right and the left side was respectively reported among 52% and 48% of the cases.

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