Audit of histopathology reports for melanoma: A case for adopting synoptic reports

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Abstract

Background*: The aim of this study is to audit degree of completeness of textual histopathology reports generated for melanoma. This is to exemplify the need for adoption of synoptic report format for reporting cancer cases in Nigeria.*

Materials and Method*: Completeness of histopathology reports for all cases of melanoma diagnosed in the histopathology department of a teaching hospital in northwestern Nigeria were audited from 2006 to 2010; followed by departmental presentation on deficient areas and then re-audited from 2011 to 2014. The results were then compared with results of City hospital, Birmingham, United Kingdom, before and after adoption of synoptic report format in that hospital.*

Results*: In the 9 years audited 139 cases of melanoma were diagnosed. In the first 5 years audited overall completeness of issued reports was 36%. This marginally improved to 44% in the following 4 years audited. However, there was no statistically significant improvement in performance (p = 0.1).*

Conclusion*: Adoption of a standardized synoptic report format for histopathological reporting of cancers will improve the quality of reports issued to clinicians.*

Keywords: Audit, Melanoma, Reports, Standardized, Synoptic

Introduction

The word *synoptic* is derived from the Greek word *Sunoptikos* meaning, in the present context, to give a general overview and secondly to take the same point of view.[1] In the context of the present discourse it implies giving an overview of reproducible data. Standardization on the other hand relates to the process of establishing, by common agreement, criteria to be utilized in determining quality.

Standardization of processes and parameters has been relatively easy to achieve in Chemical pathology and to some extent Haematology

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because of readily quantifiable nature of data handled in these clinical laboratory sub-specializations. In contrast, this has been difficult to achieve in histopathology because of qualitative nature of features it assesses in specimens, and because reports have been traditionally rendered in narrative text. Unfortunately, narrative formats are poorly amenable to storage in computer-based storing and retrieval systems, as these function most efficiently with numerical data or data that can be readily converted to a structured format. A consequence of this is the wide inter- and intra-observer variability that plagues this form of data recording.

There is therefore need for standardized terminology and reporting structure in order to clearly and adequately provide information about salient features necessary for patient management. This can be achieved by the use of peer-reviewed standardized checklists or synoptic formats. The aim of this study, therefore, is to highlight the importance of adopting and utilizing structured synoptic formats in reporting surgical pathology lesions, and because of the importance a detailed pathology report plays in management and prognostication of melanoma, it has been chosen as the lesion with which to illustrate this point.

Materials and Methods

Histopathology reports for all cases of melanoma diagnosed in the histopathology department of a teaching hospital in northwestern Nigeria over a 9 year period (2006 – 2014) were audited for extent of documentation of important prognostic factors. The first 5 years (2006 – 2010) were audited and results presented to members of the department. At the end of the presentation which highlighted important omissions in the reports, adoption of a dataset for reporting cases of melanoma was recommended. No dataset was however adopted. Reports for the following 4 years (2011 – 2014) were then audited again to determine if there was any significant improvement in quality of reports solely based on the earlier didactic seminar.
The reports were audited using a modified form of the National Minimum Dataset (NMDS) of Royal College of Pathologists (RCP), United Kingdom (UK).[2] A set of 12 parameters were assessed and these included:

(1) specimen dimensions;
(2) maximal diameter of the lesion;
(3) Resection margins;
(4) Radial/vertical growth;
(5) Breslow thickness;
(6) Clark level;
(7) Ulceration;
(8) Lymphovascular invasion;
(9) Microsatellites;
(10) Tumor infiltrating lymphocytes;
(11) Mitotic activity and
(12) histologic subtype.

Results were then compared with the audited performance of City Hospital, Birmingham, UK by the before and after adoption of a synoptic report dataset.[3, 4]

Results

In the 9 years audited 139 cases of melanoma were diagnosed and these accounted for 2.5% of all malignancies diagnosed in that period. These comprised 71 (51%) males and 68 (49%) females. Their ages ranged from 26 – 90 years with a mean of 57± 15years. As shown in Table 1, male female ratio was 71: 68 (approximately 1:1). The foot, including toes, plantar and dorsal surfaces accounted for 121 (87%) of all sites of the tumor, while nodular variant accounting

Table 1: Shows characteristics of the melanoma cases diagnosed

Features	Character-istics	Number (n= 139)	%
Sex	Male Female	7168	5149
Most common site	Foot	121	87
Most common variant	Nodular	116	83
Breslow thickness	>4mm	132	95
Clark level	IV and V	113	81

Table 2: Comparison of the two audited periods between our center and City Hospital, Birmingham

Features expected to be documented	First audit (n= 85)%	Second audit (n= 54)%	Birmingham (1st audit; n= 51)%	Birmingham (2ndaudit;n=17)%
Specimen dimensions	100	98	100	100
Diameter of lesion	12	6	80	86
Resection margins	71	67	90	94
Radial/vertical growth	0	6	74	100
Breslow thickness	0	9	88	94
Clark level	41	65	88	100
Ulceration	31	69	67	94
Vascular invasion	0	40	84	94
Microsatellites	0	0	47	94
Lymphocytic infiltration	22	42	84	94
Mitotic activity	15	4	66	94
Histologic subtype	47	40	86	94

for 116 (83%) of 139 cases was the most common subtype. Breslow thickness was greater than 4mm in 95% (132) of cases and had a range between 1.5mm and 23mm. Clark level was at least 4 in 81% (113 of 139) cases.

As highlighted in Table 2, in the first 5 audited years, 85 patients were diagnosed with melanoma and 54 in the following 4 years. In the first audit, best performance (100% of 85 cases) was in documentation of specimen dimensions. This however, dropped to 98% (53 of 54 cases) in the second audit. This was followed by documentation of status of the resection margin which was mentioned in 71% (60 of 85) cases in the first audit. This also depreciated to 67% (28 of 42) cases in which resection margins were positive. Documentation of tumor subtype also suffered a decline in attention paid to this feature [47% (40/85) vs 40% (22/54)]. Other features that diminished in the amount of attention paid to them included: Presence of significant mitotic activity [15% (2/13) vs 4% (1/25)]; and Maximal diameter of the lesion [12% (10/85) vs 6% (3/54)]. The feature for which the most significant improvement was recorded in the second audit was documentation of lymphovascular invasion this rose from 0% (0 of 14) cases in the first audit to 40% (2 of 5) cases in the second audit. This was followed by documentation of ulceration which improved from 31% (18 of 59) cases to 69% (29 of 42) cases; Clark level, which improved from 41% (35 of 85) cases to 65% (35 of 54) cases; Lymphocytic infiltration, which improved from 22% (7 of 32) cases to 42% (11 of 26) cases. Documentation of Radial

growth and Breslow thickness which were 0% in the first audit marginally improved to 6% and 9% respectively in the second audit. Documentation of microsatellites remained unchanged at 0% in both audited periods. Overall degree of completeness of reports in the first audit was 36% and 44% in the second audit. However, there was no statistically significant difference in performance in the two audited periods ($p = 0.1$).

In comparison, as shown in table 2, there was sustained improvement in the degree of completeness of the histopathology reports from City Hospital following introduction of dataset for melanoma by the RCP. Significantly, documentation of an important negative that was erstwhile undocumented in the pre-synoptic reports rose from 47% to 94% following adoption of such a format. Similarly there was no regression in performance compared to ours.

Discussion

The result of 9 years of accumulated omissions is reflected in this audit activity. While performance in documentation of parameters such as specimen dimensions and resection margins appear to be fair, poor reportage of other features such as lymphocytic infiltration, degree of mitotic activity, presence of microsatellites and radial growth may be explained by differences in significance given to these features by different report writers. Thus important features may be omitted.

Important omissions in the reports revealed by this audit activity may also result from the fact that it is difficult to keep in mind all the important positive and negative features required for every cancer, particularly in very busy centres with high volume to Pathologist ratio. This fact is reflected in the observation made by Thompson[5] *et al* in their study on the same theme as ours that such reporting omissions occurred more frequently in high volume laboratories. Furthermore, where subspecialists or general pathologists with interests in cancers such as this are not reporting these cases, and where datasets are not employed, such discrepancies are more likely to occur.[6] In this respect, the College of American Pathologists (CAP) has recommended that primary pathology reviews of melanoma cases should include synoptic reporting, as stipulated in the CAP protocols according to the American Joint Committee on Cancer (AJCC) standard.[7]

Based on the foregoing, Karim[8] as well as Cross[9] have been able to show that among institutions they audited, those with the most complete reports of surgical lesions were those where synoptic report formats had been adopted. The two authors observed that consistent documentation of important negatives was a significant outcome of adoption of such synoptic report formats. Being armed with information about the absence of particular features, the clinician has the assurance that these features have been assessed and he is not left guessing. Inadequacy of non-synoptic reports in this respect is shown by our study contrasted with that from City hospital, Birmingham.

In line with recommendations from other authors[6, 10] on completeness of melanoma reporting, overcoming these omissions will require a system of reporting which at a glance will give a synopsis of details to be included in the report and this will also be in a standardized format to ensure uniformity of reporting. The advantage of using such format is reflected in the better performance of the Birmingham centre. Haydu[11] *et al* in a recent study also concluded that reports in a synoptic format, with or without a descriptive component achieved highest quality levels of performance. Advantages derivable from utilizing such formats include: provision of more comprehensible and detailed reports; improvement in quality of care given to patients; improvement in communication with surgeons; improvement in turnaround time for specimens; improvement in quality and ease of entering data into cancer registries as well as data retrieval; and improvement in quality of residency training.

The lack of significant improvement in the completeness of reports produced in the two audited periods (p = 0.1) also shows that reliance on seminar presentations and lectures alone as a means of improving quality of pathology reports for cancers without accompanying introduction of synoptic reports, is not likely to achieve desired targets. In conclusion, findings from these audit activities show that for consistent improvement to be recorded in the amount of clinically relevant information available in pathology reports there is need to adopt a synoptic and standardized format for reporting cases.

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