# ORO-ANTRAL FISTULAE

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## INTRODUCTION

An oro-antral fistula. (OAF) is an unnatural communication between the oral cavity and the maxillary sinus[1]. OAF could occur once in 180 extractions of the upper first molar and once in 280 extractions of the upper second molar[2].

Infection of the maxillary antrum is a common complication of OAF. Experimental evidence has shown that maxillary sinusitis is present 48 hours after the creation of an oro-antral fistula[3,4]. On this basis, sinusitis has to be controlled prior to any surgical repair of the OAF. This line of treatment is comprehensively described in the literature[1].

Various methods of surgical repair of OAF have been described, although only a few have received wide acceptance[1]. The buccal flap method first described by Rehrmann[5] is a simple and effective means of closure. A 93% success rate with this method was reported by Killey and Kay[1]. Facial oedema coupled with a significant reduction in the depth of the buccal sulcus following repair of OAF by this method was reported by Obradovic et al[6]. This is due to the horizontal sectioning of the periosteum at the base of the flap. Killey and Kay[1] were of the opinion that the apparent reduction in sulcus depth is not permanent but in contradiction to this, Wovern[7] reported permanent sulcus depth reduction in a one year follow-up study.

Another popular method of repairing OAF is the palatal flap method[8], which eliminates facial oedema and reduction in sulcus depth. This method utilized a large flap from the palate carrying the greater palatine vessels to ensure an adequate blood supply. This second method may be useful for surgical repair of OAF which are larger than 1 cm.[2] But this method is technically more difficult.

Apart from the two methods of repair of oroantral fistula, there are other methods of repairing OAF using various materials to cover the bony defect with varying degrees of success.

The Moczair technique is recommended for edentulous patients[9]. Lange's internal mucosal flap and Axhausen's transposition flap are favoured by other surgeons[10]. The palatal island flap[11,12,13] is used to correct large palatal defect involving soft palate. The tongue flap,[14,15,16] whether anterior, lateral or posterior based, can be used to correct oro-antral fistulae with large bony defect.

Various materials like gold foil[17,18], gold plate,[19,20] tantalum plate,[21] soft polymethylmethacrylate[22] and bone graft[23,24] have been used to repair OAF with varying degrees of success.

Delay in treating OAF often results in infection of the maxillary antrum which complicates surgical repair[1,2]

At present, there is no study on OAF in Malaysia, and on this basis, this retrospective study was undertaken to study OAF in Malaysians.

## MATERIALS AND METHODS

The records of the department of Oral Surgery, Faculty of Dentistry in Kuala Lumpur were scanned for patients with OAF during the years 1975–1985.The diagnosis was based on the Caldwell-Luc test of blowing air through the fistula coupled with the passage of a silver probe into the antrum via the fistula[2].

Fifteen degrees occipto-mental radiographs were taken and the findings categorised as: clear, cloudy, mucosal thickening and fluid level[1].

A total of 21 patients with OAF were investigated with regards to the age, sex, race, site and clinical features.

Antral infection was first controlled by antibiotics, followed by surgical repair using a buccal or palatal flap technique employing local or a general anaesthesia. Antibiotics were continued for seven days post-operatively with nasal decongestants. Sutures were removed on the 10th operative day. Criteria for successful repair were the same as for diagnosis of an oro-antral fistula.

## RESULTS

A total of 21 OAF were analysed with male (62 percent) preponderance over females (38 per cent). Male:Female ratio was 5: 3.1. OAF occurred more frequently in the third decade (52 percent) followed by the second decade (24 percent) as tabulated in Table I. The youngest was a 19 year old male and the oldest, a 51 year-old female.

The site where OAF is commonly associated with is the first molar region (52 percent) followed by the second molar (33 percent). Only one case involving the second premolar was encountered (Table II).

**Table I Distribution of oro-antral fistula by age**

| Age in Years | Number of patients | Percent |
|---|---|---|
| 0 – 10 | 0 | 0 |
| 11 – 20 | 5 | 24 |
| 21 – 30 | 11 | 52 |
| 31 – 40 | 2 | 10 |
| 41 – 50 | 2 | 10 |
| 51 – 60 | 1 | 5 |
| Total | 21 | 100 |

**Table II Distribution of oro-antral fistulae by Site**

| Site | Number of patients | Percent |
|---|---|---|
| Second Premolar | 1 | 5 |
| First Molar | 11 | 52 |
| Second Molar | 7 | 33 |
| Third Molar | 2 | 10 |
| Total | 21 | 100 |

Pain is a common symptom with OAF (86 percent) followed by escape of fluid into the nose (67 percent). Discharge of pus and a foul taste were other less common symptoms encountered (Table III). There were two cases of traumatic oro-naso-antral fistulae with associated fractures of the middle third of the face.

**Table III Presenting features of oro-antral fistulae**

| Symptoms | Number of patients | Percent |
|---|---|---|
| Pain | 18 | 86 |
| Discharge of Pus | 5 | 24 |
| Escape of fluid into nose | 14 | 67 |
| Foul taste | 3 | 14 |

A majority of these cases (52 percent) showed infection in the maxillary sinus. Only three cases were seen without antral involvement on radiological examination. This is due to the fact that the OAF was created during exodontia followed by immediate repair using buccal flap method, coupled with antiobiotics and nasal decongestants. It is obvious that delayed treatment of OAF often leads to infection of the maxillary sinus. No cases of antral polyp were seen in this series.

There was no significant difference noted with regards to the results of surgical repair of oroantral fistula, using either the buccal flap or palatal flap (Table IV). Local and general anaesthetic were em- only two percent where infection was controlled preoperatively.

**Table IV Results of Surgical Repair of Oro-antral fistulae**

| Methods of Repair | Number and % of Patients | |
|---|---|---|
| | Successful | Unsuccessful |
| Buccal Flap (Rehrmann) | 16(89%) | 2 (11%) |
| Palatal Flap (Ashley) | 3(100%) | – |
| Total | 19 | 2 |

## DISCUSSION

The incidence of OAF with regards to sex, age and site is comparable to that reported elsewhere[1,2]. No reasons could be found for the male preponderance in this study. There was no statiscally significant difference between the success rates of the two principal methods employed in treating OAF, probably due to a very small sample in this study. Perhaps what is more important is that, control of antral infection prior to surgical repair rather than the choice of method used, contributed much success in the overall management of OAF. This fact is substantiated in a study by Wovern[7] that wound breakdown occurred in 21 percent of patients without pre-operative therapy to control antral infection compared to a rate of only two percent where infection was controlled preoperatively.

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