



Awareness of General Dental Practitioners About Oral Screening and Biopsy Procedures in Chennai, India

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ABSTRACT

*Oral cancer presents with high mortality rates, and the likelihood of survival is remarkably better when detected early. The present study aimed to assess the awareness of general dental practitioners (GDPs) about oral screening and biopsy procedures in Chennai, India. In this cross-sectional study, 50 GDPs were surveyed using a self-administered structured questionnaire consisting of 10 mandatory questions and the data were analysed. Most of the GDPs were aware of suspicious oral lesions, risk factors for oral pre-cancer/cancer, most of the methods of doing biopsies. More than Half of them referred lesions requiring biopsy to a specialist rather than performing biopsies themselves, even after recognising the importance of biopsy as a diagnostic tool. Varied results regarding preservation of biopsied specimens were noted. **Conclusion:** Most of the GDPs were adequately aware of oral screening and biopsy procedures but felt reluctant to perform them, which suggests that dental education programmes are needed for GDPs in oral pre-cancer/cancer detection as well as screening and diagnostic procedures.*

Keywords: Biopsy, general dental practitioners, oral cancer, questionnaire, screening

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INTRODUCTION

Oral cancer is a global health problem with increasing rates of incidence and rising mortality rates [1]. These increases are continuing largely due to aging and behavioural modification of cancer cells [2].

Oral cancer is the eleventh most common cancer in the world, with an estimate of 267,000 detected cases and 128,000 deaths annually, two-thirds of which occur in developing countries. The Indian subcontinent alone accounts for one-third of the global oral cancer burden, mainly due to habit such as smoking and pan chewing. In India, the age standardised incidence rate of oral cancer is reported to be 12.6 per 100,000 people [3].

Morbidity and mortality of oral cancer has increased whereas other cancers have decreased over the past few decades [4]. One reason for the lowest survival rates of oral cancer, despite recent therapeutic advances, may be the late presentation due to delays in diagnosis (period elapsed since the first symptom or sign until the definitive diagnosis) [5].

Although the oral cavity is easily accessible to health care workers and patients, it is most unfortunate that many potentially malignant oral disorder are overlooked before they become frankly invasive. The majority of cases are detected only when they have reached a regional lymphnode or metastatic stage, with low 5-year survival rates (20%-50%) depending on tumour sites. These issues suggest that, despite known risk factors, anatomical accessibility, and periodic or occasional visits of patients and at-risk

persons to dentists, an effective primary or secondary prevention is not yet in place [5,6,7].

Dentists have an important role in both prevention of oral cancer by encouraging healthy lifestyle and by detecting oral cancer or its precancer lesions at early stages [8]. Biopsy serves as an important tool in achieving this goal. The literature contains few studies on general dental practitioners' (GDPs) attitude and awareness towards oral biopsy. Studies on prevention, detection and management of oral precancer and cancer have been conducted in different countries, but only very few in India [9,10,11]. To the best of our knowledge, there is no information available on this from Chennai. However, such information would be vital prior to designing an appropriate educational programme for dental healthcare workers.

Thus, the present study aimed to explore the awareness of general dental practitioners in Chennai about oral screening and biopsy procedures.

MATERIAL AND METHODS

Study population

A descriptive cross-sectional study was conducted in January 2022 among the dentists in Chennai, located in Tamil Nadu, India. A list of 50 private practitioners with a Bachelor of Dental Surgery qualification was acquired.

Questionnaire

A comprehensive, self-administered, structured questionnaire was developed on the importance of oral screening and biopsy procedures in routine dental practice.

The questionnaire comprised 10 mandatory questions consisting of several items addressing the sociodemographic data; awareness regarding screening procedures; importance, attitude and practice regarding oral lesions requiring biopsy, biopsy methods, diagnostic pathology referral, and preservation of specimens.

The questionnaires were distributed to all dentists (n = 50) through forms app and they were given a full explanation of how to fill out the questionnaire and were asked to respond to each item according to the response format provided with the questionnaire. Descriptive statistics were performed.

RESULTS

1.What would you consider as risk factor for oral cancer?	
Options	%
Smokeless tobacco	34
Smoking tobacco	28
immunosuppression	15
alcohol	13
Genetic predisposition	6
Others	4

2.Which lesions do you come across commonly in your practice?	
Options	%
Benign	48
Premalignant	43
Malignant	9

3.How often?	
Options	%
Weekly	4
Monthly	65
Yearly	30

4.For which lesion you prefer doing biopsy ?	
Options	%
Benign	22
Pre malignant	30
Malignant	40
all	8

5.Which biopsy methods are you aware of?	
Options	%
Incisional	9
Excisional	4
FNAC	0
Incisional and excisional	9
all	78

6.What you do for lesions requiring biopsy ?	
Options	%
Call a specialist	74
Refer to a higher centre	0
Perform biopsy on your own	26

7.method of biopsy used?	
options	%
Incisional	61
excisional	31
FNAC	4
Brush biopsy	4

8.after biopsy do u send tissues for analysis?	
options	%
Always	70
Only when suspecting premalignancy or malignancy	26
Never in case of excisional biopsy	4

9.How do you think the specimen should be preserved before sending for analysis?	
options	%
saline	10
formalin	80
alcohol	0
No idea	10

10. Method of preservation of specimen in your clinic	
Options	%
saline	9
formalin	91
alcohol	0

DISCUSSION

Oral cancer is a major health problem and its diagnosis at early stages is both an educational objective and the basis for cancer prevention [12]. Many experts agree that the key is not necessarily identifying oral cancer but identifying tissue that is not normal and taking appropriate action [11]. Biopsy is of paramount importance as it is strongly related to diagnosis and early detection of oral cancer.

In rating the risk factors of oral premalignant and malignant lesions, the GDPs considered tobacco in smokeless(34%) and smoking forms (28%)to be the most important risk factor, which indicates that their knowledge is consistent with the current understanding of the aetiology of oral premalignant and malignant lesions. This was in accordance with the results of Jaber (2011), Colella et al (2008) and Kujan et al (2006), whereas in a study by Vijay-Kumar and Suresan (2012) [11-15], the use of alcohol was identified as the major risk factor, and GDPs has considered that they come across benign lesions (48%) more commonly when compared to premalignant (43%) or malignant lesions (9%).

The study depicts the easy accessibility of GDPs to patients, as the former encounter an enormous range of premalignant, benign and malignant lesions of the oral cavity quite frequently (once a month). This accentuates their key role in the screening and early diagnosis of oral lesions; negligence on this part may prove unfavourable for patients. This was in contrast to the study by Murgod et al (2011) and Wan and Savage et al (2010), who observed that 68.6% and 63.6% GDPs, respectively, encountered such lesions

only once a year, while Diamanti *et al* (2002) found that 33% of GDPs detected lesions on more than one occasion each year [16,17].

It was reassuring to note that all the dentists were well aware of the importance of biopsy procedures for the diagnosis of oral lesions. However, their awareness regarding the lesions that require biopsy was discouraging, as very few (8%) knew its correct indications and a dejecting 40% believed that it should be performed solely for malignant lesions. This was in contrast to the study by Murgod *et al* (2011) [9], who found that 22.3% GDPs knew the right indications for lesions requiring biopsy. Our results may be attributed to inadequate attention paid to oral pathology (due to unawareness, lack of training, etc.) and their low awareness of the risk of premalignant alterations in white lesions.

In our study, 26% of the respondents claimed to perform oral biopsies on their own. This was in accordance to the other studies by Jaber (2011), Murgod *et al* (2011), Diamanti *et al* (2002), Seoane *et al* (2004), Leao *et al* (2005) and Jornet *et al* (2007) in which also 10%, 14.9%, 15%, 24.5%, 25%, 32.1% of practitioners, respectively, performed biopsies on their own [23]. However, in north-western Spain, after an intervention funded by the Regional Government, up to 50% of the GDPs undertook at least one biopsy per year to confirm or rule out oral cancer (Seoane *et al*, 2006) [18-20].

In the current study, the practitioners surveyed preferred to call a specialist (74%). Studies by Coulthard *et al* (2000), Diamanti *et al* (2002), Leao *et al* (2005), Wan and Savage *et al* (2010) and Murgod *et al* (2011) showed that 84%, 55%, 83.7%, 76.2% and 64.6% of GDPs surveyed, respectively [21-22], refer the biopsy cases to a specialist. It is cause for concern that GDPs do not wish to undertake invasive procedures. The reasons quoted by various authors for this reluctance are unfamiliarity with biopsy techniques, lack of confidence in personal diagnostic skills, fear of misdiagnosis of malignancy or serious pathology, misconception of it being a specialist procedure, fear of medico-legal complications, risk of litigation or concern that if the lesion is malignant, they may not be emotionally equipped to inform the patient that he/she has cancer [9] [16,17].

A GDP's lack of experience in performing biopsies could be attributed to insufficient importance placed on the practical teaching of biopsy techniques during their undergraduate training. Wan and Savage *et al* (2010) found that over 50% of practitioners reported only being taught theoretical knowledge of biopsy procedures and diagnostic histopathology during undergraduate training, without having received any practical experience in these two areas. This lack of training in biopsy procedures was also shown in the study by Diamanti *et al* (2002), in which 39% of GDPs surveyed reported never being taught biopsy techniques. Therefore, GDPs who had been taught how to biopsy or had actually performed a biopsy during their undergraduate studies were more likely to undertake biopsy procedures in general practice [9, 16, 17, 20].

Further, about 78% of the practitioners were aware of all different biopsy methods. Of the 26% of GDPs who performed biopsies on their own, 31% used the excisional biopsy technique in their clinic while only 4% performed brush biopsies. Performing simple excisional biopsies in general practice provides the advantage of a reduced waiting time for the procedure and the results, as well as less travelling for the patient [16]. However, excisional biopsies by GDPs done without oncological consideration of lesions suspected to be malignant could allow microscopic tumour remnants to remain in situ and cause destruction of the margins of the lesion, thus making re-excision and possibly neck treatment mandatory. On the other hand, incisional biopsies of lesions suspected of malignancy represent a more realistic approach for GDPs, but incisional biopsies at times may lead to under diagnosis due to sampling errors [5]. Hence, when considering the type of biopsy required for a particular case, the GDPs should be better informed about biopsy techniques, their indications as well as contraindications.

The study also revealed that 26% of dentists sent the specimens for examination and histological analysis only given suspected premalignancy or malignancy and then not always. This transforms the procedure from an investigational to a final treatment protocol and misses the opportunity to obtain additional supportive information from the procedure.

Moreover, those GDPs who perform excisional biopsy for clinically obvious lesions do not consider it necessary to send the tissue for histopathological analysis, even though routine histopathology of all soft tissues removed from a patient is indicated in order to obtain a definitive diagnosis of any presenting pathology, and to preclude any differential diagnosis.

Pertaining to the preservation of the biopsy tissue specimen, 80% practitioners correctly knew that the tissue should be preserved in formalin, while 10% were completely unaware of preservation methods. Further, upon inquiring about the method of preservation used in their clinic, 91% of GDP's uses formalin and 9% unfortunately uses saline as a fixative, which defeats the purpose, as saline has a negative impact on the tissues, a fact that is often ignored by the practitioners.

The limitation of the present questionnaire survey is that the reported responses may not match actual clinical practice. The tendency of practitioners to provide socially acceptable answers would usually bias

against variability in reported practices, resulting in underestimations. This precludes extrapolation of the findings to the global population of dental professionals. Given the level of inconsistencies between the dentists' oral cancer awareness and practice behaviours, it is apparent that further study is needed to understand the barriers they experience to implement this knowledge.

CONCLUSION

Most of the general dental practitioners had knowledge of oral cancer screening and biopsy procedures, but many felt reluctant to perform them due to inadequate experience and skills. Relevant continuing dental education programmes/training on the management of suspicious oral lesions are recommended.

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