

Notes on necropsy

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In the correspondence columns of our June 1991 issue Professor Emson referred to an information sheet designed for medical students on the topic of necropsies. In view of the number of requests the author has received for copies of that sheet, and the interest it has generated, the whole is reproduced here as a short report.¹

During your time at Royal University Hospital you may be afforded the opportunity to attend one or more autopsy (post-mortem) examinations. Because of some of the questions which have been asked, I am circulating this note so that you may know more about the nature and purpose of this examination.

Autopsy is the scientific examination of the body of a deceased person undertaken to give information concerning the course of disease during life and the mode or cause of death. Autopsy is undertaken by a specialist physician, a pathologist, with a mortuary assistant and sometimes with resident pathologists who are undergoing training in the specialty.

A The reasons for autopsy

These may be divided as follows:

(1) *Specific information as to the nature of disease and the cause of death in an individual patient*, for correlation with the clinical history. The sort of questions that can be asked and sometimes answered are, was the correct clinical diagnosis made during life; are there any other conditions which were missed or misdiagnosed; was the correct treatment given or could anything more have been done? or is there anything more that we can learn concerning the nature of the disease in this particular patient?

Autopsy is the "bottom line" of the medical chart, the FINAL DIAGNOSIS.

(2) Additions to medical knowledge

The performance of scientific autopsy is one of the foundation stones upon which all medical knowledge is based. It is the "final diagnosis", the last court of appeal, the fundamental question and answer process as to whether what we thought during the patient's life was correct. It is on the information gathered from literally millions of scientific autopsies that most of present medical knowledge is based. In cultures where autopsy is unacceptable for religious, social or moral reasons, medicine is inaccurate and inefficient because no final answers can be given. Having said this, one may state that a scientifically conducted autopsy is acceptable to believers in all the major religious denominations in Canada at this time.

(3) Statistical

The diagnoses made at autopsy are major components of our knowledge of disease in the

community. Also, the performance of autopsy is regarded as so important that the Canadian Council on Hospital Accreditation insists on autopsies in a high proportion of deaths in an accredited hospital. University Hospital customarily achieves an autopsy rate of around 50% of hospital deaths.

(4) Medicolegal considerations

In patients dying without medical attention, during or soon after operation or childbirth, in accidents, under peculiar circumstances or from suicide, homicide or other unusual causes an autopsy may be ordered by a Coroner as part of the legal investigation of a particular death. We do many such autopsies in University Hospital; approximately 75% of autopsies ordered by a Coroner prove the patient to have died from natural causes.

B Permission for autopsy

As soon as a person dies, the body becomes the responsibility of the next of kin. It is not possible for a person either to authorise or to deny an autopsy on his own body because of this. Permission for autopsy must be obtained; in "routine" hospital deaths with no medicolegal implications this is customarily obtained from the next of kin. The permission must be in written form and properly witnessed, but may be taken by telephone.

In cases with medicolegal implications, under the Coroner's Act, a Coroner may order an autopsy. If the Coroner considers an autopsy to be necessary his order overrides any desires or wishes on the part of the family, and the doctor who is ordered to perform an autopsy must do so.

To give some idea of the volume of work, the number of autopsies is approximately 350 per year or averages one per day.

C Physical performance of the autopsy

The autopsy is performed in the autopsy room or morgue of the hospital, on Floor 2G, which is fitted out much as an operating theatre. The conditions of sterility are somewhat reversed, in that care is taken to avoid contamination of the people performing the autopsy from the body rather than vice versa. However, except in a very few diseases there is minimal risk of contamination or infection at a properly conducted autopsy under modern circumstances.

The autopsy consists of several parts.

(1) The pathologist before performing the autopsy will obtain and read the patient's charts, and possibly consult with the physician who was in charge of the patient during life. This will give him some information as to the diagnosis during life and the possible cause or manner of death.

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In a medicolegal autopsy information may have to be sought from the Coroner or the police also.

(2) A careful *external examination* is made of the body.

(3) A total *gross dissection* is made of the body including all the major organs and systems. The incisions are so placed that they may be sutured and if the relatives desire to view the body after death, there are no incisions visible and it is literally impossible to know that an autopsy has been done. This is accomplished by placing the incision by which the skull is opened far back upon the scalp, and by making a "T" shaped incision in the thorax and abdomen that can be sutured without being visible when the body is clothed after death for viewing. The organs are removed either one at a time or together, dissected and examined, and evidence of disease processes is sought.

(4) *Photographic examination*

Photographs or drawing may be made for the record, either of the whole body or of organs or lesions during the autopsy.

(5) *Microscopic examination*

Portions of tissue taken from the organs are fixed, processed, sectioned and stained as microscopic slides. These will be examined by the pathologist after the gross autopsy is completed.

(6) *Reports*

After completion of the gross examination of the body the pathologist prepares a report on what he has found. From this it is possible to issue a preliminary autopsy report stating the probable cause of death, and diseases present. When the microscopic sections are available a further report is made on these, and the gross and microscopic descriptions are combined in a final autopsy report, printed, duplicated and circulated.

(7) *Other examination*

As may be appropriate cultures may be taken from the body for bacteria or viruses, specimens taken for analysis for drugs or poisons, and other specialised investigation done, the results of which are incorporated in the final autopsy report.

(8) *Teaching*

In a teaching hospital the autopsy is a teaching procedure. Autopsies are used for the instruction of residents, interns, medical students, student nurses, and others as appropriate. At University Hospital the physicians and interns are informed of the performance of an autopsy by a coded call broadcast over the hospital address system. This will alert them to the fact that an

autopsy is then being performed on a patient in whom they have an interest. The call sign is the call number "66" followed by the name of the doctor and interns who may be interested. Medical students may obtain information on autopsies scheduled on a particular day, by calling at the Pathology office on floor 2G of the Hospital, or phoning 2177.

(9) *Confidentiality*

Information obtained at an autopsy is confidential in the same way as any other information obtained by a physician or others in a hospital. The procedure and results are not for public discussion; they are part of the medical procedure, finally incorporated into the chart and communicated to those entitled to receive the information. Members of the family of the deceased can always receive information gathered from the autopsy as to cause of death; we usually think it best that they do this by consultation with the family physician who is always supplied with a copy of the completed report. Confidentiality becomes particularly important in medicolegal autopsies where crime is known or suspected; these are the only autopsies from which it may be necessary to exclude people other than the pathologist and the police representatives.

Summary

From the above it can be seen that autopsy is not a grotesque, macabre procedure performed for peculiar and disreputable reasons in a remote corner of the hospital. On the contrary, it is a scientific study designed to forward our knowledge of health and disease by the three primary methods of service, teaching and research.

The examination of a dead body is always an emotional procedure. The pathologist and those concerned with frequent performance of autopsies become accustomed to it. To witness an autopsy may cause considerable emotional reaction in inexperienced people. As part of the learning experience, it can be very useful and appropriate staff are welcome to attend by arrangement. As proper protection garments are required and the suitability of viewing certain autopsies may arise, a formal request to the responsible pathologist is necessary.

Whatever one's religious beliefs, it may be helpful to think of the deceased person's body as something which he or she has used during life, but which is no longer in any real way the person once life has departed. The deceased body must be treated with dignity and respect as representing the remains of what was a human being and because of the natural desire of the next of kin that the remains of their relative should so be treated; it is not the person who used the body during life.

¹ Emson ME. Medical student's views on necropsies. *J Clin Pathol* 1991;44:526.