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Original Article

Dentistry Section

Awareness about Importance of Clinical and Radiological Details for Histopathological Reporting among Practicing Oral Pathologists in Kerala, India

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ABSTRACT

Introduction: Clinical history and examination, radiography and histopathology are the three pillars of accurate diagnosis. The decisive nature of histopathology reporting has made it the cornerstone of modern medical science, thus making it extremely important to render timely and well-elaborated reports with utmost diagnostic accuracy. Inadequate communication between the clinician/surgeon, radiologist and the histopathologist hampers the delivery of correct and complete diagnosis on time.

Aim: To assess the awareness among practicing Oral pathologists from Kerala, India about importance of clinical and radiographic details for histopathological reporting.

Materials and Methods: A population-based, cross-sectional questionnaire study was conducted from January 2022 to April 2022. Kerala was divided into four zones-North, South, East and West. An online questionnaire containing eight questions was devised and circulated among 75 practicing Oral Pathologist from each zone through digital messenger platforms or e-mail. Descriptive statistics (frequency and percentage) was calculated using Microsoft excel 2020.

Results: A total of 220 responses were received. Among the participants, 100 (45.5.%) stated that their clinician or surgeon did not provide them with adequate clinical and radiographic details. It was found that 140 (63.6%) participants opined that their clinicians or surgeons used to specify the clinical details and in 188 (85.5%) cases the surgeon or clinician mentioned the demographic data.

Conclusion: It was concluded that there was a good awareness among practicing Oral Pathologists from Kerala, India, regarding the importance of clinical and radiographic details for histopathological reporting.

Keywords: Clinical information, Demographic data, Survey

INTRODUCTION

Clinical history and examination, radiography and histopathology are the three pillars of accurate diagnosis. The decisive nature of histopathology reporting has made it the cornerstone of modern medical science, thus making it extremely important to render timely and well-elaborated reports with utmost diagnostic accuracy [1]. Inadequate communication between the clinician/surgeon, radiologist and the histopathologist hampers the delivery of correct and complete diagnosis on time [2].

The role of a histopathologist is to help clinicians to arrive at a diagnosis in the most accurate way. At the same time, it is the duty of clinicians to provide them with adequate and pertinent clinical information [1]. The histopathologist cannot see the specimen from a clinician's point of view without a deep insight into the patient's clinical information, provisional diagnosis and need for the biopsy [1]. Without these crucial details, the histopathology report might fail to answer the desired queries and fall short of the clinician's expectation. It may cause a delay in reporting time and may lead to inaccurate diagnosis [3].

Radiology localises the suspicious lesions and gives an idea of involvement of internal structures whereas Pathology describes it's histologic and molecular behaviour [4]. The integration of radiographic and histopathology reports is crucial in accurate and timely diagnosis of any lesion [4]. Diagnosis of a specific group of lesions, like fibro-osseous lesions based on histopathologic features alone, is difficult and it needs radiographic as well as clinical correlation for accurate diagnosis [5]. Radiographic details like bone expansion, bone perforation, root resorption, tooth displacement and pathological fracture can give clues regarding the aggressive nature and progression of the lesion [6].

The histopathologist must check if all the clinical and radiographic details have been provided in the biopsy requisition form by the clinician or surgeon while receiving a tissue specimen for histopathological evaluation. Existing literature suggest that clinical information and radiographs improve the accuracy of histopathological interpretation [5]. However, none of the studies have questioned the awareness among practicing Oral pathologists about the importance of these details for furnishing an accurate histopathological diagnosis. Introspection into the existing awareness identifies the lacunae in the system, and paves the way for establishing practice guidelines that will ultimately benefit the patient.

The present study aimed to assess the awareness among practicing Oral pathologists from Kerala, India, regarding the importance of clinical and radiographic details for histopathological reporting.

MATERIALS AND METHODS

A population-based, cross-sectional study was carried out in the state of Kerala, India from January 2022 to April 2022. The study was approved by the Institutional Ethics Committee, Saveetha Dental College (IEC/SDC/MDS04/22/OMP/12).

Inclusion criteria: Oral pathologists, who were actively practicing in Kerala, India, and who have provided their consent for participating in the study were included.

Exclusion criteria: Participants were excluded from the study if they were not actively involved in histopathological reporting, had submitted incomplete responses, or had not consented to be a part of the study.

Sample size calculation: The sample size was calculated based on a study by Romin H et al., [7] using the Taro Yamane formula,

$$n=\frac{N}{1+N\times(e)^2}$$

where,

n-the sample size

N-the population size

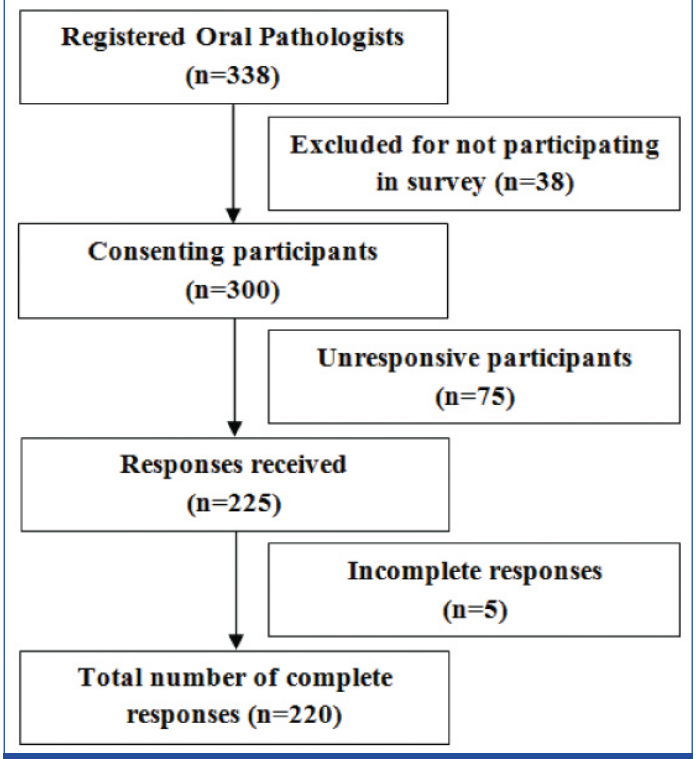
e-acceptable sampling error

The total sample size was calculated to be 300. Stratified sampling method was used to include participants in the study. Kerala was divided into four zones-North, South, East and West. From each zone, 75 Oral Pathologists were selected using simple random sampling.

Questionnaire

Following a review of literature to identify the lacunae in awareness, a questionnaire containing eight questions was devised by the authors (RM and SM) using an online form application. The questionnaire was thoroughly reviewed by a panel of two reviewers from the Department of Oral and Maxillofacial Pathology. The modifications suggested by the review panel regarding the arrangement and structure of questions were carried out. Test-retest method was used to assess the reliability of the questionnaire which came out to be 0.8 suggesting good agreement. Content Validity Ratio (CVR) was calculated to assess the validity of the questionnaire which came out to be 0.95. All the questions were essential and none needed to be omitted.

An online form containing the questionnaire was created and the link for the same was circulated through digital messenger platforms or e-mail among the 300 practicing Oral Pathologists included in the study. Responses were collected from the website through which the questionnaire was created. The purpose of the study, privacy protection statement and consent declaration statement were provided at the beginning of the survey. The respondents were asked to click a button of acceptance to participate in the survey. For the purpose of this study, good awareness was assigned if more than 50% of the study participants were aware about the importance of clinical and radiographic details for accurate histopathological reporting. The flowchart of study participants has been depicted in [Table/Fig-1].



[Table/Fig-1]: Flowchart of study participants.

STATISTICAL ANALYSIS

All the responses that were received were tabulated. Descriptive statistics (frequencies and percentage) was calculated using Microsoft excel 2020.

RESULTS

A total of 220 responses were received. Among the 220 practicing Oral Pathologists, 147 (66.8%) were males and 73 (33.2%) were females. The participant's age ranged from 30-73 years, with a mean age of 51.5 years. Based on the geographical distribution, 67 (30.45%) of the participants belonged to the West zone, 53 (24.09%) were from the South zone, 51 (23.16%) from North zone, and 49 (22.3%) were from the East zone.

Participants, 100 (45.5%) stated that their clinician or surgeon did not provide them with adequate clinical and radiographic details. It was found that 140 (63.6%) participants opined that their clinicians or surgeons used to specify the size, shape, site, colour and extent of the lesion. The surgeon or clinician mentioned the demographic data in case of 188 (85.5%). Among the participants, 212 (96.4%) experienced difficulty in diagnosis if the clinical and radiographic details provided were insufficient. It was agreed by 216 (98.2%) participants that they would ask the clinician or surgeon for clinical and radiographic pictures if the details were insufficient. Availability of online platforms and social media had made it easier for 216 (98.2%) participants to exchange information with their clinician or surgeon. Out of total participants, 160 (72.7%) opined that they asked their radiologist peers for opinion while interpreting radiographs. It was also found that 176 (80%) participants opined that they would prescribe a radiographic investigation if need arises and even if the clinician had not asked for the same. The responses have been summarised in [Table/Fig-2].

S. No.	Questions	Yes n (%)	No n (%)
1.	Does your clinician/surgeon provide you with adequate clinical and radiographic details?	120 (54.5)	100 (45.5)
2.	Does your clinician/surgeon specify the size, shape, site, extent and colour of the lesion?	140 (63.6)	80 (36.4)
3.	Does your clinician/surgeon specify the demographic details (age, sex, location)?	188 (85.5)	32 (14.5)
4.	Do you experience difficulty in narrowing down your diagnosis if clinical details are insufficient?	212 (96.4)	8 (3.6)
5.	Do you ask the clinician/surgeon for a clinical picture or radiographic picture if the clinical details are insufficient?	216 (98.2)	4 (1.8)
6.	Has the availability of online messenger platforms and social media made it easier to exchange information with your clinician/surgeon?	216 (98.2)	4 (1.8)
7.	Do you ask your radiologist peers for their opinion to interpret the radiographs?	160 (72.7)	60 (27.3)
8.	Would you prescribe a radiographic investigation by yourself if the clinician/surgeon have not done so?	176 (80)	44 (20)

[Table/Fig-2]: Questions included in the questionnaire and their responses.
n: Number of participants, %: Percentage

DISCUSSION

The current study assessed the awareness about importance of clinical information and radiographic details for histopathological reporting among practicing Oral Pathologists from Kerala, India. In the present study, 45.5% of the participants stated that their clinician or surgeon did not provide them with adequate clinical

and radiographic details. This number is comparatively higher than other studies where the rate of inadequacy was only around 2.4% to 6.1% [8,9]. This could be due to increased number of patients, time constraints, lack of familiarity to certain specific terminologies, open-ended nature of the requisition form or improper knowledge regarding the importance of these details [10-13]. 63.6% participants opined that their clinicians or surgeons used to specify the size, shape, site, colour and extent of the lesion. This is in accordance with a previous study by Romano RC et al., who postulated that the lack of specific questions pertaining to these clinical features are seldom mentioned in the biopsy requisition form, which may be responsible for lack of these data [14]. The demographic data was mentioned in the case of 85.5% of the participants. Previously published literature by Shrestha LB and Pokharel K, suggests that the name of the patient and other demographic data is crucial for identifying the patient and helps in correlating the findings with previous investigation results. Hence, the clinicians or surgeons seldom tend to miss providing this information [15].

Insufficient clinical and radiographic data led to difficulty in arriving at a diagnosis in 96.4% of the participants. In their study, Ali SMH et al., reported that a barrier in effective communication of the adequate clinical and radiographic details can make histological diagnosis difficult due to involvement of additional steps like deeper or serial sections [1]. Employing additional investigations like special stains and immunohistochemistry would further increase the turnaround time [14].

In this study, 98.2% participants said that they would ask the clinician or surgeon for clinical and radiographic pictures if the details were insufficient and agreed that availability of online platforms and social media had made it easier to exchange information with their clinician or surgeon. In their study, Janagond AB and Inamadar AC postulated that the availability of clinical photographs can lead to more specific and accurate diagnosis [12]. The emergence of online messenger services and social media has made effective communication possible between clinicians and pathologists even in low resource areas, as a part of teledentistry practice [16,17].

In the current study, 72.7% of the participants opined that they asked their radiologist peers for opinion while interpreting radiographs. Oh AS et al., in their study, suggested that effective communication between a pathologist and a radiologist could reduce potential diagnostic confusions and help the pathologist arrive at an accurate diagnosis [18]. 80% participants opined that they would prescribe a radiographic investigation if need arises and even if the clinician had not asked for the same. This is in accordance with a study by Kumar J et al., who reported that prescribing radiographs are justified for acquiring information that will assist in arriving at a proper and timely diagnosis [6].

It is extremely essential that each specimen reaching the laboratory should be accompanied by an adequate description of what it represents, an appropriate and detailed clinical history and radiograph. This would ensure reduced turnaround time and a more efficient and accurate diagnosis, which would be beneficial for patient's treatment.

Limitation(s)

This study has some potential limitations, which should be acknowledged. Firstly, the use of an online questionnaire-based survey may overlook Oral Pathologists who do not have access to internet or social media accounts. Secondly, the sample size was not very large. However, considering that Kerala is a small state area-wise, the sample size is justifiable.

CONCLUSION(S)

The present study compared and highlighted the existing knowledge and lacunae in the awareness among practicing Oral Pathologists from Kerala regarding the importance of clinical and radiographic information for accurate histopathological reporting. Authors found that there was a good awareness among practicing Oral Pathologists from Kerala, India, regarding the importance of clinical and radiographic details for histopathological reporting. Clinical information and radiographic details play a crucial role in arriving at an accurate and timely histopathological diagnosis. The biopsy requisition form should be designed in such a way that provisions to mention all clinical and radiographic details must be provided. The clinicians and surgeons must make it a point that all the relevant findings must be included while submitting a biopsy specimen to the laboratory to ensure accurate and timely diagnosis. Future research must focus on formulating and designing a standard operating protocol, and an online digital platform for sharing the necessary clinical and radiographic details and photographs for ease of histopathological reporting and to facilitate accurate final diagnosis.

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Authors contribution: The corresponding author (Dr. Rahul Mohandas) originally belongs to Kerala and is a Kairali Society of Oral and Maxillofacial Pathologists member. However, his current affiliation belongs to Dr. D.Y. Patil Dental College and Hospital, Pune, Maharashtra. The study was conducted at Saveetha Dental College, Chennai while he was pursuing PG there. Moreover, the third author (Dr. Pratibha Ramani) belongs to Saveetha Dental College.

REFERENCES

[1] Ali SMH, Kathia UM, Gondal MUM, Zil-E-Ali A, Khan H, Riaz S, et al. Impact of clinical information on the turnaround time in surgical histopathology: A retrospective study. Cureus. 2018;10(5):e2596.
[2] Forae GD, Obaseki DE. Adequacy of clinical information supplied by clinicians for histopathologic diagnosis: The University of Benin teaching hospital experince. New Nigerian Journal of Clinical Research. 2017;6(9):12.
[3] Richards D, Morren JA, Pioro EP. Time to diagnosis and factors affecting diagnostic delay in amyotrophic lateral sclerosis. J Neurol Sci. 2020;417:117054.
[4] Atta IS, AlQahtani FN. Integrated pathology and radiology learning for a musculoskeletal system module: An example of interdisciplinary integrated form. Adv Med Educ Pract. 2018;9:527-33
[5] Pick E, Schäfer T, Al-Haj Husain A, Rupp NJ, Hingsammer L, Valdec S, et al. Clinical, radiological, and pathological diagnosis of fibro-osseous lesions of the oral and maxillofacial region: A retrospective study. Diagnostics (Basel). 2022;12(2):238.
[6] Kumar J, Vanagundi R, Manchanda A, Mohanty S, Meher R. Radiolucent jaw lesions: Imaging approach. Indian J Radiol Imaging. 2021;31(1):224-36.
[7] Romin H, Akkajit P. A study of Knowledge, Attitude, and Practice (KAP) of personnel in clinic regarding infectious waste management case study: Mueang Phuket District, Phuket. Int J of Environ Sci Dev. 2018;9(6):152-56.
[8] Nwafor CC, Obioha K. Preanalytic determinants of surgical pathology practice in Uyo. Saudi J Health Sci. 2018;7:33-38.
[9] Oyelekan AA, Ojo OT, Olawale OO, Adeleye OO, Sogebi OA, Osinupebi OA, et al. Pattern of completion of laboratory request forms in a tertiary health facility. Ann Health Res. 2018;4(2):155-61.
[10] Al-Saif FM, Binsufayan SA, Alhussain AH, Alkaff TM, Alshaikh HM, Aldosari MS, et al. Clinicopathological concordance in the diagnosis of skin diseases: A retrospective analysis of 5000 histopathology reports. Ann Saudi Med. 2019;39(6):388-94.
[11] Comfere NI, Sokumbi O, Montori VM, LeBlanc A, Prokop LJ, Murad MH, et al. Provider-to-provider communication in dermatology and implications of missing clinical information in skin biopsy requisition forms: A systematic review. Int J Dermatol. 2014;53(5):549-57.
[12] Janagond AB, Inamadar AC. Clinical photography in dermatology: Perception and behavior of dermatologists-A pilot study. Indian Dermatol Online J. 2021;12(4):555-60.
[13] Ní Riain A, Maguire N, Collins C. Minor surgery in general practice in Ireland- a report of workload and safety. BMC Fam Pract. 2020;21(1):115.
[14] Romano RC, Novotny PJ, Sloan JA, Comfere NI. Measures of completeness and accuracy of clinical information in skin biopsy requisition forms: An analysis of 249 Cases. Am J Clin Pathol. 2016;146(6):727-35.
[15] Shrestha LB, Pokharel K. Standard operating procedure for specimen collection, packaging and transport for diagnosis of SARS-COV-2. JNMA J Nepal Med Assoc. 2020;58(228):627-29.
[16] Tamba B, Diatta M, Kounta A, Kane M, Gassama B, Ba A, et al. Whatsapp platform as a teledentistry tool in oral and maxillofacial pathologies in Senegal. Advances in Oral and Maxillofacial Surgery. 2021;3:100-23.

[17] Ramdurg P, Naveen S, Mendigeri V, Sande A, Sali K, Smart app for smart diagnosis: Whatsapp a bliss for oral physician and radiologist. J Oral Med Oral Surg Oral Pathol Oral Radiol. 2016;2(4):219-25.

[18] Oh AS, Arnold CW, Vangala S, Wallace WD, Genshaft SJ, Sarma K, et al. Imaging-histologic discordance at percutaneous biopsy of the lung. Acad Radiol. 2015;22(4):481-87.

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