

# Knowledge, attitude, and practice of general dental practitioners towards oral biopsy procedures

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## Abstract

**Background:** Oral biopsies are not routinely practised by general dental practitioners (GDPs) globally. However GDPs should perform the biopsy procedures for oral lesions. The clinical and histopathological correlation is needed for the diagnosis of certain oral lesions.

**Objectives:** To assess the knowledge, attitude, and practice of oral biopsy procedures among the GDPs.

**Methods:** A descriptive cross-sectional questionnaire study was conducted from 2021 October to December among GDPs who were graduates of Kathmandu Medical College and registered in Nepal Medical Council. Census method was used for data collection. After institutional ethical approval, a standard questionnaire was used using Google Forms, and emailed to the GDPs (N = 72). Initial information about the study was given through the phone calls from academic section of the hospital to all the participants and follow-up was done using social media. Descriptive analysis was done using Google Sheets.

**Results:** There was 100% response rate from the participants with predominance (45, 62.5%) of female respondents. Majority (54, 75%) of respondents were in age group of 25-29 years. Although 38 (52.8%) practitioners came across the oral lesions that needed biopsy, only two (2.8%) of them were able to perform biopsy on their own. The concept that biopsy is specialist-related procedure and lack of skill could be the main reasons for not performing the procedure.

**Conclusion:** Majority of GDPs lack skill and confidence for performing oral biopsies. Hence, in the undergraduate dental programme itself, the priority should be given to skill-based knowledge of various oral biopsy procedures.

**Key words:** General dental practitioners; Lesions; Oral biopsy; Undergraduate dental education.

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## INTRODUCTION

Present era of dentistry and medicine believes in evidence-based management and outcomes. Meanwhile among all other diagnostic procedures, biopsy is still considered as the gold standard.<sup>1</sup> In Greek, 'bios' = life and 'opsis' = vision, thus biopsy means vision of life. A biopsy procedure consists of obtaining tissue from living organism with the purpose of microscopic examination in order to establish an accurate diagnosis.<sup>2</sup> Thus obtained tissue is fixed in 10% neutral buffered formalin solution for proper histopathological examination.<sup>3</sup>

Biopsy is advocated in all oral lesions that persist for more than 15 days even after cause removal.<sup>2</sup> Clinically, dental surgeons or general dental practitioners (GDPs) should be able to perform simple biopsy procedures. Unfortunately, majority of GDPs worldwide are not performing biopsies.<sup>3</sup> Lack of skill, misconception regarding biopsy as a specialist-oriented procedure, and

medicolegal concerns might be the possible causes. A GDP must be able to detect and examine various oral lesions for accurate diagnosis, treatment, and better prognosis.<sup>4,7</sup> The aim of this study was to assess the knowledge, attitude, and practice of GDPs towards biopsy procedures so that the need for biopsy trainings as well as requirement of technical assets for the biopsy in dental clinics can be assessed.

## METHODOLOGY

A descriptive cross-sectional questionnaire study was conducted by Department of Oral Pathology and Microbiology from 2021 October to 2021 December among GDPs after ethical approval was obtained from Institutional Review Committee of Kathmandu Medical College (Ref. 2308202103). A standard questionnaire from a previous study<sup>8</sup> was used on Google Forms, and was emailed to the GDPs (N = 72) who were graduates of Kathmandu Medical College and were registered in Nepal Medical council (NMC) before 2020. Although sample size was calculated to be 57, a total of 72 GDPs were included for the study using "census" method. Sample size was calculated using formula  $n = Z^2 p (1-p)/e^2$ ; where n = sample size; Z = 1.96 at 95% confidence level; p = 0.962 (96.2% GDPs encountered lesions requiring oral biopsy);<sup>8</sup> and e = 0.05 (taking 5% margin of error).

The list of GDPs was retrieved from Academic Section of Kathmandu Medical College (KMC) at Duwakot, Bhaktapur, Nepal. The participants who met the inclusion criteria were selected and questionnaire was mailed to them. Inclusion criteria were: participants must be a graduate of Kathmandu Medical College, NMC registered before 2020, working as dental practitioners, and not enrolled in postgraduate dental programme. An online questionnaire was adapted from previous study and was used on Google Forms to create the link.<sup>8</sup> This closed-ended questionnaire adapted from previous study consisted of two sections; the first comprised of

the socio-demographic and professional aspects and the second section consisted of 12 questions related to knowledge of oral lesions requiring biopsy, biopsy methods, diagnostic pathology, referral, preservation of specimens and questions related to attitude and the practice of oral biopsy by GDP's. All the participants were contacted via mobile phones, Facebook Messenger, Viber, or Whatsapp before electronically mailing the questionnaire to them. Thus obtained data from Google Forms were opened in Google Sheets and descriptive analysis was done.

## RESULTS

All of the 72 (100%) GDPs who were mailed responded the questionnaire. Among the total respondents, female predominance was observed (45, 62.5%). Among the participants, majority (54, 75%) were in the age group of 25-29 years with the experience of dentistry practice of less than five years (44, 61.1%).

When assessing the knowledge about oral lesions requiring biopsy, majority (38, 52.8%) of GDPs felt that biopsy was needed for the definitive diagnosis for most of the oral lesions they had encountered during their practice (Table 1). Regarding the practice of biopsy, majority of GDPs either called a specialist or referred it to higher centre for the analysis (Table 2). When GDPs were asked about how often they came across the oral lesions requiring biopsy, the majority response of 41 (56.9%) participants was observed for at least in a year. The response about practice of specimen preservation method, 58 (80.6%) said, they did in formalin (Table 3). Regarding the knowledge, 18 (25%) GDPs had knowledge of both types of excisional and incisional biopsies (Table 3). However, 69 (95.8%) GDPs felt need for updating their knowledge regarding various biopsy procedures, whereas 35 (48.6%) respondents updated their knowledge through Journals and internet (Table 5).

**Table 1:** Questions on knowledge regarding the oral lesions requiring biopsy and their personal experience for the same (N = 72)

Lesions	Which lesions require biopsy according to you?	Which lesions have you come across in your practice?
	n (%)	n (%)
All	37 (51.4)	12 (16.7)
Premalignant lesions only	1 (1.4)	4 (5.6)
Benign lesions only	-	1 (1.4)
Malignant lesions only	-	-
Cysts only	1 (1.4)	3 (4.2)
Benign and malignant lesions	1 (1.4)	1 (1.4)
Benign and premalignant lesions	-	6 (8.4)
Premalignant and malignant lesions	9 (12.5)	-
Malignant lesions and cysts	-	1 (1.4)
Benign lesions and cysts	-	1 (1.4)
Premalignant lesions and cysts	-	9 (12.5)
Benign lesions, premalignant lesions, and cysts	3 (4.2)	10 (13.9)
Benign, premalignant, and malignant lesions	19 (26.4)	-
Benign lesions, malignant lesions, and cysts	-	2 (2.8)
Benign lesions, premalignant lesions, malignant lesions, cysts, and any other	-	17 (23.6)
Not specific	1 (1.4)	5 (6.9)

**Table 2:** Questions on practice for the lesions requiring biopsy

For lesions requiring biopsy what do you do?	Response n (%)
Call a specialist	10 (13.9)
Refer to a higher centre	13 (18.1)
Perform biopsy on their own	2 (2.8)
Either call a specialist or refer to a higher centre	46 (63.9)
After removal do you send for analysis?	Response n (%)
Always	46 (63.9)
Only when required	14 (19.4)
Only sometimes	3 (4.2)
No response	5 (6.9)

**Table 3:** Questions regarding practice towards oral lesions requiring biopsy and its methods used for preservation

How often do you come across an oral lesion requiring biopsy?	Response n (%)
At least once in five years	4 (5.6)
At least once in a year	41 (56.9)
At least once in a month	16 (22.2)
At least once in a week	3 (4.2)
Any other specify	7 (9.7)
Method(s) of biopsy used	Response n (%)
Incisional biopsy	6 (8.3)
Excisional biopsy	8 (11.1)
FNAC	1 (1.4)
Incisional and excisional both	18 (25)
All three	28 (38.9)
No response	9 (12.5)
Method for preservation of specimen used in your clinic	Response n (%)
Formalin	58 (80.6)
Saline/ alcohol	5 (6.9)
No response	7 (9.7)

**Table 4: Questions on knowledge of biopsy procedures and preservation of the specimens among the general dental practitioners**

Which types are you of biopsy methods aware of?	Response n (%)
Incisional biopsy only	26 (36.1)
Excisional biopsy only	23 (31.9)
Fine needle aspiration only	24 (33.3)
Exfoliative cytology only	19 (26.4)
Incisional and excisional both	50 (69.4)
Incisional and FNA	23 (31.9)
How do you think, the specimen should be preserved before sending for analysis?	Response n (%)
Formalin	56 (77.8)
Saline	No response
Formalin and saline both	15 (20.8)
Alcohol	No response
Any other	No response

**Table 5: Questions for Responses regarding updating their knowledge of biopsy procedures**

Do you feel there is a need to update your knowledge regarding lesions and biopsy procedures?		Do you update yourself Regarding the same? (%)		If yes, how do you update yourself? (%)	
Yes	69 (95.8)	Yes	46 (63.9)	Journals	1 (1.4)
				Internet	21 (29.2)
No	-	No	4 (5.6)	CDE	1 (1.4)
				conference	4 (5.6)
Maybe	1 (1.4)	Maybe	21 (29.2)	Journals and internet both	35 (48.6)
				Any other sources	3 (4.2)
				No response	4 (5.6)

## DISCUSSION

A GDP should be able to detect and identify the oral lesions for early detection and management of the case. Oral lesions requiring biopsy must be considered seriously as lesions like early invasive carcinoma might not be diagnosed clinically. For such lesions biopsy is the gold standard investigative procedure in dentistry. In such circumstances a dental surgeons (the general dental practitioners) should have knowledge of biopsy procedure, tissue preservation, and handling of the specimen.

The global response rate of the questionnaire study has been reported as low in comparison to this study (100%).<sup>3</sup> However, the response rate was similar to the study conducted in Nepal by Shrestha et al.<sup>8</sup> which was 90.54%. The reason could be the small sample size and direct approach with graduates of only one institution.

The first set of questionnaire was regarding the knowledge for oral lesions requiring biopsy, the response showed very satisfactory result that 37 (51.4%) GDPs felt all the lesions required biopsy and 12 (16.7%) had encountered almost all the lesions listed in the questionnaire. As stated earlier, the accessibility of GDPs to the variety of patient along with oral lesions were maximum. If the GDPs have proper knowledge regarding the oral lesions their proper diagnosis is possible. Therefore, it is indicated that GDPs should have sufficient knowledge regarding oral pathologies for patients' well-being.

It was observed that 41 (56.9%) of GDPs came across oral lesions requiring biopsy once in a year similar to the study conducted in Brisbane (63.6%) and by Shrestha et al. In Nepal.<sup>6,8</sup> Present study also showed that 16 (22.2%) of respondents come across the oral lesions requiring biopsy once in a month in accordance with the study done by Anandani et al.<sup>9</sup>

In this study two (2.8%) respondents performed biopsy on their own which was not commendable. Unfortunately, the result was in accordance with Diamanti et al. (15%) in Manchester, Wan et al. (22.7%), Cowan et al. (12%) in Northern Ireland.<sup>4,6,10</sup> Whereas Seoane et al. have reported that 24.5% GDPs perform biopsies in Northwest Spain. In Norway, Berge et al. found that 56% of dentists attempted biopsy.<sup>7,11</sup> The reasons for not performing biopsy by GDPs might include lack of confidence, medicolegal issues, unfamiliar with techniques and misconception that it is specialist related procedure.<sup>4</sup> Exceptionally, biopsy procedures are not performed by GDPs. In present study, majority (46, 63.9%) of biopsy cases were either referred to higher centres or a specialist was called for the procedure. Studies by Wan and Savage, Diamanti et al., Murgod et al., and Anandhani et al., all reported that 76.2%, 55%, 64.67%, and 50.8% respectively referred the cases for biopsy procedures similar to present study.<sup>4-6,9</sup> Fortunately after the removal of tissue, majority of GDPs were aware about the use of tissue fixative such as formalin (58, 80.6%). However five (6.9%) respondents used either alcohol or saline as fixative. It showed either their ignorance or lack of knowledge about use of 10% Formalin. Formalin is required for the optimal tissue fixation, whereas saline or alcohol may cause artifact that might mislead the histopathological diagnosis.<sup>12</sup> Artefacts in the tissue specimen can cause diagnostic pitfalls and misery to both the patient and the clinician.<sup>2</sup>

Furthermore, respondents were aware of all the methods of biopsy, with 50 (69.4%) comprising incisional and excisional both as mentioned in the questionnaire, in accordance to the study by Murgod et al. (59.7%).<sup>5</sup> The GDPs must have knowledge of indication and contraindication of biopsy methods, which will help them for choosing appropriate method in particular cases.

Almost all the respondents (69, 95.8%) appraised the need of updating knowledge regarding lesions and biopsy procedures. Among them half of the participants (35, 48.6%) were doing so by using various platforms like health journals, internet, seminars, conference, and continuous dental education programmes. The finding was similar to the study by Shrestha et al. and Anandhani et al.<sup>8,9</sup>

Limitations of the present study could be the small sample size and single centre study. The findings thus obtained cannot be generalised among all the GDPs from Nepal. The findings are restricted to those who have responded to the questionnaire. Furthermore, large sample size, multicentric approach, and self-administered questionnaire are needed for the validity of findings.

## CONCLUSION

Majority of general dental practitioners are not performing biopsy because of lack of experiences and practical skill. Most of the general dental practitioners are exposed to the variety of oral lesions specially premalignant and malignant lesions. Now it is an alarming sign, thus as educators, we need to train them to enhance their skill so that they become more confident and competent for performing the procedure themselves.

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