Autopsy and medical education: a review

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Summary

During the twentieth century there has been a decline in the rate of autopsies performed. A review of the literature reveals reasons for this decline which include: an improvement in the medical diagnostic technology available; inadequate training of doctors as to the importance of autopsy; and difficulties in obtaining consent from relatives and the present use of audit. Recommendations for changes in medical education are made which include: a greater appreciation of the procedure as a useful investigation tool; the development of attitudes towards death; and improving communication skills with the bereaved. Recommendations are also made regarding education of the public, awareness of differences in cultural attitudes, the role of leaflets, the post-autopsy conference and the place of audit.

Introduction

In past years autopsy (post mortem or necropsy) was regularly performed, in cases where the cause of death was not known, as a further method of investigation in order to educate medical practitioners and accurately inform relatives.

Over the years a decline in its use has taken place[1] and this can be attributed to several factors[2]. First, there has been a rapid acceleration in medical technology and thus it is less likely that when a patient dies the cause is uncertain. Second, people are now living longer and hence a greater proportion of those dying in hospital are dying from 'old age'. Third, doctors are not good at explaining to relatives the usefulness of autopsy as an examination and, hence, are hesitant about requesting consent. Fourth, relatives have reservations about its usefulness[3] as most would prefer to maintain the physical dignity of a loved one, in preference to knowing the exact cause of death and therefore often decline consent. Finally, it is a difficult and unpleasant examination for the pathologist to perform and is often without reward.

However, there is still a need for the autopsy and circumstances do exist where it might be required. The commonest request for autopsy in the UK is in the case of sudden death, where the cause is not apparent, and the request is made by a Coroner[1], but there are many reasons why an autopsy may be required. First, during investigations where the suspected cause of death is foul play. Secondly, to determine if a suspected medical misjudgement has been made and hence to educate the medical profession in order to prevent this happening again if humanly possible. Thirdly, where knowledge of an accurate cause of death may help bereaved relatives progress through the grieving process. Fourthly, as the discrepancies between clinical and autopsy diagnoses remain around the 10% level[4,5], it follows that autopsies are required in order to monitor clinical investigative techniques. This obviously has implications for the maintenance of accuracy in present-day mortality statistics[6].

The current attitudes of undergraduates, post-graduates and relatives, will be explored, together with the concept of audit, to identify the reasons for the decline in the use of autopsy. Following this, recommendations will be made for changes, in development of both medical and public education.

Current situation

Attitudes to the autopsy vary and the formation of these attitudes greatly influences the autopsy rate.

Attitudes of undergraduates

In the early 1900s, autopsy was a regular and accepted practice, performed by general practitioners. In years gone by students were not only present at autopsies, but, they were taught how to perform them. The use of the autopsy as an educational tool is in decline and there is evidence that many recent undergraduates and junior doctors have never attended an autopsy[1].

A postal survey of second and third year undergraduates at the University of Manchester about their views on various aspects related to autopsy has been conducted[7]. Comments varied and many students stressed that it was a useful and necessary procedure with regard to its educational value, but few seemed aware of its use as an instrument of quality control. They also commented on the range of attitudes displayed by the qualified staff towards this procedure, which consequently reflected on the students and left them with mixed reactions to the experience.

Of the comments made, 17.6% described a personal distaste for the procedure, using phrases such as, 'unpleasant mutilation', 'the barbaric nature of the procedure' and 'one more step along the path of losing your natural feelings as a doctor'.

Several students commented that acquaintance with the patient before death significantly exacerbated the distress factor associated with the experience of autopsy. This survey raised many important issues not least the need, in medical curricula, for priority in education of issues surrounding death and dying.

Attitudes of qualified practitioners

It is considered that practitioners find it difficult to approach grieving relatives, in order to ask them for consent to perform an autopsy, for two main reasons. First, their own reservations about the process; and, secondly, their poor communication skills.

We must consider whether there is still a need for autopsy considering the advances in medical diagnostic technology. A review of 428 autopsy cases[8] demonstrated that in 52% there was failure to provide any additional insight to clinical and laboratory findings, but in the remaining 48% the autopsies contributed to the advancement of medical care. The former figure may well have a significant influence on whether or not practitioners seek consent for the procedure, despite the advantages to future medical care which could be obtained.

Requesting an autopsy is never a pleasant or comfortable experience, either for the practitioner or for the family members. The proportion of positive consent varies from 50% to 90%, indicating that the approach, used towards relatives may be an important factor[9]. It is possible that many practitioners have been repelled by various sights or practices that they have observed in the mortuary, and it is also possible that families too may have had previous unhappy experiences[10] . However, there is good evidence that practitioners in general view autopsy as a valuable tool, but in many circumstances, for example, where the elderly are concerned, some feel that it may be of little value[11]. Furthermore, in the case of the elderly, the practitioner has considerable knowledge of the patient prior to death and so the cause is usually known.

Practitioners may also face a dilemma when medical uncertainty exists as to the cause of death, as autopsy findings can infer medical errors[12]. This is particularly relevant in a consumer climate where claims are accelerating in the area of perceived medical negligence[13]. Thus, the choice between gaining medical knowledge and protecting the practitioner (who may unintentionally and unwittingly have made a human error of judgement) is forced upon them.

Attitudes of the pathologist

Views concerning autopsy amongst pathologists vary and it has been described by one as 'the ultimate medical consultation'[14] and by another as 'the ultimate audit'[8]. It can be seen from the perspective of the pathologist that the purposes of the autopsy are multiple[15]:

1. To establish the exact cause of death and so to ascertain if the correct diagnosis had been made for the purposes of both feedback and education.
2. The provision of accurate mortality statistics.
3. The improvement of public health by further understanding the disease process and its causation.
4. To assist in determining the manner of death, for example, in the case of violence.

US pathologists prefer not to perform autopsies for several reasons and these may have an important effect on the autopsy rate. It is considered to be time consuming, often unappreciated and also unpaid for. Finally, from a medico-legal perspective, there may be unexpected findings[16].

Audit and quality assurance

The role of autopsy in the medical audit process is one which has been documented on many occasions. An assessment of the incidence of discrepancies between premortem (clinical) and postmortem diagnoses has shown little, if any improvement over the last 75 years[17]. It can therefore be stated that recent advances in diagnostic technology have not obviated the importance and need for autopsy[18]. A literature review was carried out on this by Britton[19] for the period 1919 to 1971. This showed diagnostic errors for the 52-year period and the range of errors varied from 6% to 68%. Riboli and Delendi reviewed the literature following that study until the present time and demonstrated similar results of 30% to 90%[6]. The implication is that the need for autopsy verification is unchanged, but that there has been a sharp decrease in the frequency of autopsy in most countries.

Saracci[20] has rightly pointed out that such diagnostic error variations can be accounted for by the poor specificity (non-random selection of cases) for autopsy and the poor sensitivity of the autopsy (errors in postmortem diagnoses). A prospective study in New Zealand of 643 deaths (autopsy rate=51.8%) demonstrated an error of postmortem differences of 57.5%[21]. In 1981 Cameron repeated this study in the UK on 1152 deaths (autopsy rate=25%) and a difference of 39% was demonstrated[22]. The largest reason for errors in postmortem diagnoses are the two conditions; a pulmonary embolus and peritonitis[17]. Although these are ultimately responsible for death, they detract from the major underlying disease leading to death.

Lundberg[15] argues that in a society oriented to the consumer where cost effectiveness must be a priority, 'assurance of care of high quality' is important. As an audit tool, the autopsy examination is a relatively inexpensive one in comparison to some clinical tests prior to death. As an educational tool, it is beneficial for clinicians to measure correlation between clinical diagnostic techniques[2] and postmortem diagnoses[20], where most information will be gained from an experienced[23] and enthusiastic[4] pathologist.

However, there is good evidence that communication of results following autopsy, both to hospital and community practitioners is inadequate[24] and that this needs to be improved. If appropriate, the information can be transmitted to the relatives of the deceased, to assist their grieving process. In my practice of 11 000 patients, it was found that from the 326 deaths during the period; 1 February 1989 to 31 August 1992, 20 autopsy reports had never been received (Free 1992, unpublished; Walton 1993, unpublished).

Public attitudes

The mixed reactions by relatives when faced with the request for an autopsy range from indifferent to uncooperative[25]. Many possible reasons have been cited as to why this is the case. By sending a questionnaire to the next of kin, a recent study[26] of 508 consecutive hospital deaths, identified two groups; those who had consented to a postmortem on a relative (group A) and those who had not (group B).

In group A, the response of 62 relatives where consent had been granted, 74% perceived that there would be an advancement of medical knowledge from the autopsy. A further 41% took comfort in knowing the exact cause of death and 34% had gained reassurance from knowing that all appropriate medical care had been given.

Of the 40 relatives in group B, who had declined their consent for an autopsy, the following were given as the most important objections:

(*a*) Stress in permitting autopsy (59%)
(*b*) The deceased did not want an autopsy (59%)

(c) Concerns about disfigurement of the body (44%)
(d) Lack of information about why it was required (41%)
(e) Religious objections (21%)
(f) Delay of funeral arrangements (21%)

Thus, relatives differ greatly in their perceptions of autopsy. It is a stressful event which requires time and sensitive handling on behalf of the doctor. It is important to discuss the relatives' concern for the autonomy of the deceased as autopsy will inevitably disfigure the body. Furthermore, certain histological techniques take a long time and thus parts of the body may not be returned prior to the funeral ceremony. It is certainly an area which can cause an ethical dilemma for both clinician and pathologist alike.

Finally, religious and cultural attitudes, in addition to failure on the part of the doctor to appreciate them, may be a reason why relatives refuse consent for an autopsy. Geller[27] suggests that following adequate explanation as to why an autopsy is necessary, most religious sects will probably agree to the examination.

Recommendations

As demonstrated, the decline in the autopsy rate can be attributed to a number of factors. These need to be addressed in order to reassert the status of the autopsy as an investigation and audit tool which is crucial to the future effectiveness of modern medicine.

Undergraduate medical education

In an attempt to overcome the difficulties faced by practitioners appreciating the usefulness of autopsy and asking relatives for consent, it is important that future generations of medical students are better instructed[7]. It has been shown that the provision of a single medical lecture on the subject to newly qualified doctors is of no benefit[28]. The curriculum should be revised to include time for small group work with facilitators to discuss the many difficult and painful issues that surround this topic. Students need to understand how autopsy can both be sensitively requested and performed and how it can benefit grieving relatives, the profession and society as a whole.

To encourage medical students and junior doctors to consider the need for autopsy, it is important that suitable reinforcement is provided in the form of senior doctors making appropriate requests to grieving relatives. This is important not just for the students, but for the relatives, where there can be no greater distress than to suffer the unexpected death of a loved one and then be asked for consent, by an inexperienced doctor, to an autopsy. Furthermore, it must be emphasized that a period of time should elapse before a relative is approached for consent to the examination and at this time openness, honesty and communication skills are vital[29].

As an aide to education, the autopsy may be used to develop problem solving skills. The autopsy room is viewed by some as aesthetically offensive and hence there is room for alternative and improved presentation of vital findings. There is scope for the employment of video records or close circuit television[30] in addition to slides. The involvement of clinicians in teaching sessions, using alternative presentation methods, would facilitate free ranging discussions.

Postgraduate continuing education

There is a place for postgraduate education of clinicians for many reasons. First, many feel uncomfortable in this area due to lack of preparation in their training; and, second, they are required to provide a good example from which undergraduates may benefit. Insensitivity on the part of the clinician may adversely affect the grieving process, as relatives will remember little of the content of the consultations at the time of death, but much of the delivery style, such is the effect of the bad news[31].

Practitioners need to be made aware that skills in helping the bereaved are vital and it is paramount to remember that anger and guilt are an early part of the grieving process. Assuming no medical negligence was involved, knowledge of the cause of death may help relatives and aid in their grieving. However, it is important to stress, where it is justifiable through the findings of the autopsy, that all was humanly done by both the clinician and family alike. This will help to resolve the feelings of guilt[32]. Unfortunately, despite the best of intentions on behalf of the physician, relatives' anger can occasionally fuel a claim for medical negligence[33], although sensitive handling may defuse the situation.

In order to consider the attitudes of relatives to autopsy, it is important that when the request for autopsy is made, it is preferable that a sensitive approach to the family is made by both the clinician and pathologist together. Sufficient time must be provided to listen to objections and to explore explanations where appropriate as to why autopsy might be necessary. It is important to include the fact that medical technology is not infallible and that sometimes to make an accurate diagnosis, autopsy needs to be performed after death[34]. Finally, they should be reassured that it will not delay funeral arrangements.

Autopsies can also be viewed as an educational tool in which trainee surgeons assist with the performance of autopsies in an attempt to further anatomical knowledge.

Education about cultural attitudes

Both undergraduates and qualified practitioners alike need to have a raised awareness of cultural and religious attitudes surrounding death and dying. Taking these diverse attitudes into consideration may provide an insight into how the approach to relatives should be handled[35]. Boglioli[36] provides a helpful table on the many religious groups in the world as to which ones find autopsy acceptable and those that will not allow it, except in special circumstances.

Public attitudes

A way forward to overcome these problems and alter lay perceptions, would perhaps be achieved if the profession were able to devote time through the media to provide an opportunity for public education and so information in the area of autopsy.

One paediatric centre in the USA[37] has designed a leaflet in an attempt to provide relatives with information, explaining the purpose and conduct of an autopsy. It provides detail on preventing genetic conditions, the need for further research, and that at all times dignity is respected and maintained. Finally, the relatives are invited to contact the clinician or pathologist if they have any further questions.

There are many reasons as to why a request for consent is refused and one is that a loved one has 'suffered enough'[38]. To overcome these objections it is important that the family is listened to and if appropriate, counselled. The final decision must rest with the family and thus adequate explanation is vital. It is important that autopsy results are communicated to the family and other concerned parties without delay. This may be achieved through a post autopsy conference with the family[39]. This is held to inform the relatives of the cause of death in terms that they can understand, where if possible the clinician involved with the care of the deceased is also present, if for no other reason, than to show concern and empathy.

Following this conference, families should be given a contact for the pathologist who has performed the investigation, if in time to come they should wish to ask any further questions. Some relatives prefer to see their family physician, in which case that doctor should be sent a copy of the autopsy findings.

The place of audit

A successful methodology of audit of autopsy should be an important criterion when assessing hospitals for purposes of accreditation regarding training and trust status. There should also be regular mortality meetings, encouragement of pathologists and clinicians in the hospital and community to attend and the provision of adequate funding to maintain this aspect of clinical audit.

If an autopsy is requested, it must be done primarily for the purpose of audit and thus the discovery of discrepancies between clinical and post-mortem diagnoses[6,40]. This information must be distributed to the appropriate clinicians and recorded carefully on the death certificate, to ensure accurate mortality statistics[6]. Secondly, it must be done for the benefit of the relatives, by providing information to help them in their grieving. There is a place for a limited autopsy[41], for example, examination of the heart only, in the case of suspected myocardial infarction, to reduce potential disfigurement and so distress to the mourners.

To complete the cycle of audit it is essential that discrepancies in diagnoses by clinician and pathologist are carefully recorded and made known to the clinician. This will then form the basis for future audit to discover if this information improves the quality of future care. Likewise, clinicians (whether hospital or community based) must feedback to pathologists if the information from autopsies has been received and its quality. Finally, relatives need to be surveyed to ascertain if they are satisfied with the amount and presentation of information delivered to them following an autopsy.

Conclusion

There can be no doubt that postmortem dissection has a valid place among the many investigations available to those practising medicine. A decline in its frequency has occurred for the many reasons discussed. Perhaps the most important reasons are practitioners who feel uncomfortable asking for the consent of relatives, concerns about perceived medical negligence and also the lack of understanding by the relatives due to inadequate communication. Further training of medical undergraduates and junior doctors may reverse the trend. As in other areas of medicine, it emphasizes the need for further curricular time to be devoted to the areas of death, dying and communications skills development. It is impractical and unreasonable to expect future generations of doctors to request an autopsy without having examined their own attitudes towards it. Also they need to learn of its benefit to grieving relatives, the clinician and society as a whole. Furthermore, there is a requirement for the pathologist to be involved and thus improve job satisfaction. They should be involved perhaps at the time of consent and certainly afterwards and could then hopefully provide relatives with a clear explanation of the cause of death in order to try and help them with the pain that bereavement can cause.

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Transplantation and organ donors

Man must ethically study, experiment and choose
The best available treatments and therapies to use.

All information that can serve and benefit man
The medical profession must use whenever it can.

The modern medical miracle of organ transplantation
Requires most highly moral and ethical decision.

The physician must not a transplant give
Unless the patient has a chance to live.

We respect life; each his own must live.
At death precious organs each may give.

Every person should have a living will;
But for body parts none should pay or kill.

To allow a person to have another try
No one should conceive, be born or die.

When there are organs one chose to share,
These must be used with the greatest care.

Greater love hath not woman or man
Than to save another's life if they can.

Let a living will be part of our life's plan
To show love of life and for our fellow man.

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[for William H. Crespy MD, great mentor, haematologist and oncologist at Walter Reed Hospital, Washington DC, USA]