

PATHOLOGY

Key points

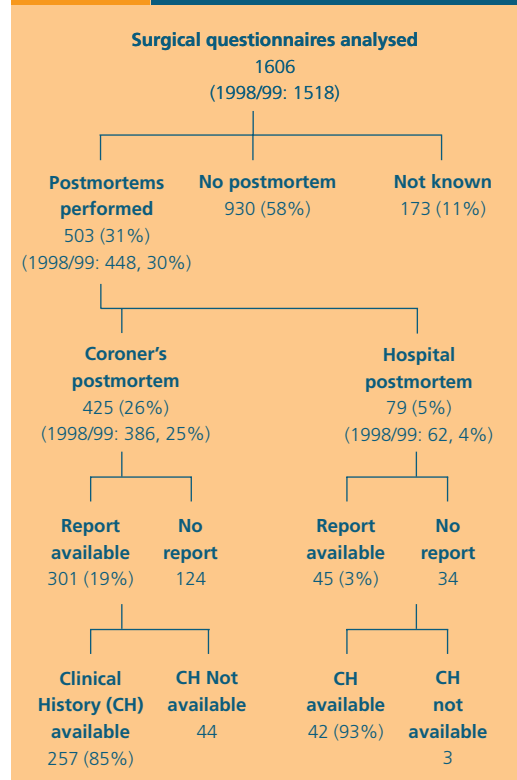
- The postmortem examination rate has remained constant at 31% in 1999/2000, a minority of these (5%) being consented (hospital) postmortem examinations.
- The majority of reports (69%) are satisfactory or better according to Royal College of Pathologists' guidelines. However, there has been a marked deterioration in the quality of postmortem reports when compared with the previous year.
- The operation is now reported in the ONS cause of death in 76% of cases, compared to 37% in 1998/1999.
- Lack of a histology report, possibly due to restrictions imposed by Coroner's Rules, detracted significantly from the quality of the postmortem report in 28% of cases.

Postmortem rate

Of the 1606 surgical questionnaires received, 503 (31%) recorded that a postmortem examination had been performed (Figure 9.1), of which 79 (5%) were hospital (consented) procedures. Three hundred and forty-six reports were available to the pathology advisors for scrutiny, representing 69% of those cases where it was recorded that a postmortem examination had been performed. Nine hundred and ninety-three cases were recorded as having been reported to the coroner and in 425 (43%) of these, a coroner's postmortem examination was performed; in 11 of these cases it was not known whether a coroner's postmortem examination had been performed and in 39 cases the question was unanswered. In all, reports from 301 coroners' postmortem examinations and 45

consented procedures were studied from the 1999/00 sample. Three hundred and twenty-eight (95%) had a full postmortem examination, but in 18 cases the examination was limited, with the most frequent exclusion being the central nervous system. All the above figures are comparable with those for 1998/99¹³.

Fig 9.1 Analysis of postmortems



Despite our predictions in the 1998/99 report, adverse media publicity has not had a significant impact on postmortem examination rates in 1999/00 nor on the number of limited examinations being undertaken. However, these figures should be monitored closely as various recommendations and guidelines on informed consent for postmortem examination and the retention of organs and tissues are fully implemented and begin to influence audit of postoperative deaths^{2,3,23,24}.

An important question, which should be addressed in future NCEPOD reports, is the number of cases reported in which comprehensive review was hindered by the lack of a postmortem report. The reasons for this lack of a postmortem report should be investigated.

Clinical history

A clinical history was provided in 257 (85%) of coroners' postmortem reports and 42 (93%) of the hospital cases. In 274 cases (92%) the history was satisfactory or better. In the 1998/99 report NCEPOD commented that "it is recognised that some coroners do not wish such histories included with their reports and in some cases only a brief history appears to have been available, suggesting that the notes were not scrutinised at the time of the postmortem"¹³. The role of a 'consented' postmortem is to establish the cause of death and to provide answers to clinicians' and families' questions about the deceased's last illness and the effects of treatment. The role of a coroner's postmortem is to assist in determining whether it is a natural or unnatural death although it may also have many attributes of a 'consented' postmortem. Nevertheless, the autopsy is at the request of, and paid for by, the coroner for his purposes. Knowledge about the illness and mode of death is therefore essential to a proper 'problem-orientated' postmortem examination if such questions are to be answered. Evidence that this was so, was not available to the pathology advisors in 47 reports (21%), the clinical history being absent in 14%, or unacceptably brief, and uninformative or poor in 7%. However, as NCEPOD has stated previously¹³ many coroners prefer to omit the clinical history from reports in the interest of accuracy on the basis that details may be wrong or the history may be erratic or incorrect. The introduction of these possible errors into a postmortem examination report can be very upsetting to relatives of the deceased and misleading to clinicians.

However, it should be appreciated that many postoperative deaths reported to NCEPOD have been preceded by a terminal illness characterised by multiple complications and interventions, the pathologic features of which may be masked by agonal end-organ changes. There is therefore a risk that the pathologist may issue an unsatisfactory report and a misleading cause of death if he/she interprets the postmortem findings without prior knowledge of the clinical history. Given the increasing complexity of surgical cases coming to autopsy, should there be detailed consultation, to include examination of the clinical notes between senior anaesthetists, surgeons and pathologists prior to the postmortem examination and again before the pathologist decides on the cause of death?

Description of external appearances

Most reports had an adequate description of the external appearances with 42 (12%) falling below an

acceptable standard. Scars and incisions were measured in 223 (66%) cases. The height was recorded in 220 (64%) cases, but the weight was only recorded in 164 (47%). NCEPOD reiterate that in assessing the relative weight of body organs these parameters are useful, particularly the body weight in relation to the heart weight⁸⁸. It was a concern that this was recorded in less than half the cases scrutinised. Even if facilities for weighing bodies in the mortuary are not available, the weight should have been recorded in the clinical notes in most cases, at the very least prior to induction of anaesthesia and surgery.

Gross description of internal organs and operation sites

| Organ | Number |
|---------|--------|
| Heart | 329 |
| Lungs | 301 |
| Liver | 293 |
| Brain | 290 |
| Kidneys | 289 |
| Spleen | 283 |
| Other | 7 |
| None | 10 |

Similar to 1998/99, the descriptions of internal organs in 299 (86%) of reports were deemed satisfactory or better. In 47 reports (14%) the gross description of the internal organs was thought to be poor, inadequate, or inappropriate to the clinical problem. In 10 cases (3%) no organs at all were weighed. In many instances it was clear that despite doing a full postmortem examination, not all pathologists weighed all major organs, for no reason that was obvious to the pathology advisors. Unless the examination was stated to be limited e.g. to exclude brain or to include thoracic contents only, there should be no reason not to weigh all the major organs as a standard part of the postmortem procedure. In 33 relevant cases (10%), the operation site was not described. It is noted that most of these were orthopaedic e.g. previous hip replacements, which were less likely to be fully examined and described than sites of internal operations.

Postmortem histology

Ninety-seven (28%) of 346 cases had postmortem histology performed, i.e. 74 (24%) of the 301 coroners' cases and 23 (51%) of the 45 hospital cases. In 70% of these cases a histology report was included with the postmortem report. All but one of these reports were graded satisfactory or better. In the majority of the other cases histology would have added little or nothing to the value of the postmortem and in only 64 of 278 reports with no histology (23%) was the absence of a histology report thought to detract from the value of the postmortem report. These results are similar to 1998/99. It was recognised that histology may have been undertaken on some of these cases but it was either not recorded in the anatomical report, or an additional report may have been issued at a later date that was not available for scrutiny. However, NCEPOD feel that the absence of histology more likely reflected restrictions imposed by current interpretation of Coroner's Rule 9, which states that *"the person performing a postmortem examination shall make provision, so far as is possible, for the preservation of material which in his opinion bears upon the cause of death, for such period as the coroner sees fit"*¹⁵. This is an unsatisfactory situation that needs addressing if proper validation of the cause of death and mortality audit of these often complex postoperative cases is to be done^{17, 21}.

Summary of lesions, clinicopathological correlation and ONS cause of death

| Table 9.2 Cases where ONS/OPCS cause of death given | | |
|---|-----------|---------|
| ONS cause of death | 1999/00 | 1998/99 |
| Yes | 332 (96%) | 95% |
| No | 14 (4%) | 5% |

There was a marked fall in the number of reports containing a summary of the lesions, 99 (29%) compared to 205 (76%) in 1998/99. A clinicopathological correlation was present in 62% of the 346 reports, slightly more than in 1998/99 (55%), but 21% were felt to be poor or inadequate compared to 9% in 1998/99. The majority of the reports (96%) included an ONS cause of death (Table 9.2) but in 51 (16%) of cases this did not correspond to the text report, in contrast to 9% in 1998/1999, and in 3% did not follow ONS formatting rules.

These findings of an increase in the number of reports lacking a clinically relevant summary of lesions (247, 71%), an absent, poor or inadequate clinicopathological correlation (175, 51%) and an inaccurate ONS cause of death (51, 16%) are of concern. This may reflect the highly selected patient population under study, many of whom have had coroners' autopsies done in outside mortuaries by independent pathologists, who may not necessarily have had dialogue with the clinician in charge of the patient. As already mentioned, the lack of a clinical history may hinder correlation of the postmortem findings with an often complex clinical history and documentation of a well-formulated ONS cause of death.

| Table 9.3 Record of operation in ONS cause of death | | | | |
|---|--------------|---------------------------------|--------------|---------------------------------|
| Day of death | No. of cases | Operation in ONS cause of death | No. of cases | Operation in ONS cause of death |
| | 1999/00 | 1999/00 | 1998/99 | 1998/99 |
| Day of operation | 44 | 31 (70%) | 44 | 17 (39%) |
| Day 1-7 | 186 | 144 (77%) | 143 | 54 (38%) |
| Day 8-30 | 116 | 88 (76%) | 84 | 30 (36%) |
| Total | 346 | 263 (76%) | 271 | 101 (37%) |

It is reassuring to note the marked increase in the number of cases in which the operation is mentioned in the ONS cause of death - 263/346 (76%) compared to 101/271 (37%) in 1998/99 (Table 9.3). There are no specific ONS guidelines on this matter, but the advisors considered that the operation was a contributory factor in the causation of death in a majority of cases and should at least be specifically recorded within part 2 of the ONS cause of death. Terminology such as ‘fractured neck of left femur (operated upon)’ or ‘adenocarcinoma of the caecum (resected)’ could be used.

We reiterate our comments in the 1998/99 survey that guidance on the formatting of ONS causes of death may be found in the front of death certificate books⁸⁹ and a training video and information pack ‘Death Counts’⁹⁰ is also available. There are no lists of recommended terms issued by the ONS similar to those used for clinical and disease coding so many terms and synonyms are used. Clinicians and pathologists need to ensure that medical certification of death is accurate. It is worth noting that, as this report goes to press, a Home Office review of death certification and the coronial system is in progress⁹¹ and may impact on this aspect of future NCEPOD reports.

Overall score for postmortem examinations

| Table 9.4 | | Quality of postmortem examinations | | | |
|--|------------|------------------------------------|------------|-----|--|
| Quality of postmortem | 1999/00 | | 1998/99 | | |
| Unacceptable, laying the pathologist open to serious professional criticism | 8 | 2% | 9 | 3% | |
| Poor | 96 | 28% | 54 | 20% | |
| Satisfactory | 150 | 43% | 117 | 43% | |
| Good | 73 | 21% | 80 | 30% | |
| Excellent, (meeting all standards set by RCPATH 1993 guidelines) ¹⁶ | 19 | 5% | 11 | 4% | |
| Total | 346 | | 271 | | |

Only 8 (2%) of the 1999/00 reports were thought to be of a very low standard, often because of their brevity and lack of correlation with the clinical history. Ninety-six (28%) of the cases had a poor report, an increase of 8% over 1998/99. Two hundred and forty-two reports (70%) were graded satisfactory or better.

Table 9.5 History, antemortem clinical diagnosis and cause of death compared with postmortem findings (n=346, answers may be multiple)

| Postmortem findings | 1999/00 Total | 1998/99 Total |
|---|---------------|---------------|
| A discrepancy in the cause of death or in a major diagnosis, which if known, might have affected treatment, outcome or prognosis | 29 (8%) | 15 (6%) |
| A discrepancy in the cause of death or in a major diagnosis, which if known, would probably not have affected treatment, outcome or prognosis | 52 (15%) | 30 (11%) |
| A minor discrepancy | 3 (<1%) | 2 (<1%) |
| Confirmation of essential clinical findings | 262 (76%) | 221 (81%) |
| An interesting incidental finding | 27 (8%) | 15 (6%) |
| A failure to explain some important aspect of the clinical problem, as a result of a satisfactory autopsy | 22 (6%) | 9 (3%) |
| A failure to explain some important aspect of the clinical problem, as a result of an unsatisfactory autopsy | 35 (10%) | 18 (7%) |

The detection of unexpected findings at postmortem examination reiterates the importance of this process in clinical mortality audit. In 81 cases (23%) there was a major discrepancy between clinical diagnosis and postmortem examination and in a further 30 cases (9%) there was a minor discrepancy or interesting incidental finding. In 57 (16%) cases there was a failure to explain some important aspect of the case, although in 22 of these the autopsy was felt to have been conducted satisfactorily.

Attendance of the surgical team at the postmortem examination

An analysis of all 503 questionnaires, indicating that a postmortem examination had taken place, showed that only 141 (29%) surgical teams reported that they had been informed of the time and place of the postmortem. Seventy-seven (56%) of these clinicians indicated attendance of a member of the

team at the postmortem. Lack of attendance, when stated, was mainly due to unavailability of the surgeon, other commitments or a feeling that nothing was to be gained from the postmortem as the diagnosis was already known. Where the coroner’s postmortem is performed at a public mortuary, this may be many miles away from the hospital where the death occurred. Moreover a problem may be posed by Rule 6(1) (c) Coroners’ Rules 1984¹⁵. This provides that “if the deceased died in a hospital, the coroner should not direct or request a pathologist on the staff of, or associated with, that hospital to make a postmortem examination ifthe conduct of any member of the hospital staff is likely to be called in question ... unless the obtaining of another pathologist with suitable qualifications and experience would cause the examination to be unduly delayed.”

Communication of the postmortem result to the surgical team

| Table 9.6 Communication of postmortem results to the clinical team | | | | |
|--|------------|-----|------------|-----|
| Results to clinical team | 1999/00 | | 1998/99 | |
| Postmortem copy received | 352 | 70% | 338 | 75% |
| Postmortem copy not received | 131 | 26% | 90 | 20% |
| Not answered | 16 | 3% | 19 | 4% |
| Not known | 4 | <1% | 1 | <1% |
| Total | 503 | | 448 | |

| Table 9.7 Time taken for first information to be received by clinical team | | | | |
|--|-------------------|------------------|---------------|--|
| Days after patient’s death | Coroner’s 1999/00 | Hospital 1999/00 | Total 1999/00 | |
| Less than 8 days | 69 | 24 | 93 | |
| 8 days to 30 days | 40 | 9 | 49 | |
| 31 days to 60 days | 19 | 2 | 21 | |
| More than 60 days | 30 | 3 | 33 | |
| Not answered | 138 | 18 | 156 | |
| Total | 296 | 56 | 352 | |

In 131 (26%) of the 503 cases in which a postmortem had been done, the surgeon noted that the clinical team had not received a copy of the postmortem report. One hundred and sixty-three of the 196 who answered the question (83%) said that they received the report within 60 days - an

appropriate interval given that most mortality audit meetings are likely to be held in the month following the death of the patient. The pathological information was thought by the surgeons to confirm the clinical impression in 91% of the 426 reports and in 61 (19%) they noted additional clinically unexpected findings as a result of the postmortem. These results are comparable to 1998/99.

Comment

The postmortem examination rate remains constant at 31% for 1999/00, with hospital (consented) postmortem examinations comprising 5%. The standard of the majority of postmortems continues to be satisfactory, with 69% of reports scoring as satisfactory or better according to Royal College of Pathologists’ 1993 guidelines¹⁶. However, NCEPOD noted that previous improvement in several areas, normally contributing to the quality of the postmortem report, was not sustained.

The absence of a histology report detracted significantly from the postmortem report in 28% of cases. This may result from restrictions imposed by current interpretation of Coroner’s Rule 9¹⁵. It may hinder refinement and validation of the cause of death¹⁷ and thus detract from comprehensive mortality audit. Consent for retention of tissues and organs from coroners’ postmortems may be forthcoming from relatives if the reasons are explained sensitively to them. We note that the Department of Health²⁴ recommends that systems be put in place for proper informed consenting of relatives on this issue. Their report incorporates guidance from the Royal College of Pathologists²³, the Bristol Royal Infirmary Interim Inquiry² and the Royal Liverpool Children’s Inquiry³.

NCEPOD noted an absent, poor, obscure or uninformative clinical history in 21% of cases, absence of a summary of lesions in 76% of cases and an absent, poor, uninformative or brief clinicopathological comment in 51% of cases. While the Pathology Advisors accept that a poor or inaccurate clinical history on the postmortem report may be misleading for clinicians and upsetting for relatives, it is in the interests of a properly-conducted ‘problem-orientated’ postmortem examination that there should be consultation between senior anaesthetists, surgeons and pathologists before the postmortem and also prior to issuing the medical certificate of death, especially in complex surgical cases. This will undoubtedly add to the workload of both clinician and the pathologist unless there is more careful selection of cases for coroner’s postmortem examination. It is noted that in

the wake of the Shipman trial in Greater Manchester, the Home Office is currently reviewing death certification⁹¹ and the coronial system. It is anticipated that recommendations for change will follow.

The operation was mentioned in the ONS cause of death in 76% of cases, compared to 37% in 1998/99, and ONS formatting rules for the cause of death were followed in 97% of cases. However, the causes of death given in parts 1a, 1b and 1c related neither appropriately nor at all to the post mortem report in 16% of responses. We reiterate our recommendations in last year's report that the ONS should provide a standardised list of acceptable terms for causes of death and underlying conditions similar to national clinical disease coding lists and that the Royal College of Pathologists' guidelines should be updated into a minimum dataset format, with inclusion of guidance on ONS formatting for the cause of death¹³.

In 20% of deaths, on average, the clinical and postmortem findings were not discussed at mortality audit. Review of cases at mortality audit has been considered best practice for many years²¹. Completed postmortem reports on straightforward cases should be made available for discussion except where a case may still be sub judice because of the need to hold an inquest or in complex cases, in which multidisciplinary discussion may provide information relevant to the terminal events, perhaps leading to modification of the postmortem report and the ONS cause of death. Such reviews would thus ensure that there is good communication across disciplines of the outcome of the postmortem examination and that information from postmortems fulfils its dual aims of ensuring accuracy in death certification and provision of answers to families and clinicians about the deceased's last illness and the effects of treatment. Families of the bereaved should be given the opportunity, should they wish, to obtain information about the final outcome of the postmortem examination.

It is worth commenting that, as in previous years, the majority (69%) of cases reported to NCEPOD did not undergo postmortem examination. While this may be appropriate in many instances, review of some of these cases may have been hindered by lack of information derived from postmortem examination. Perhaps this is an area that merits future study by NCEPOD.

Recommendations

- Recently published national recommendations for obtaining informed consent to retain tissues and organs should be applied.
- Defects in the quality of postmortem reports should be remedied by consultation between clinician and pathologist before the postmortem examination and before issuing the cause of death.
- The Royal College of Pathologists' guidelines to the postmortem examination should be updated into a minimum dataset format, with inclusion of guidance on ONS (formerly OPCS) formatting for cause of death.
- The ONS guidelines should be modified with the adoption of a restricted list of acceptable conditions similar to national clinical disease coding lists.
- Clinicians need to be informed of the time and place of the postmortem examination in order that they may attend and inform the process.
- Completed reports on hospital (consented) and coroners' postmortems should be available for review in multidisciplinary mortality audit meetings.
- Full information should be available to the families about the results of postmortem examinations.