Short reports

Quantitative audit of the content of histopathology reports

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Abstract

An audit of histopathology reports presents the problem that the output is textual and difficult to quantify. This makes the definition of an adequate report subjective and susceptible to observer variation. A procedure has been developed which allows the quantitative analysis of reports and facilitates the development of local reporting guidelines. A topic is selected; the auditor then lists the possible details that may be included in the report and notes how many reports from a sample include each detail. The results are discussed at a departmental meeting with the aim of agreeing on reporting guidelines. At a later date another sample of reports can be analysed for compliance with the guidelines and compared with the previous reports. Problems with compliance can be discussed further and at the audit meeting the guidelines may be amended appropriately, thus completing the audit cycle. This method of audit has the advantage that the results are quantitative and that the group discussion and re-examination of the guidelines has educational value.

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"Medical audit improves patient care." This maxim has now been cast in tablets of stone in the UK National Health Service (NHS)—audit is a contractual requirement of all medical specialties in the NHS and is necessary for accreditation of pathology laboratories. While laudable, little specific advice is available on how to perform medical audit in histopathology departments. To date, details of only two rather similar schemes have been published.[1 2] Both attempted to audit a wide range of parameters on randomly selected cases. A trial period of audit in the authors' department using a similar protocol to the published methods and which included the random selection of 2% of reports and the assessment of a wide range of features—for example, macroscopic description, microscopic description, diagnosis (scored as satisfactory, borderline, or unsatisfactory), timeliness, and technical quality—showed no significant diagnostic errors; it was concluded that such a procedure was inefficient and of limited educational value. In particular, there were problems in agreeing on criteria for a satisfactory report, and scoring was therefore felt to be subjective and arbitrary. This lack of confidence in the data meant that there was no mechanism to close the audit cycle.

As a result of this experience and dissatisfaction with these initial attempts, the department has developed a method of examining reports to provide a quantitative assessment of their content. This opens the way for development of departmental guidelines for reporting, and allows the quantitative reassessment of the reporting at a later date.

Methods

The topic for audit (such as bladder tumours) is chosen by virtue of its importance to clinical practice—that is, those topics in which macroscopic or histological criteria have important prognostic and therapeutic implications. A selection of previous sequential reports (20 to 25 in number) are retrieved by computer search from the departmental files. The auditor produces a list of details for macroscopic description, microscopic description, and summary, which he/she feels should be included in a report, and scores each report for the presence or absence of this specific information (table).

The results are discussed at a meeting of the whole department (all pathologists and technical staff), usually including a pathologist and a clinician with an interest in the

Example scoring sheet (bladder tumours): a total of 24 reports were assessed for the presence (1) or absence (0) of a comment on the criteria listed

	Case number									Total number with comment present	
Criteria	*1*	*2*	*3*	*4*	*5*	...	*22*	*23*	*24*	*1989/1990*	*1991/1992*
Macro.											
Volume	1	1	1	1	1		1	1	1	24	24
Nature	0	0	1	0	0		1	0	0	15	18
Blocks											
All embedded	1	1	1	1	0		1	1	1	18	24
Micro.											
Histological type	1	1	1	1	1		1	1	1	24	24
Growth pattern	1	1	1	1	1		1	1	1	24	24
Tumour grade	1	1	1	1	1		1	1	1	24	23/23*
Depth of invasion	1	1	1	1	1		1	1	1	21	22/23*
Background	0	0	1	0	0		1	0	0	5	18/23*†
Conclusion	1	0	0	1	0		0	1	1	13	12

* Too damaged for full assessment. †A statistically significant change (χ^2) in reporting practice after the publication of guidelines.

Example guidelines (abridged). The full guidelines give advice on staging and grading of the tumours and on coding for the laboratory management system.

Transurethral Resections of Bladder Tumours

Macro description
Include an indication of the volume of the resectate and nature and size of the fragments.

Processing
Block all the tissue for histology (unless it is obviously deeply invasive).

Microscopic description
This should include:
(a) The histological type (i.e. transitional, squamous, adeno, etc.), the growth pattern (i.e. papillary, inverted, solid, diffuse, infiltrating, etc.) and the grade of tumour.
(b) The depth of invasion and proportion of the tumour that is invasive. The information must be presented in a manner that allows accurate tumour staging.
(c) The state of the background epithelium if any is present. The important observation is the presence or absence of dysplasia—this is probably the single most significant determinant of subsequent recurrence and invasion in superficial tumours.
(d) The conclusion should state the primary diagnosis, e.g. transitional cell carcinoma for invasive tumours. Non-invasive tumours should be referred to as "tumours" and not as carcinomas, thus leaving open the controversial question of malignancy in these lesions.

Example report

Macro
About 25 ml of loose friable papillary tissue but also including a few firmer chippings.

Micro
Sections show numerous fragments of moderately differentiated papillary transitional cell carcinoma which shows focal squamous metaplasia. Four out of 55 pieces show small areas of invasion of the lamina propria by transitional cell carcinoma, also moderately differentiated, that appear derived from the papillary component. Several pieces of muscle present are free from tumour. Flat urothelium adjacent to the tumour shows no evidence of dysplasia.

Conclusion
Papillary transitional cell carcinoma.

subject. At the meeting the appropriateness of each detail is discussed, with the aim of advising on the content of guidelines for the particular topic. The auditor produces guidelines (figure) based on this discussion and these are published and distributed within the department.

After six months to one year, depending on the numbers of received specimens under review, the topic is re-audited. Cases from before and after the formulation of the guidelines are compared using the published criteria. The results, in the form of binary data (table), can be compared statistically to see if there has been any objective change in practice. Further discussion may lead to modification of the guidelines, particularly in the light of scientific advances, new clinical practice, and difficulties with current guidelines.

Discussion

Experience suggests that full audit and quality control in a histopathology department are probably best divided into separate tasks; timeliness of reporting can be checked on all specimens by an adequate computerised laboratory management system, and the technical quality of sections and stains can be dealt with by the laboratory's own external quality assessment and monitoring scheme. Diagnostic accuracy may be best monitored by re-examining selected cases. This paper has focused on the detailed examination of the content of histopathology reports, a subject which has not been considered as a topic for audit before. However, it is an important topic, as clinical staff are making increasingly important decisions based on the content of reports. If the clinicians are to receive consistent information on each specimen type there needs to be agreement on the content of the reports. The method of audit described here offers a way of arriving at such agreement.

This audit scheme has also been evaluated as to whether it fulfils the criteria for adequate audit—it should be relevant, educational, objective, repeatable, and able to effect change.[3 4]

The scheme's relevance to patient care has been assured by involving clinicians at the meetings. There is little doubt that the scheme is of educational value: scoring of reports and preparation of draft guidelines provides an informed and focused discussion which often resembles a workshop or seminar on a particular topic. The guidelines themselves provide an up to date and locally relevant account of best practice. The method was specifically designed to be objective and quantified: the collection of unambiguous binary data allows analysis by simple statistical methods (computers are not needed) and obviates checking for consistency, a process which is required to validate semi-quantitative data. By setting further criteria, such as "all reports should conform to guidelines", it is possible to monitor an individual's or the department's performance. By repeating the scoring, it is possible to identify where changes are needed; the guidelines can then be altered appropriately. Hence, reporting practice changes as knowledge and clinical need evolve.

A further advantage of the method is that it is not an imposition: all members of the department can be involved in contributing to the meetings and in the construction of the guidelines, and they therefore do not feel that the guidelines are imposed on them. The authors believe that this method of audit fosters a culture of high standards based on informed debate.

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1 Ramsay AD, Gallagher PJ. Local audit of surgical pathology. *Am J Surg Pathol* 1992;**16**:476–82.
2 Zuk JA, Kenyon WE, Myskow MW. Audit in histopathology: description of an internal quality assessment scheme with analysis of preliminary results. *J Clin Pathol* 1991;**44**:10–16.
3 Shaw CD, Costain DW. Guidelines for medical audit. *Br Med J* 1989;**299**:498–9.
4 Working Party on Medical Audit. *Medical audit. A first report: what, why and how?* London: The Royal College of Physicians of London, 1989.