

ATTITUDE TOWARDS ORAL BIOPSY AMONG GENERAL DENTAL PRACTITIONERS OF VADODARA, A CITY IN THE WESTERN STATE OF INDIA

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ABSTRACT

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Introduction In practice, the diagnosis of certain oral lesions must be made by biopsy. A biopsy constitutes an essential diagnostic tool in application to patients with oral pathology. However oral biopsy is not routinely performed in general dental practice. The present study aimed to explore the attitudes of General Dental Practitioners (GDPs) towards oral biopsy for diagnosis of oral lesions in Vadodara city, Gujarat, India.

Methodology A questionnaire was distributed to 200 general dental practitioners, consisting of several items addressing the socio-demographic and professional aspects and their attitudes towards oral biopsy procedures.

Results Our study showed that 73% of the GDPs do not perform a biopsy on their own. Out of which 32% of GDPs gave the reason of lack of skills and knowledge while 7% of GDPs lacked confidence in performing a biopsy on their own. 28% of the GDPs were not aware of the medium of specimen preservation.

Conclusion There is a need for better education and training of GDPs to perform oral biopsy procedures on their own and create awareness among them about the proper referral of the specimen to oral histopathological centers which will aid in accurate diagnosis of the lesions.

KEYWORDS

Oral Diagnosis; Attitudes; Biopsy; General Dental Practitioners; Oral Lesions.

1. INTRODUCTION

Biopsy is often an indispensable procedure in the diagnosis of myriad of benign and malignant oral conditions. The term "Biopsy" was introduced into medical terminology in 1879 by Ernest Besnier [1]. Biopsy is a procedure consisting of procurement of tissue from a living organism with the purpose of examining it under the microscope in order to establish a diagnosis [2]. The word biopsy originates from the Greek terms "bios" (life) and "opsis" (vision): vision of life [1,3].

Biopsy has been one of the oldest methods developed by the Arab physician Abulcasim (1103-1107AD), used for the accurate diagnosis of any abnormality in the oral environment as it is an accurate and pronominal aid used for establishing the histological characteristics of lesions which appear suspicious and so, it helps in their differentiation [4,5]. Biopsy of all kinds should be used frequently, not only

for establishing initial/early diagnosis but also for providing more accurate clinical surveillance of the disease process.

General dental practitioners (GDPs) often being the primary oral health care providers are required to have a basic understanding of the biopsy procedure which should be emphasized during undergraduate training and they should be able to perform them as and when required [4]. In general, the GDP is required to detect and recognize oral lesions and inform the patient accordingly – providing a diagnosis and adequate treatment indications. Therefore, GDPs must know not only where, when and how to perform a biopsy but also how to manage the information derived from the procedure [6]. Early detection of an oral lesion and prompt biopsy in general dental practice not only reinforces patients' confidence but would also reduce the number of successful lawsuits brought for delay or failure to diagnose [4]. Biopsy is advised for all oral lesion in question, if persisting

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for more than 2 weeks even after the removal of the irritating factor, if any. Clinicians have to decide the type of biopsy required based on the site, clinical nature of the lesion, and proximity to vital structures [7].

Many factors may make a biopsy problematic and be reason for not undertaking it in general practice. These include: fear of medico-legal implications, unfamiliarity with the biopsy technique, a lack of faith in personal diagnostic skills and the contention that biopsy is a specialist procedure. There is also concern that if the lesion proves to be malignant, the GDP is not equipped to inform the patient that they have cancer [8]. It is found that many GDPs do not perform the biopsy procedure on their own in their routine clinical practice.

Hence the present study aimed to explore the knowledge and attitudes of general dental practitioners towards the oral biopsy procedure in and around the Vadodara city region.

2. METHODOLOGY

A descriptive, cross-sectional study was conducted using a questionnaire of 15 questions comprising 2 open-ended and 13 close-ended questions. The questionnaire was designed to collect information about demographics of GDPs, clinical experience of GDPs, attitudes of GDPs towards oral biopsy, methods used for obtaining biopsy, material used for specimen preservation, referral to specialized centers (oral or general pathology laboratories). The questionnaire was previously evaluated by means of a cognitive pre-test procedure to ensure that the questions were appropriate, understandable among the dental practitioners. The pilot survey was targeted to five dental professionals selected due to their accessibility and proximity to the investigational team. Changes in the questionnaire were then made accordingly and the pilot study samples were deleted from the final study sample. Following which, the purpose of the study was explained to the GDPs, so consent was obtained and the questionnaire was given.

A total of 200 GDPs in and around Vadodara city who consented to participate were included in the study while all professionals exclusively dedicated to some dental specialties were excluded. The questionnaire was distributed and retrieved personally to/from all the dental surgeons who participated in the study and anonymity in completing the questionnaire was sought in all cases.

The data collected were tabulated and statistically analyzed using of descriptive statistics.

3. RESULTS

All of the 200 GDPs who owned their clinics were approached with the questionnaire, they answered all the questions considering that their demographic details would be kept confidential. The response rate was 100% as the dentists were approached personally.

Among them, 63% (126) of the dentists had been running their clinics for 1 to 5 years while 18% (36) of them had their clinic running for more than 5 years. Furthermore, 19% (38) of the dentists had been running the clinic for more than 10 years. 175 (87.5%) GDPs had worked at other dental clinics before opening their own practice. Additionally, 73.5% (147) dentists had consultants of speciality in oral surgery visiting their clinic (Fig. 1).

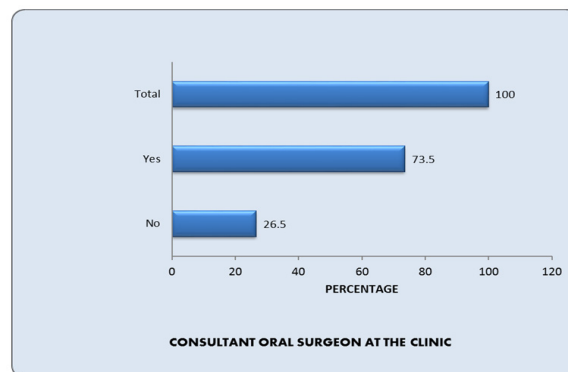


Figure 1. Consultant Oral Surgeon at the clinic.

All the GDPs answered that it was indeed very important to perform a biopsy. However, only 26.5% (53) of the GDPs performed a biopsy on their own while 73.5% (147) of them referred the patient to a specialist (Fig. 2).

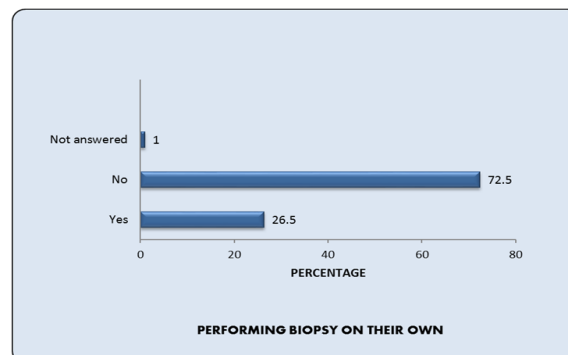


Figure 2. Performing biopsy on their own.

On answering which type of lesions they encountered during their practice which requires a biopsy, they stated that according to their knowledge, cysts and premalignant lesions were encountered most commonly (36% each) while 34% encountered benign and 32% malignant lesions (Fig. 3).

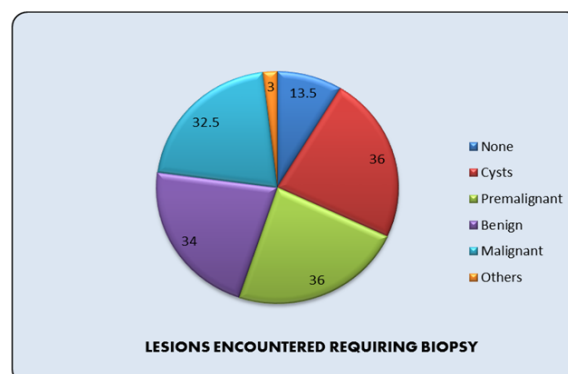


Figure 3. Lesions encountered requiring biopsy.

The questionnaire sought to evaluate the knowledge of the GDPs regarding the medium of specimen preservation after removal. 67.5% practitioners used formalin as the medium of specimen preservation, while 20% believed that it can be preserved in saline. Furthermore, 2.5% answered that specimens can be preserved in alcohol; while 5% were not aware of the medium of preservation of the specimen (Fig. 4).

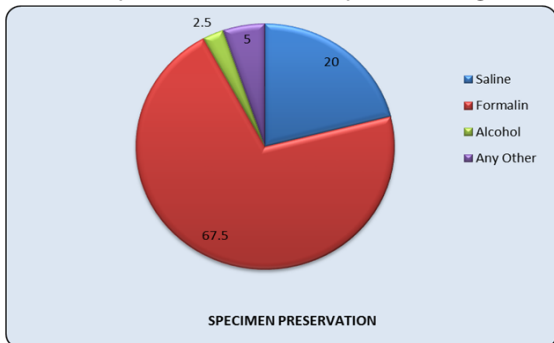


Figure 4. Specimen preservation.

Upon asking what type of biopsy they would perform 53% of GDPs answered incisional biopsy (Fig. 5).

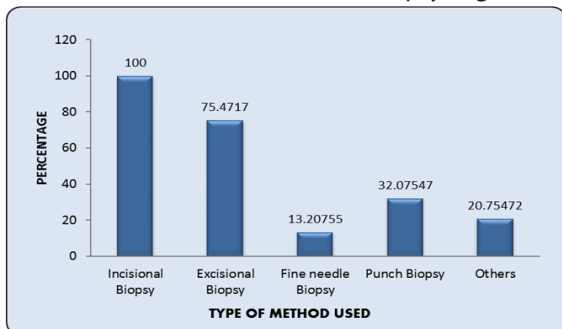


Figure 5. Type of method used.

31.4% of the GDPs lacked the experience and skills to perform a biopsy. 25.52% of GDPs reasoned that they did not perform a biopsy as they lacked the materials required for biopsy, while 6.9% opted for lack of confidence as an answer (Fig. 6).

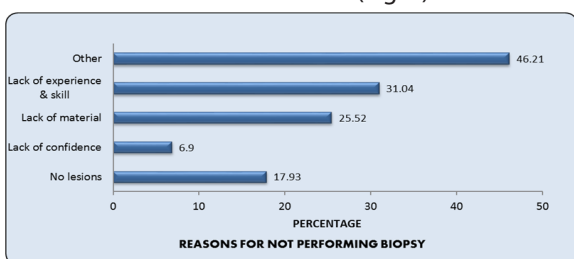


Figure 6. Reasons for not performing a biopsy.

58.5% (117) of the GDPs sent the biopsy to an oral pathologist for analysis, while 38.5% (77) of them sent it to a general pathologist (Fig. 7).

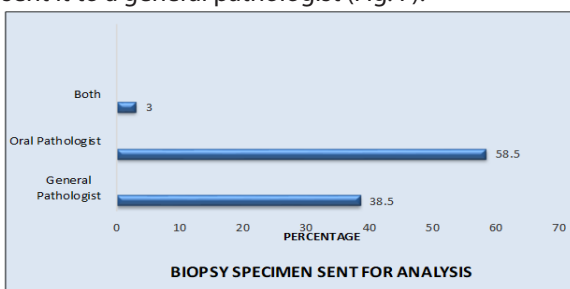


Figure 7. Biopsy specimen sent for analysis.

81% (162) of the GDPs sent the biopsy specimen to a private laboratory that they are in contract with, while only 16.5% (33) preferred to send it to institutions such as government hospitals and dental colleges where more than one pathologist is involved in the diagnosis (Fig. 8).

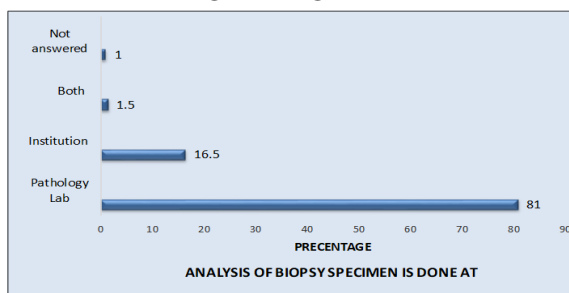


Figure 8. Analysis of the biopsy specimen is done at.

4. DISCUSSION

Biopsy, a Greek-derived word loosely translated as “view of the living,” is defined as removal of tissue from the living organisms for the purpose of microscopic examination and diagnosis [9].

A biopsy is of paramount importance because it is strongly related to the early detection of oral cancer. Although most dentists prefer to refer biopsy cases to specialist or higher centre, most believe that routine biopsies are well within the scope of a GDP as this would provide direct access to prompt management. GDPs are often unfamiliar with the different clinical patterns of oral malignancy. In 1955 Boyle commented that an individual's qualifications have little to do with their ability to perform a biopsy. His words appear valid today since the issue of who should biopsy remains controversial [9,10].

A wide array of procedures and techniques is available to assist in the diagnosis of oral disease. Every patient should receive a thorough head and neck examination and appropriate dental radiographs. The clinical and radiographic examinations may provide sufficient information for the diagnosis of certain entities. However, many diseases of the mucosa, other soft tissue and bone require additional information to make a precise diagnosis. This information in many instances may be provided by biopsy and submission of tissue for histopathologic examination [11].

This study was undertaken to evaluate the knowledge and attitudes of GDPs regarding the biopsy procedures, medium of specimen preservation, referral to specialist when in doubt and the choice of referral to a general pathologist or an oral pathologist, as all these factors do have an impact on a patient's diagnosis and treatment plan.

In general dental practice the detection of oral cancer in an early stage might come across as a difficult task and to convince patients in order to prevent is also a continuous challenge in dental field. Therefore, a dentist must be aware of the factors which play a very important role in causing cancer, its clinical signs and symptoms.

Apart from oral potentially malignant disorders and malignant lesions, there are an array of lesions

like reactive pathologies (epulis, fibroma), benign epithelial tumors etc. which can be excised in toto when detected in a routine dental checkup. Although the patient may not be aware of the presence of such lesions, patients can be educated about the same and GDPs would be the first to detect and diagnose the lesions at an early-stage, building patient compliance towards the GDP.

The questionnaire included whether the GDPs perform the biopsy on their own and they have a consulting oral surgeon coming to their clinic. 73.5% of GDPs had an oral surgeon coming to the clinic as a consultant while 26.5% of the GDPs perform biopsy on their own. This was in accordance with Warnakulasuriya and Johnson who found that 21% of dentists in United Kingdom [12] and Seoane et al. reported 24.5 % GDP's perform biopsies in Northwest Spain [13].

Regarding the reasons for not performing a biopsy, 31.4 % gave the lack of experience and skills as a reason, 25.52% went with lack of material, whereas 6.9% went with lack of confidence.

Given the results we can evaluate that in general practice, GDPs encounter a wide variety of benign, malignant, premalignant, cysts, etc. This allows us to emphasize the accessibility of GDP to a patient and his important role in the diagnosis of oral lesions. It demonstrates how important it is for a GDP to have sufficient knowledge on oral pathology and their diagnosis, and also how significant the lack of knowledge is, as it could lead to misdiagnosis and how it can affect a patient's treatment.

In this study, 13.5% of GDPs performed biopsy on their own which is in accordance with the studies done by Murgod V et al. [4], Cowan et al. [14] and Diamanti et al. [11] who reported that 14.93%, 12% and 15% respondents performed biopsies on their own respectively. Warnakulasuriya and Johnson found that 21% of dentists in the United Kingdom [11] and Seoane et al. reported 24.5 % GDP's perform biopsies in Northwest Spain [12]. In Norway, Berge found that 56% of dentists attempted biopsy [15].

Our study also clearly revealed that 26% of GDPs refer the patient to a specialist. According to the results of the study done by Murgod V et al. in Belgaum city, in the southern region of India, it was revealed that 64.67% of GDPs either call a specialist or refer the patient to a higher centre [4]. Reports by Wan and Savage in Brisbane, showed 76.2% of GDPs refer the biopsy cases to a specialist [1]. The reasons for not performing a biopsy on their own could be due to several factors like fear of unfamiliarity to biopsy technique, lack of faith in personal diagnostic skills, lack of materials, misconception that it is a specialist procedures or concern if the lesion is malignant.

In our study 31.4% of GDPs gave the lack of skills and knowledge as a reason and 6.9% of GDPs said they lack confidence, whereas 46% of them opted for not giving a specific answer. Wan and Savage stated that 58.1% of GDPs did not feel competent to undertake any biopsies mainly due to lack of experience, confidence and practical skills [1]. Diamanti et al. reported 25% of GDP's surveyed did not feel

competent to perform biopsies while Greenwood et al. found that only 21% of GDPs were prepared to carry out biopsies [9,16]. The lack of experience in performing a biopsy by a GDP is a result of the lack of importance attached to the practical teaching of biopsy techniques during their training.

Although the current curriculum of the Dental Council of India (DCI) for the Bachelor of Dental Surgery (BDS) degree includes various biopsy techniques in didactic lectures, the clinical quota requirement of dental surgery mainly stresses tooth extractions and it does not have any specific mention for biopsy procedure [17]. In addition, the DCI curriculum for the internship of dental students for the undergraduate course emphasizes mainly extractions and disimpactions. The requirement for the undergraduate course completion is only one biopsy for an oral cancer case which is not sufficient as biopsies are to be performed for other lesions as well. Furthermore, training them at an early stage is important as the GDPs are the primary or the first line of dental care giver. Furthermore, in rural setups in countries like India, Oral Surgeons may not be always available.

On asking about the type of biopsy they perform, the majority knew only about incisional biopsy. This explains the need for the GDP to have a grasp on biopsy techniques, their indications and contraindications. This would assist them to decide on the type of biopsy required in individual cases.

Regarding the preservation of the specimen after removal and before sending it for analysis, 67.5% GDPs knew that it is supposed to be preserved in formalin and send to the Oral Pathologist, while 20% believed that saline could be used for this purpose. Specimen preservation is a very important aspect in biopsy results. If the tissue is not preserved in the proper solution, a lot of artefacts can occur leading to difficulty in diagnosis. This will lead to repeating the biopsy, causing unnecessary trauma to the patient and a delay in diagnosis thereby, affecting the quality of the treatment given to the patient.

5. CONCLUSION

In time we have witnessed that the dental field is growing at huge speed and achieving new developments every day. However, when it comes to performing a biopsy which is indeed a gold standard for the diagnosis of oral cancer, we are inept. Many GDPs do not perform a biopsy on their own due to lack of confidence and skills. There is a need for further training in biopsy procedures to gain confidence to perform biopsy procedures on their own for GDPs in addition to creating awareness with accessible pathology support.

We have seen various organisations holding conferences related to many dental procedures but not many have been organized for basic procedures like biopsy. Even during the COVID era, dental education has continued unhindered in the form of online webinars, yet only few sessions were seen to focus on the biopsy procedures and their

technical aspects. Oral cancer is definitely difficult to deal with, however as the saying goes that 'Timing is everything', early and timely diagnosis will definitely help improve the longevity and quality of patients' lives. Biopsy should be mandatory in all the suspicious lesions and so should be training for performing biopsy procedures for GDPs. This study was an attempt to urge the concerned organizations to revisit the curriculum of the undergraduate dental

course and incorporate the basic biopsy procedure as part of the training.

CONFLICT OF INTEREST

I (we) certify that there is no conflict of interest.

AUTHOR CONTRIBUTIONS

RP and **MT**: concept, protocol, data gathering or analysis and their interpretation. **RP**, **DV** and **PA**: critically revised the manuscript.

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Questions

1. The term Biopsy was coined by:

- a. Erasmus Wilson;
- b. Ernest Besnier;
- c. Thomas E Bond;
- d. Robert Gorlin.

2. The most common solution for specimen preservation is:

- a. Saline;
- b. Alcohol;
- c. Formalin;
- d. Distilled water.

3. What is the indication for performing a biopsy?

- a. A non-healing long standing lesion;
- b. To arrive at a final diagnosis;
- c. Lesions hampering normal physiological function;
- d. All of the above.

4. Incisional biopsy is

- a. Removal of a small portion of tissue from a larger lesion;
- b. Removal of a smaller lesion in toto;
- c. Removal of scrapings from the lesion;
- d. All of the above.



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