

The use of free text blood film comments in a haematology laboratory

Lauren N Eddington

ABSTRACT

Objectives: To investigate how free text comments are used on haematology blood film reports in one laboratory.

Methods: A random selection of blood films made in January 2020 at Dunedin SCL Haematology were reviewed. Sentences of blood film comments were separated as either matching coded comments from the laboratory software, or comment booklet, or were designated as free text comments. The free text comments were reviewed and grouped by the sole researcher.

Results: 88 different free text comments were used a total of 108 times on 83 films. 83/321 (26%) films had free text comments, written by 10/13 (77%) of laboratory staff. Most free text comments, 55/88 (63%) referred to morphological findings. 38/88 (43%) indicated gradation and 27/88 (31%) of comments noted more than one feature in one sentence. Seven comments stated a 'known' disease state, four using acronyms. Comments that were various descriptions of 'reactive neutrophils' were used 13 times and 20 comments defined red blood cell poikilocytosis. Five spelling errors were noted in these reported comments.

Conclusions: Providing free text comments was commonplace in this laboratory. Comments largely described morphological findings and supplied gradings for features or indices. Many noted more than one feature per sentence. Acronyms, statements of 'known' clinical features, and spelling errors were included in free text comments.

Key words: haematology, morphology, blood film, comment, free text.

N Z J Med Lab Sci 2021; 75: 122-144

INTRODUCTION

A significant part of the job of haematology laboratory staff is to report on blood cell morphology by providing comments for clinicians. To standardise this process laboratories often have set comments for staff to use. This also allows for consistency of reporting, to ensure comments are meaningful, and to minimise reporting biases. (1-3) The overarching aims of standard reporting comments are to contribute to better patient care.

This study was completed in Dunedin SCL Haematology Laboratory and during the period of this study there was no specific method on how laboratory staff should comment on blood films. Scientists were able to use provided standard comments, edit comments, or write free text comments as they thought suitable. This study reviewed reported blood film comments to investigate how free text comments, comments that differed from those provided, were used in blood film reports in one laboratory. A literature review found no other published articles that discussed 'free text' comments or mentioned laboratory staff freely writing comments for blood film reports, suggesting that this is not common practise.

METHODS

Data was collected from films made in the Southern Community Laboratories (SCL) Dunedin Haematology Laboratory which analyses both hospital and community blood samples. Consent for the study was given by a representative of the Haematology Technical Reference Group. A list of all films made in January 2020 was obtained from the Cobas IT3000 software (2019) of the laboratory, giving 1955 films and 16% (321) of these cases were randomly selected to be reviewed. Staff who reported on the films were registered medical laboratory scientists working full time in the haematology laboratory. Each were signed as competent to report blood films and comments based on their professional judgement. Comments on these films were manually retrieved from ULTRA software (Version 3.1 Beta) and the scientist' commenting was noted. The data was reviewed using Microsoft Excel (2016). Comments from each film were divided into tokens representing either a coded comment or a sentence of a free text comment. Free text comments were classified as a sentence that was not identical

to any coded comment included in the IT3000 film comment section or listed in the SCL Haematology comment codes booklet 2016. Coded comments that had been edited were therefore counted as free text comments. These free text comments were then examined, counted, and were coded into groups by the researcher. A literature review was completed using PubMed (4) searching for 'blood film review' which returned 521 results. Relevant articles for further review were chosen based on the title and abstract.

RESULTS

88 different free text comments were used a total of 108 times on 83 films, revealing that 83/321 (26%) films had free text comments reported. Free text comments were used by 10/13 (77%) of scientists in the department. Five spelling errors were noted to have been reported. Coding based on content divided all free text comments into four groups. Free text comment content most often referred to morphological findings 55/88 (63%) as opposed to the clinical picture 16/88 (18%), the full blood count indices 11/88 (13%), or the blood sample itself 6/88 (7%).

38/88 (43%) of the free text comments graded the level to which a feature was present. The terms used to signify gradation are shown in Table 1. 27/88 (31%) of comments noted more than one feature using either the word 'and' or 'with'. Seven comments stated a 'known' disease state. These included blood loss' CLL, CMML, hypoplastic AML, ITP, liver disease, lymphoplasmacytic lymphoma, and renal impairment. Features mentioned that did not have set comment codes were anisocytosis, burr cells, sickle cells, giant platelets, platelet satellitism, atypical lymphocytes, and plasma cells. Three comments stated a feature was specifically not present, and 19 stated a feature was present with no gradation. Six comments noted decreases in specific indices, and five offered explanations for variations in MCV results. Comments of various descriptions of 'reactive neutrophils' were used 13 times. 20 comments defined red blood cell poikilocytosis, and two comments conveyed the need for continued monitoring. Comments used more than once are shown in Table 2. A list of all free text comments is online as supplementary material.

DISCUSSION

The majority of scientists in the department studied used free text comments when reporting blood films, and just over a quarter of blood film reports surveyed included free text comments. The lack of publications found referencing laboratory staff freely writing comments for blood film reports suggests that this may not be common practise in other laboratories.

Content of free text comments most often referred to morphological features, providing information that would not otherwise be conveyed in a full blood count report. Specific comments used more than once are shown in Table 2. The most common free text comment, "IT ratio =" referred to a calculation (immature - to - total ratio) provided by the laboratory that was not set up in the laboratory system. The second most common comment was a variation on 'elliptocytes present'. The lack of coded comment for this may be an oversight as many other red cell features have a 'present' comment.

Six comments drew attention to decreasing haematology indices. The value of commenting on values seen in the full blood count is questionable and guidelines differ. The New Zealand Institute of Medical Laboratory Science (NZIMLS) standardised reporting guidelines suggest commenting 'increased' or 'decreased' in addition to the given platelet count (5). The International Council for Standardization in Haematology (ISCH) guidelines suggest that instead of commenting 'anisocytosis' to let the red cell distribution width (RDW) value speak for itself. (6) Seven different 'known' clinical features were commented on.

Stating any 'known' feature in a report comes with risk for laboratory staff, who will likely not have this first-hand knowledge. Any potentially incorrect comment may remain in patient notes and affect their care in future (7).

43% of the free text comments indicated the level at which a feature was present using a classifying word or a percentage value. These comments with gradation provide a higher level of information to the clinician than simply stating that a feature is present, and more detail than the set comments could reasonably describe. Grading comments reported should have relevance for the clinician. The ISCH suggests three-tier semi-quantitative or descriptive grading systems (6). The NZIMLS suggests the terms increased numbers / marked increase / numerous (5). As seen in Table 1, descriptive gradation terms used in the free text comments were plenty and varied.

15% of the free text comments described reactive neutrophils, differentiating the combination of features seen including neutrophilia, left shift, toxic changes, vacuolation, and granulation, allowing more individualised reports than the set comments could permit. Eight indicated a grading for the reactive features. The ICSH recommendation is to grade both vacuolation and granulation (6) while the NZIMLS recommends classifying toxic changes as either present or severe (5).

One free text comment was edited twice to specify its meaning. 'There are no features of haemolysis in the blood film' was used instead of the comment code 'No features of haemolysis are present.' The set comment code is open to misinterpretation that there are no features of haemolysis in the laboratory results, the edited version being more specific to red cell morphology.

Over 1/3 of the free text comments noted more than one feature in a single sentence. Often these comments described multiple red cell morphology features, or a change across numerous full blood count indices. This reduces the word count and repetition from the set codes. For more succinct reports, grading systems such as 1+/2+/3+ or +/++/+++ can be used (1,6), the opportunity cost coming in the form of reporting

articulate sentences. Also, increasing report brevity, acronyms and medical abbreviations were often used. Three of the 'known' comments were more concise versions of coded comments, such as 'known CLL' instead of 'blood film appearances are consistent with chronic lymphocytic leukemia'. The use of abbreviations in reports however, can create opportunities for ambiguity and misunderstanding (7).

Blood film comments are often written by the single laboratory worker who reviews the slide (3). This means an individual laboratory staff member's competence and preferences have a direct effect on the report content and style. There is plenty of variation in blood film reporting practises across the world (1,6). Even within laboratories, individuals' reporting preferences can be influenced by previous training and previous workplace procedures (2). The range of free text comments and reporting styles in this study exemplifies this variation. Scientist knowledge, morphology familiarity, and the individual's personal heuristic for reviewing and interpreting blood films all affect the film report. Different strategies for film review and feature prioritisation can lead to biases or errors (3). The use of standard report comments is an attempt to minimise these inherent biases (2).

No free text comment in this study showed scientists providing additional interpretive information. This suggests that this may be a recognised limitation and if required, set comments or pathologist referral for interpretation is preferred. The limits of microscopy itself can also be considered, with ISCH guidelines recommending that grading be based off analyser values where possible, as this is more accurate and precise compared to microscopy (6).

Study limitations include the manual collection and coding of data. Accuracy would have been better ensured with computerised data collection. A single coder sorted the comments into groups for analysis.

Many points for further study stem from this data. What style of blood film report do clinicians prefer? Does the added specificity in free text comments provide value for clinicians? Additionally, patients can access and read their own results through health portals or apps. Should patient understanding influence the comments provided from the laboratory? This article looked at blood film reports only, but the phrasing of any laboratory report is an important aspect of the laboratory output and should be optimised to best facilitate patient care.

In conclusion, writing free text comments or editing coded comments was common place in this laboratory. The comments allowed for more individualised reporting, largely described morphological features, and often supplied grading for features and indices. One-third of the comments noted more than one feature per sentence, reporting the findings in a concise manner. Acronyms and statements of 'known' clinical features were included, but freely written additional interpretive comments were not. There was a lack of consistency in the free text comments used. A variety of semi-quantitative descriptors, complete and incomplete sentence structures, and five spelling errors were found.

AUTHOR INFORMATION

Lauren N Eddington, BMLSc, MSc, Medical Laboratory Scientist
Dunedin Southern Community Laboratories

Correspondence: lauren.eddington@sclabs.co.nz

Supplementary material for this article is available at
<https://www.nzimls.org.nz/journals-recent.html>

REFERENCES

1. Constantino BT. Reporting and grading of abnormal red blood cell morphology. *Int J Lab Hematol* 2015; 37(1): 1-7.
2. Payne N, Brigden M, Edora F. A redesign of RBC morphology reporting. *MLO Medical Lab Obs* 1996; 28(4): 60-62, 64, 66.
3. Brereton M, De La Salle B, Ardern J, et al. Do We Know Why We Make Errors in Morphological Diagnosis? An Analysis of Approach and Decision-Making in Haematological Morphology. *EBioMedicine* 2015; 2(9): 1224-1234.
4. National Center for Biotechnology Information, U.S National Library of Medicine, PubMed.gov [Internet] Bethesda, MD: [Updated 2021, Cited 2021, May] Available from: <https://pubmed.ncbi.nlm.nih.gov/>
5. New Zealand Institute of Medical Laboratory Science, Standardised Reporting of blood film morphology, 4th edition. 2011.
6. Palmer L, Briggs C, McFadden S, et al. ICSH recommendations for the standardization of nomenclature and grading of peripheral blood cell morphological features. *Int J Lab Hematol* 2015; 37(3): 287-303.
7. Kuhn IF. Abbreviations and acronyms in healthcare: when shorter isn't sweeter. *Pediatr Nurs* 2007; 33(5): 392-398.

Copyright: © 2021 The author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.