IBOM MEDICAL JOURNAL
Vol.18 No.3 | July - September 2025 | Pages 533-538
www.ibommedicaljournal.org

Ambiguous report in anatomic pathology; a southwestern Nigeria experience

Ano-Edward GH[1], Ajao IO[2], Uduagbmen PK[3], Onabanjo BD[4]

[1,4]Department of Anatomic Pathology, Bowen University Teaching Hospital Ogbomoso, Oyo, Nigeria.
[2]Department of Statistics, Federal Polythechnic, Ado-Ekiti, Ekiti, Nigeria.
[3]Department of Internal Medicine, Nephrology Unit, Bowen University Iwo, Oyo State, Nigeria.

Abstract

Background: Ambiguity in anatomic pathology reports is common, with terms like "suspicious for," "indefinite for," and "see text" used to express diagnostic uncertainty.
Objective: The study assessed the frequency of use of ambiguous terms in anatomic pathology reports in our hospital.
Methods: The retrospective cross- sectional study involved 125 cases of surgical pathology results with ambiguous terminology in Bowen University Teaching Hospital, Ogbomoso, from January 2012 to December 2020. The patients' sociodemographic data, years of experience of the pathologists, adequacy of biopsy samples, and cases with terms such as "non-representative", ''see description'' ''see text'', and ''inadequate for opinion'' were retrieved. All cytology reports, surgical pathology reports with standard diagnoses and reports with incomplete biodata were excluded.
Results: There was a male predominance 69 (55.2%) in the studied sample population. A greater proportion (36.8%) of the samples population were of the elderly group About 2.36% of the surgical samples reports were ambiguous. The ambiguous terms "See text (49.6%) and see description (28%)" were more common in the reports Out of the total number of samples studied, 111 (88.80%) of the samples were considered as being adequate and, 14 (11.20%) was inadequate. Most of the specimens that were considered as inadequate were from tru-cut and small biopsies.There was no significant gender difference in the samples reported as inadequate, (p=0.6780.). All the pathologists used ambiguous terms and, there was no significant difference in the use of ambiguous terms between the inexperienced and experienced pathologists (p=0.108).
Conclusion: Ambiguous reports in anatomic pathology were common and were used by all categories of pathologists. These have become ways of avoiding specific diagnosis in cases that are uncertain thereby reducing errors and possible attendant litigations. Re-training programmes for pathologists should be encouraged with provision of high tech ancillary investigations for practicing pathologists to minimize the frequency of ambiguous reports and their attendant negative impact on the management of patients and research.

Keywords: Histopathology report, ambiguity, sample adequacy, surgical pathology

Corresponding Author:

Dr. Ano-edward GH
Department of Anatomic Pathology, Bowen University Teaching Hospital Ogbomoso, Oyo state, Nigeria

ORCID: 0000-0002-2496-6788

gbemi.ano-edward@bowen.edu.ng

DOI: 10.61386/imj.v18i3.714

Introduction

Ambiguity is the quality of being open to more than one interpretation. Pathologists often use ambiguous terms like "suspicious for", ''indefinite for'', ''cannot rule out'', ''consistent with'', ''compatible with'','' in keeping with'', ''raises the possibility of'', ''suggestive of'', ''favours" to express varying degrees of uncertainty in diagnoses.[1] Terms such as "see text and comments,

and inadequate for evaluation" are also used. This practice which is common among pathologist can be attributed either to a lack of absolute diagnostic certainty or a ritualistic caution to avoid liability risk.[1] Furthermore, it may be due to non-standardized histomorphology, ambiguous immunohistochemical stains, lack of clinical information, uncertain diagnostic criteria in literature and lack of experience with the diagnosis.[2] It is therefore not much of a surprise that clinicians and other health care professionals tend to apply the results the way they deem it fit and, this may not be in agreement with the pathologist's line of thought.[2] The interpretation of these phrases and the level of certainty that they convene can be confusing and, this could have an impact on the management of the patient. Although, audits conducted in histopathology, commonly produces useful reports, however, the challenges associated with ambiguity are often times not addressed.[3,4] It was shown in 2004 that 96 veterinary pathologist used 68 unique terms to describe uncertainty.[5]

Pathology is presumed to be the final line in making a diagnosis, so uncertainty in reports could lead to delayed or wrong treatment, unnecessary repeat biopsy, delay in other diagnostic processes and interventional procedures. These could lead to higher cost of treatment, longer hospital stay, and poor management outcome.[2] Pathologist may at times recognize a diagnostic entity but fail to communicate his or her findings or concerns conclusively.[6] This fear of making errors could account for this act, steps have however been taken to improve patient safety and quality in anatomic and clinical pathology.[7] Several pathology laboratories have implemented various strategies to minimize the frequency of diagnostic errors and improve patient safety.[8,9,10] There is paucity of research findings on the use of ambiguous terms in Nigeria and sub-Sahara Africa (SSA). This has been a major contributor to the persistent practice of using ambiguous terms in several centres despite advances in histopathologic services and ancillary investigations. The increasing number of modern, better-equipped pathology laboratories in Nigeria, coupled with the heightened emphasis on the training of more pathologist by the postgraduate medical colleges could mitigate the frequency of ambiguous pathology reports. Minimizing the occurrences of medico-legal cases is widely believed to be the impetus driving the necessity for ambiguous pathology reports.[7] This study determined the frequency of use of ambiguous pathology terms which enabled us to proffer some recommendations that could positively impact pathology practice and management outcome.

Materials and method

Study Location: The study was conducted at the Anatomic Pathology laboratory in Bowen University Teaching Hospital (BUTH), Ogbomoso, South-West Nigeria, a missionary reference hospital. The Anatomic Pathology laboratory in BUTH, established 13 years ago has had the inputs of seasoned pathologist including professors and newly qualified pathologists, with the longest serving pathologist in his second decade of service. The centre presently has two pathologists working full time in the laboratory. About nine pathologists have worked in the lab over the past 13 years. The laboratory offers surgical pathology services, cytology services, histochemical stains, forensic pathology and mortuary services.

Study Design: The retrospective descriptive cross-sectional study assessed the reports of pathologists working in the anatomic pathology laboratory of the Teaching Hospital during the period covered by the study (8 years). The pathologists were grouped into three. Group 1 consisted of pathologists with little experience (post qualification years less than 6 years), Group 2 had pathologists with moderate experience (post qualification years 6-10 years), while, group 3 consisted of highly experienced pathologists (post qualification years more than 10 years).

Sample size: One hundred and twenty-five of the total 5300 cases seen from 2012 to 2020 were reviewed, having met the inclusion criteria.

Sampling Technique: Convenience sampling method was used where all available cases within the specified time frame were included. The data extracted from histopathology reports taken from the routine and digital archives of the anatomic pathology laboratory included variables such as the sociodemographics, the pathologists' years of experience, adequacy of biopsy samples, and the various types of ambiguous terms used by the pathologists.

Inclusion Criteria: All reports containing complete biodata of patients, reporting pathologists name, the year under review, results with uncertain diagnosis, the years of experience of the pathologists, reports with results showing ambiguous terms such as 'inadequacy', 'results showing see text', and 'see description' non-representative' were included.

Exclusion Criteria: All cytology reports (as most are now structured), surgical pathology reports with proper diagnosis, reports with incomplete biodata such as age, sex, histopathology laboratory number, and name of the patient were excluded. Unsure date of submission of samples, or of reporting the results, unsigned reports and results not extracted from the archives were also excluded. Also excluded were reports whose sample (formalin fixed paraffin (FFPE) embedded blocks) were sent for further investigation, like immunohistochemistry (IHC). This is because the reports came from pathologists working in the referral laboratories.

Study variables: The data was extracted from histopathology reports taken from the routine and digital archives of the anatomic pathology laboratory. The data retrieved included, age and sex of patients, adequacy of biopsy (small samples from the breast, bone marrow, bone tissue (femur), ovary, spleen, uterus, kidney, prostate, endometrium, lymph nodes, gastrointestinal tract and wounds), years of experience of the attending pathologists at any time within the study period and ambiguous terms used by the pathologists.

Data collection: Data was collected by well trained staff from the medical records department from passworded computers at the anatomic pathology laboratory. The selected haematoxylin and eosin stained (H&E) slides were retrieved and reviewed by the attending pathologists. Slides that were damaged or unavailable were re-cut from the formalin fixed paraffin embedded blocks in the archives of the lab.

Data Analysis: The data obtained was analysed using the statistical packages for social sciences (SPSS) 25.0 and R-programming version 4.4.1. Categorical variables were summarized as frequencies and proportions. Associations between categorical variables were determined using Chi-square and Fisher's exact test when indicated. A p-value <0.05 was considered statistically significant in the multivariate model.

Ethical Approval: This study was conducted in compliance with the Helsinki Declaration on biomedical research on human subjects. All the data obtained were stored in a password-protected computer thereby maintaining patients' confidentiality. Ethical approval was received from the Bowen University Teaching Hospital Ethical Committee before the commencement of the research with reference number (registration number: NHREC/12/04/2012 and approval number: BUTH/REC-2147).

Results

A total of 5300 surgical pathology samples were reported within the study period (2012-2020), of which 125 (2.36%) had ambiguous terms. The population consisted of 69 (55.2%) males and 56 (44.8%) females, with 19.2% aged 61–70 years and 17.6% were over 70 years (Table 1). Among the

Table 1: Age group distribution of participants

Age group	n	Percent (%)
<20	17	13.6
21–30	15	12
31–40	15	12
41–50	17	13.6
51–60	15	12
61–70	24	19.2
71+	22	17.6

Table 2: Age group distribution of participants by sex

Age group	Sex	Frequency
1-20	Female	5
21-40	Female	20
41-60	Female	18
61-80	Female	9
81-100	Female	4
1-20	Male	12
21-40	Male	10
41-60	Male	14
61-80	Male	29
81-100	Male	4

Table 3: Adequacy of sample by tissue

Variables	NO (N=14)	YES (N=111)	Total	Test
Tissue				p-value: 0.1231 (Fisher's Exact Test for Count Data)
Bone marrow biopsy	1 (14.29%)	6 (85.71%)	7 (5.60%)	
Breast cervix & ovary	1 (5.00%)	19 (95.00%)	20 (16.00%)	
Endometrial Biopsy	3 (27.27%)	8 (72.73%)	11 (8.80%)	
Femur bone	1 (4.17%)	23 (95.83%)	24 (19.20%)	
Lymph node	0 (0%)	11 (100.00%)	11 (8.80%)	
Prostate biopsy	5 (20.00%)	20 (80.00%)	25 (20.00%)	
Rectal & renal biopsy	1 (11.11%)	8 (88.89%)	9 (7.20%)	
spleen & uterus	0 (0%)	11 (100.00%)	11 (8.80%)	
Trucut & gastric biopsy	2 (28.57%)	5 (71.43%)	7 (5.60%)	
Total	14(11.20%)	111 (88.80%)	125 (100.00%)	

Table 4: Adequacy of samples by years of experience of the pathologists

Adequacy of sample	1-5yrs (N=50)	1-5yrs (%)	6-10yrs (N=19)	6-10yrs (%)	>10yrs (N=56)	>10yrs (%)	Total	Total (%)
NO	4	28.57%	1	7.14%	9	64.29%	14	11.20%
YES	46	41.44%	18	16.22%	47	42.34%	111	88.80%
Total	50	40.00%	19	15.20%	56	44.80%	125	100.00%

Test Used: Fisher's Exact Test
p-value: 0.1083

Table 5: Frequency distribution of ambiguous terms

Frequency table for diagnosis_y

Category	Frequency	Percent
Non-representative	17	13.6
Inadequate for opinion	11	8.8
See description	35	28.0
See text	62	49.6

Table 6: Adequacy of sample versus sex of participants

Sex Table title...

	Female (N=56)	Male (N=69)	Total	Test
Adequacy of sample				p-value: 0.6780 (Pearson's Chi-squared test)
NO	7 (50.00%)	7 (50.00%)	14 (11.20%)	
YES	49 (44.14%)	62 (55.86%)	111 (88.80%)	
Total	56 (44.80%)	69 (55.20%)	125 (100.00%)	

Table 7: Frequency of ambiguous terms vs the years of experience of the pathologists

Diagnosis_	1-5yrs (N=50)	1-5yrs (%)	6-10yrs (N=19)	6-10yrs (%)	>10yrs (N=56)	>10yrs (%)	Total	Total (%)
Inadequate for opinion	3	27.27%	0	0%	8	72.73%	11	8.80%
Non-representative	10	58.82%	4	23.53%	3	17.65%	17	13.60%
See description	13	37.14%	7	20.00%	15	42.86%	35	28.00%
See text	24	38.71%	8	12.90%	30	48.39%	62	49.60%
Total	50	40.00%	19	15.20%	56	44.80%	125	100.00%

Test Used: Fisher's Exact Test
p-value: 0.1083

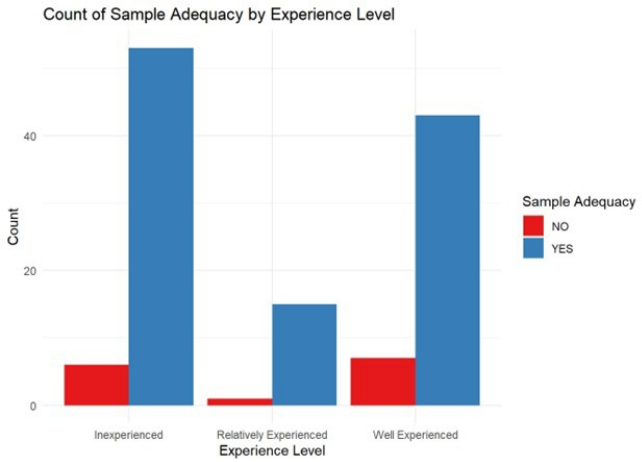

Figure 1: Showing adequacy of samples by experience

females, ambiguous reports were common in the age group 21-40, (table 2) with 20 reported. Among the males, ambiguous reports were more common in the 61-80 years' age group, with 29 reported (Table 2). Out of the total number of samples studied, 111 (88.80%) were considered as being adequate while, 14 (11.20%) were inadequate (table 3). There was no significant difference in the samples reported as adequate by experienced pathologists as against the inexperienced ones, p=0.108 (Figure 1; table 4). 'See description' {35 (28 %)} and 'see text' {62 (49.6%)} were the most frequently used ambiguous terms (Table 5). Most specimens considered inadequate were from tru-cut and small biopsies, from the bone marrow, breast, gastrium, prostate, rectum, and kidney (Table 3). There was no significant gender difference in reported sample inadequacy, p= 0.6780 (table 6). There was no statistically significant difference between the pathologist's years of experience and the use of ambiguous terms (p =0.1083; table 7).

Discussion

Pathology report serves as a crucial communication tool among a number of stakeholders and it can sometimes be challenging to understand.[11] Several causes of report misinterpretation include use of pathology-specific jargons, and expressions indicative of uncertainty in the report.[11] In this study, all the pathologist used different phrases of uncertainty in their report, just as it had been previously reported.[2] Several phrases were seen to be used by the attending pathologist. They include non-representative, inadequate for opinion, see description, and see text. The most commonly used terms were "see description" and "see text". The use of these phrases cut across all categories of pathologists, independent of the level of experience. A higher frequency of these two phrases was also found in this study. This would have reduced the risk of wrong diagnosis in cases that the pathologist may not be comfortable with, as we observed that such phrases were accompanied by generous comments. This is similar to what

Cooper K, observed.[6] It also leaves room for future diagnosis and research when eventually, such cases become labeled or categorized. In addition, the risk of medico-legal related litigations would be avoided, since there is no ancillary test that could be used to establish a diagnosis in resource-poor settings like ours. This calls for the establishment of functional high-tech histopathology laboratories that would also incorporate the training of anatomic pathologists in the use of ancillary investigation in making diagnosis for cases that are challenging thereby reducing the use of ambiguous phrases.

Active communication has proven to be crucial between the clinician and pathologist to clarify different aspect of the pathology report.[11] This is especially so in cases of non-representative and inadequate results, especially in cases where the clinician takes a sample, that is considered inadequate for a pathologist's opinion; or where the sample taken by the clinicians doesn't look to suggest the anticipated diagnosis. Hence, non-representative results could also infer that the samples were taken from different but adjacent tissues. Lindley Sarah W et al., found small biopsy as accounting for majority of uncertainties in their study.[2] This observation is similar to our findings as most of the samples analysed in this study were mainly from small biopsies. This implies that small samples provided a greater challenge when pathologists make a diagnosis.

Analysis of reporting pathologist's usage of uncertainty phrases by both age and gender of patients revealed no statistically significant difference corroborating the findings by Lindley Sarah W et al.[2] The reports of uncertainty were given regardless of patient age and sex of the participants.

In cytological practice, the ambiguities of language have been minimized by the adoption of several numerical reporting systems which encompasses levels of diagnostic uncertainty.[12] This informed our decision not to include cytological reports in our evaluation. Furthermore, it is possible that by developing a guided, data-driven national consensus categorization, such as the Bethesda system, we may overcome this problem in surgical pathology reporting.[13] There is a wide individual differences in the interpretation of phrases by both the pathologist and the surgeons.[14] Thus, adoption of a limited number of descriptive phrases that are mutually understood and acceptable by both pathologist and clinicians is recommended to avoid interpretive ambiguity in pathology reports.[12] Since the surgeons would prefer definitive terms, there is a need for active communication between pathologists, other clinicians and patients. In addition, anatomic pathology has also seen the emergence of interdepartmental consensus conferences in which diagnostically-challenging cases are presented and discussed at length prior to finalizing diagnostic results. We are working towards establishing such conferences in our centre which is relatively new. Clinical-and radiographic –pathologic correlation education conferences, coupled with multidisciplinary oncologic patient management conferences ("tumour boards") are essential to addressing some of these challenges.[6] Clarity and consistency in reporting, quantifying the confidence level in diagnosis, and avoiding misnomers are key steps towards improving communication.[2] This is due to the fact that there is no space for pathologist that expresses individuality and subject unsuspecting patients to the consequences of self-expressed diagnoses.[15]

The increased collaboration among pathologists and between pathologists and clinicians would be beneficial in clarifying some diagnostic ambiguities. This is because the use of ambiguous terms like "see description" and ''see text" is a common practice by pathologists in our centre. This could however, be minimized by the provision of immunohistochemistry and other ancillary investigations which will help in making definitive diagnoses and reduce cases of ambiguity, leading to prompt treatment of patients and reduction in time wastage.

Conclusion: Ambiguous reports in anatomic pathology could be avenues for reducing diagnostic errors, and avoiding litigations. It is still in practice in resource- challenged centres like ours. Thus, the frequency of ambiguous pathology reports can be minimized through upgraded re-training programmes in specialized areas and provision of high tech ancillary investigation in our environment.Greater collaborations between pathologists and clinicians would minimize diagnostic ambiguity and improve management outcome. The establishment of laboratories with

immunohistochemistry and other ancillary investigations would help in making definitive diagnoses, and reduce the frequency of ambiguous reports. Upgrading facilities and continuous medical training of pathologists in areas of specialization could also be of immense help. Findings from this study could provide a useful template for future multicenter and multi-racial studies that could guide the formulation of diagnostic criteria and further management guidelines in the treatment of patients with ambiguous reports. This could eventually lead to drastic reductions in the use of ambiguous reports in anatomic pathology.

Conflict of interest

The authors declare that there is no conflict of interest during this study

Sponsorship

Nil

Contribution of authors

AEGH conceived the topic and approved the final manuscript

AIO analyzed and interpreted the results in line with the first draft of the manuscript

PKU wrote the second draft of the manuscript

OBD carried out the literature search and wrote the first draft of the manuscript

References

1. Palzum Sherpa. Ambiguity in Pathology reporting: our intent versus their interpretation! Journal of pathology of Nepal 2022; 12(24)
2. Sarah W. Lindley, Elizabeth M. Gilles, Lewis A. Hassel Communicating diagnostic uncertainty in surgical pathology reports: Disparities between sender and receiver Pathol Res Pract 2014; 210: 628-633 http//dx doi.org/10.1016/j.prp.2014.04.006
3. Ramsay AD, Gallager PJ. Local audit of surgical pathology. Am J Surg Pathol 1992; 16: 476-82
4. Campbell F, Griffiths DFR. Quantitative audit of the content of Histopathology reports. J Clin Pathol. 1994; 47: 360-1
5. MM Christopher, CS Hotz. Cytologic diagnosis: expression of probability by clinical pathologists. Vet. Clin. Pathol. 2004; 33(2): 84-95
6. Cooper K. errors and error rates in surgical pathology: an Association of Directors of Anatomic and Surgical pathology survey. Arch. Pathol Lab Med 2006; 130(5):607-609
7. Ifeoma U. Perkins. Error Disclosure in pathology and laboratory medicine: A review of the literature. AMA Journal of Ethics. 2016; 18(6): 809-816
8. Crone KG, Murask MB, Skeel JD, Love-Gregory L, Ladenson JH, Gronowski AM. Between a rock and a hard place: disclosing medical errors. Clin Chem. 2006: 52(9): 1809-1814
9. Howanitz PJ. Errors in Laboratory Medicine: practical lessons to improve patient safety. Arch Pathol lab Med. 2005; 129(10):1252-1261
10. Hollensead SL, Lockwood WB, Elin RJ. Errors in Pathology and laboratory medicine: consequences and prevention. J Surg Oncol. 2004; 88(3): 161-181
11. Lorna Mirham, Jessica Hanna, George M. Yousef. Addressing the diagnostic miscommunication in pathology. Am J Clin Pathol. 2021; 156(4): 521-428. Doi:10.1093/ajcp/aqab014
12. RL Attanoos, AD Bull, AG Douglas-Jones, LJ Fligelstone, D. Semarao Phraseology in Pathology. A comparative study of interpretation among pathologist and surgeons. J Clin Pathol 1996; 49(1): 79-81 doi.10-1136/jcp.49.1.79 PMID: 8666692; PMCID: PMC1023163
13. Cibas E, Ali S. The Bethseda system for reporting Thyroid cytopathology. Am J Clin Pathol. 2009; 132: 658-665
14. Galway M, Taiyeb T. The interpretation of Phrases used to describe uncertainty in pathology reports. Pathol. Res. Int. 2011, Article 656079
15. Foucar, e "Individuality" in the specialty of Surgical pathology: self-expression or just another source of diagnostic error? Am. J Surg Pathol. 2000; 24(11): 1573-1576.