

## Main Article

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## Abstract

**Objective.** To assess the level of awareness and attitude of ENT surgeons towards dental implants and oral surgery procedures that involve the maxillary sinus.

**Methods.** A cross-sectional survey was conducted using a closed-ended questionnaire on 40 UK-based ENT surgeons.

**Results.** Within the study population, 45 per cent of ENT surgeons were not aware of sinus lift augmentation in implant dentistry. Only 25 per cent of respondents were aware of the two subtypes of sinus lift techniques. Thirty per cent of the respondents were aware of or had heard of benign positional paroxysmal vertigo following dental treatment. Fifty-two per cent of respondents came across a dental foreign body, most commonly a tooth that had been displaced into the maxillary sinus. It was also reported that 82.5 per cent of respondents had liaised with an oral surgeon for an oroantral communication problem or a dental infection.

**Conclusion.** Dental awareness among ENT surgeons needs to be raised for optimum interdisciplinary communication and patient safety.

## Introduction

ENT surgeons frequently see and treat disease of the maxillary sinuses secondary to iatrogenic and non-iatrogenic dental conditions. In fact, studies have shown that odontogenic pathology is responsible for 12 per cent of chronic maxillary sinusitis cases and up to 75 per cent of unilateral sinusitis cases.<sup>1,2</sup> Dental awareness among medical doctors has been examined in many studies throughout the literature. In one of the studies, 92 per cent of junior doctors did not have confidence in diagnosing common oral conditions.<sup>3</sup> This can be attributed to minimal pre- and post-graduate training in oral health.

Because ENT and oral surgeons share common anatomical territories, they often need to liaise with each other for optimum patient care. Therefore, a basic knowledge of various dental treatments and conditions directly involving the maxillary sinus is necessary for ENT surgeons to achieve effective interdisciplinary communication. This is especially the case for sinus lift augmentation procedures, which have the potential to cause significant sinus disease needing ENT input.

This study aimed to assess the level of awareness and attitude of ENT surgeons in the UK towards dental implants and oral surgery procedures that involve the maxillary sinus. A review of the literature revealed this was an area yet to be addressed and studied.

## Materials and method

A cross-sectional survey was conducted among 40 ENT surgeons from February 2022 through August 2022. Included in the study was any doctor in the specialty currently working in the UK either as a middle grade doctor (registrar, specialty doctor, associate specialist or Trust grade doctor) or in a consultant position. The ENT surgeons were mainly working in eastern England, London and the southwest regions. The surgeons were sent an online survey, and their identities were anonymised.

The questionnaire included nine closed-ended questions. The survey gathered information about the grade and experience of surgeons. It also targeted awareness of sinus augmentation for dental implant surgery, the techniques involved (internal vs external) and their experience with any dental foreign body that might have been displaced into the maxillary sinus. Additional details were obtained in regard to identifying the type of foreign body and awareness of benign positional paroxysmal vertigo (BPPV) following dental procedures. Finally, we gathered information on each previous surgeon's experience in liaising with oral surgeons during treatment of odontogenic maxillary sinus disease.

## Results

All surveyed participants were employed ENT surgeons in UK hospitals, either in middle grade posts (25 respondents, 62.5 per cent) or in consultant posts (15 respondents, 37.5 per cent). Almost half of the ENT surgeons (19 respondents, 47.5 per cent) have more than 10 years of experience within the specialty. Fourteen respondents (35 per cent) have 5.0–10 years of experience and 15 per cent (6 respondents) have less than 5 years of experience. Only one respondent (2.5 per cent) was not on the General Medical Council specialist list at the time of the survey.

### Survey responses based on dental knowledge

Fifty-five per cent of the survey population (22 respondents) were aware of sinus lift augmentation in implant dentistry. Consultants with more than 10 years of experience constituted 27 per cent of those who were not aware of sinus lift augmentation in implant dentistry (33 per cent of the total consultant population, 5 consultants). Only 10 respondents (25 per cent of the survey population) were aware of the two techniques used in sinus augmentation (external *vs* internal sinus lift).

On further questioning, 30 per cent of the survey participants (12 respondents) had heard about or treated BPPV following dental treatment. Sixty-seven per cent of those who gave a positive answer to this particular question had more than 10 years of experience within the specialty.

### Survey responses based on experience with dental-related problems

Twenty-one respondents (52.5 per cent) came across a dental foreign body that had been pushed into the maxillary sinus. Fifty-two per cent of those who never came across a dental foreign body that had been pushed into the maxillary sinus (11 respondents) had less than 10 years of experience in the ENT specialty. Nine respondents (22.5 per cent) reported dealing with a tooth that had been displaced into the maxillary sinus. This was followed by displaced implant(s) or root fillings, with reported experience from six respondents (15 per cent) for each.

Thirty-three respondents (82.5 per cent of the population survey) had liaised with an oral surgeon to treat odontogenic maxillary sinus disease. For those who had never liaised with an oral surgeon, most had less than 10 years of experience within the specialty (57 per cent, 4 respondents).

Oroantral communication was the most common reason for liaison between an ENT surgeon and an oral surgeon (57.5 per cent of the survey population, 23 respondents). An odontogenic infection was the second most common reason for liaison between an ENT surgeon and an oral surgeon (25 per cent of the survey population, 10 respondents).

## Discussion

Lack of dental knowledge among medical doctors can pose a barrier to collaborative interdisciplinary co-operation. In our experience, this has occasionally resulted in patients being put at risk.

Sinus lift augmentation is a widely used procedure in implant dentistry that allows the placement of implants in the atrophic posterior maxilla. The Schneiderian membrane is gently lifted up and a bone graft is placed underneath it

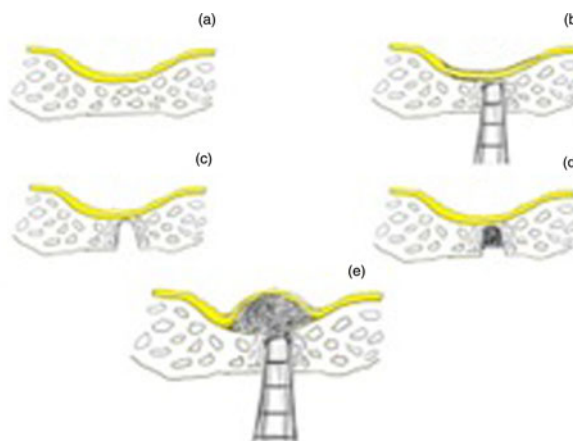


**Figure 1.** External sinus lift augmentation (lateral window technique).

in order to build the bone height. There are two types of sinus lifts: (1) an external sinus lift, which involves creating a lateral window, and directly visualising and manipulating the sinus lining (Fig. 1); and (2) an internal sinus lift, which is less invasive, whereby the sinus floor is pushed up through osteotomes tapping through the implant bed (no lateral window) (Fig. 2).

The incidence of Schneiderian membrane perforation during sinus lift procedures has been reported to be about 60 per cent.<sup>4</sup> This complication can lead to sinusitis needing input from an ENT surgeon. Yet, our survey shows that only about half of the respondents, some of whom are in consultant posts with more than 10 years of experience, were not aware that such a procedure exists. Coupled with the increasing prevalence of dental implants in the population, ENT surgeons are more likely to see or treat implant-related complications.<sup>5</sup>

Other aspects of knowledge and behaviour of ENT surgeons pertinent to oral surgery were studied in this survey. About half of the respondents came across a dental foreign body that had been displaced into the maxillary sinus. A displaced tooth was the most common dental foreign body, followed by an implant or root filling. An oroantral communication was the most common reason for liaison between the ENT surgeon and an oral surgeon, followed by dental infection and other pathologies.



**Figure 2.** Internal sinus lift augmentation. An osteotome is used to break the sinus floor (b) and to push in the bone graft (e).

- ENT surgeons often see and treat sinus pathologies secondary to iatrogenic and non-iatrogenic dental causes
- Awareness of ENT surgeons regarding sinus lift augmentation used in implant dentistry can vary, and is not always dependent on experience
- Awareness of ENT surgeons regarding sinus lift augmentation used in implant dentistry is fundamental for interdisciplinary communication and patient safety
- Oral surgeons should engage with ENT surgeons, to educate and raise awareness regarding dental implants and new emerging techniques that may need ENT specialty input

Benign positional paroxysmal vertigo has been reported following the use of osteotomes and a mallet in oral surgery (i.e. internal sinus lift augmentation).<sup>6</sup> Only one-third of the survey participants had heard of or treated this condition following dental treatment.

### Conclusion

Within the limitations of this study, ENT surgeons' awareness of sinus lift augmentation used in implant dentistry can vary, and does not always depend on the level of experience. However, we found that most of the survey participants had liaised with an oral surgeon at some point, mainly to treat iatrogenic oroantral communication created by a displaced tooth, followed by a displaced implant or root filling. The incidence of BPPV following dental treatment is rare. Most of the survey

respondents have neither seen nor heard of this condition happening following dental treatment.

We recommend that oral surgeons approach and engage with ENT surgeons in order to educate and raise awareness regarding dental implants and any new emerging techniques that may need ENT specialty input. This can be in the form of seminars, or multidisciplinary team meetings and clinics.

**Competing interests.** The authors declared none.

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