Examination of the body after death

Information about post-mortem examination for medical staff

Introduction

This guide provides practical information about the post-mortem examination service offered by the Histopathology Department at the Women’s and Children’s Hospital. It also aims to provide you with information to help you educate your patients’ families on the benefits of performing an autopsy. A memory aid is included for your use.

Benefits of the autopsy:

Information published by the Royal College of Pathologists of Australasia states:

One of the casualties of a highly technical approach to medicine has been the autopsy. For a variety of reasons autopsy rates in hospitals have been declining\(^1\), and this will have an adverse effect on clinical practice. Recent controversy over the retention of organs and tissues removed at autopsy has prompted reviews of laws and practice around the country. The results and implementation of such reviews will profoundly affect the future of the autopsy. One certainty, however, is that audiences, including medical ones, are always surprised at the results of studies showing significant rates of diagnostic error in death certificates provided by clinicians\(^2\). These error rates, contrary to conventional wisdom, have not declined in line with improved access to sophisticated diagnostic and imaging technology. In reality this is not all that remarkable, because the clinical diagnosis of the cause of death is based on evaluation of the clinical features and course of the disease; the death itself is usually not observed, a physical examination is not possible and the results of the relevant special investigation, an autopsy, are not available. One corollary of this is important: a doctor should not feel that a mistaken cause of death revealed by autopsy is necessarily a criticism - arriving at causes of death clinically is an inherently flawed process.

On this ground alone, an autopsy should be considered following the death of every patient. This will often involve the clinician or another suitably qualified or experienced person providing all the requisite information prior to seeking the consent of those required by law.

Such information provision should include discussion of the need for, or desirability of, retaining organs and tissues for further assessment or other proper and agreed purposes (eg, education, research).

In any event, hospital procedures should be meticulously observed in this area. Even where there is refusal for autopsy, the very fact that permission has been sought may be important for relatives as it demonstrates a continuing interest and indicates that even in death there may be something to be learnt. The approach
also gives relatives an opportunity to be involved and to exert some control over the situation and this can be valuable.

If permission is given and the autopsy is performed, there are a number of benefits:

1. Factual information based on the findings can reassure relatives and provide an explanation for aspects of the patient’s clinical course of concern to them. This can be of enormous assistance to relatives in the proper resolution of their grief.

2. An opportunity for learning for the caregivers becomes available - if errors in diagnosis and management are not actively sought, improvements in understanding and future patient care may not occur. Such learning opportunities are also vital for medical students.

3. Tissue should be collected in full compliance with relevant local legislation and contemporary ethical concerns; tissue removed at autopsy may be of significant value for therapeutic, scientific or research purposes.

4. The potential for autopsies to contribute to the characterisation of poorly understood diseases and the evaluation of new medical or surgical techniques is self-evident.

5. The diagnosis of disorders with genetic implications has obvious value in the counselling of relatives.

Before a clinician rejects the idea of an autopsy, it should be remembered that in 20-30% of cases where there is no autopsy, the major underlying cause of death given by that clinician will be wrong. In about 10% of hospital deaths, the clinical diagnosis of the cause of death will be such that, if the correct diagnosis had been made, different management might have altered the outcome3. The practice of medicine is based upon continued learning and the accrual of valid experience - without an autopsy a clinician cannot know whether the diagnoses made were correct and the management provided was appropriate. An autopsy not performed means that an opportunity has been missed to confirm or improve clinical practice.

References:

Republished with permission from The Royal College of Pathologists of Australasia
Manual of Use and Interpretation of Pathology Tests: Third edition

**Information you will need to communicate to consumers:**

Although at such a time it is often difficult for relatives to make such a decision, a post-mortem examination may provide a final opportunity for investigations to be carried out. It is a medical procedure that provides information essential to credible medical research, public health planning and helpful information to a family following the loss of a loved one.

It is important that you encourage the family to consider the issues put forward in this guide as they relate to their situation and urge them to seek any additional information they require. It is important that the family feels they have enough information before making a decision about whether to agree to a post-mortem examination or to the keeping of tissues or organs.

**a) Why do a post-mortem examination?**

After a person dies many questions arise both for the clinicians involved in patient care, and for their family:-

- Why did they die?
- Was there anything else wrong with them that we didn’t know about?
- Is there a genetic problem that may have implications for other family members, including future children not yet born?
- Did the doctors get it right? Were the diagnoses made before death correct?

Many studies around the world have shown that unexpected findings or new useful information can be revealed by post-mortem in about 40 percent of deaths. Also, as relatives, the family has a right to know anything about the illness in the deceased that may affect their own health. Some diseases are hereditary and the post-mortem examination may provide them with this information.

A post-mortem examination can provide valuable information about a disease and its effects on the body. It may tell us more precisely what was wrong with the family’s child. Post-mortem examination will usually provide important confirmation of the clinical diagnosis but often it will also add new information or may even change the diagnosis. Even the most detailed post-mortem investigation may leave some questions unanswered, but in this situation, tissue samples taken at post-mortem may be re-examined in the future as new technologies become available.

Getting the most accurate diagnosis for diseases and conditions affecting people in our community also is important for the population as a whole, helping to identify specific factors that may be damaging, such as in our foods, pollutants in the environment, and even the emergence of new diseases.

Post-mortem examination helps monitor the efficacy, efficiency and safety of our health care system, to monitor the use of new machines used in diagnosis, to judge the use of treatments and even the safety of doctor’s practices. Knowing factors that contributed to a person’s death may be important for legal reasons.

**b) What is a post-mortem examination?**

The post-mortem examination (the information brochure given to families refers to the examination as an ‘autopsy’) is carried out by a pathologist or pathology registrar assisted by a mortuary technician.
First, a careful external examination of the body is carried out. Photographs, measurements and X-rays are taken for more detailed study. In the case of babies, mementos are prepared. The internal part of the post-mortem examination then begins. An incision is made down the front of the chest and abdomen and internal organs are taken out for detailed examination. To examine the brain, an incision is made in the scalp, behind the hairline. Sometimes, if requested, the examination can be performed through a pre-existing surgical incision.

The organs are examined and weighed and small samples of each one (< 1 gram) are taken for microscopic examination. These samples are fixed in formalin, then placed into wax blocks from which glass microscope slides are prepared. Both slides and blocks are kept in the pathology department for future reference and possible re-examination should new advances make further analysis possible. This is necessary to look at the cells that make up each tissue, how they are arranged and whether they appear normal, inflamed, infected or affected by any other process. In the case of tiny fetuses, some organs weigh less than a gram and it may be necessary to put the whole organ into the microscope block for examination. The microscope blocks and slides must be kept in the Histopathology department as part of the requirements for laboratory accreditation.

Other tissue, blood and fluid samples may be taken to look for evidence of infection, for genetic studies, metabolic or other investigations as appropriate. With some diseases the need for detailed laboratory investigations requires particular organs to be kept for some time. In particular, when a detailed examination of the brain is needed, the whole brain may need to be fixed in solution for several days or a week or more, depending on age and the condition being investigated. It can then be examined and microscopy sections taken. Any organs that are retained are incinerated when the examination is complete although they can be returned to the body prior to burial if the family is prepared to delay the burial for this to occur.

c) *Types of post-mortem examination*

There are two types of post-mortem examination:

1. The first type of post-mortem examination and the one most commonly carried out at the WCH is the *Hospital* post-mortem. This is done at the request of close relatives or of the doctors who have been caring for them. This type of post-mortem can only be done with the consent of the next-of-kin.

2. Less commonly performed is the *Coroner’s* post-mortem. This is performed to investigate sudden and unexpected deaths of adults, children and liveborn infants, deaths where the cause is unknown and the doctor cannot issue a death certificate and deaths from accidents or in suspicious circumstances. The Coroner decides whether or not a post-mortem is performed and the family’s consent is not necessary.

In a Coroner’s Case the pathologist is directed to perform a complete post-mortem, and, at their discretion, to keep any tissues and organs that are relevant to the persons death. Similar processes are used to examine the body to those undertaken in a Hospital post-mortem and in addition, where relevant, samples may be taken for drug levels or other tests. The brain or other organs may be retained for further evaluation.
A social worker from the Coroner’s Office may become involved after the post-mortem to explain what organs may have been retained and to determine the family’s wishes regarding whether they want organs to be returned to the body prior to burial and funeral arrangements.

d) What organs are examined?

Consented post-mortem examination can be:

Full  This involves a detailed examination of all the internal organs including the brain, heart, lungs, liver, kidneys, intestines, blood vessels and small glands.

Limited  A limited post-mortem could involve examination of only those organs or tissues thought to be directly involved in the child’s illness. For example, if a baby is known to have a diseased heart then only the organs in the chest or the heart alone might be examined. Alternately, the family may wish all of the organs to be examined except the brain. The examination may be limited in other ways; for example, external examination and X-rays only, cytogenetics, or needle biopsies. It is important to remember that when a limited post-mortem is carried out no information will be available on abnormalities or diseases present in other organs.

e) When is the post-mortem carried out?

The initial post-mortem examination is carried out as soon as possible after death, usually within two to three working days after receiving the consent or authority to perform the post-mortem. The actual examination usually takes around an hour but may take up to three hours. A preliminary report is usually sent out within a few days of the initial examination. Laboratory investigations, which are carried out after the post-mortem examination, may take several weeks or longer and, when completed will form a basis for a final report.

f) Will the body be disfigured?

After the post-mortem a skilled technician replaces the organs in the body cavities. The incisions are neatly closed and covered by clothing. Families may see their child’s body again after the post-mortem if they wish. There will also be an incision concealed in the hair at the back of the head if the brain has been examined.

g) Do relatives have to give their agreement to the post-mortem examination?

Unless the post-mortem is directed by law at the request of the Coroner, agreement of the senior next-of-kin must be obtained before any investigations are carried out. Relatives do not have to give their agreement unless they wish to. Consent must be obtained for all fetal post-mortems irrespective of gestational age or birth-weight.

h) Are the relatives able to find out the results of the post-mortem examination?

A report on the post-mortem examination will automatically be sent to the Consultant, or in the case of a post-mortem requested by the Coroner, to the Coroner. A report may also be sent to the General Practitioner or other consultants involved with the care, if requested. As these
reports are usually written in medical terminology it may be helpful to recommend that the family have the results explained to them. The pathologist can also produce a "plain language report" in non-medical language, which will be sent to their GP or Consultant as requested.

i) Mementos

As part of our service to relatives all babies sent to the Women’s and Children’s Hospital for post-mortem examination will have a memento pack compiled. This includes photographs, foot and handprints, nameband and hair if possible. This is then forwarded to the WCH Social Work Department for optional collection by parents.

j) Research

Some people consent to relative’s tissues and organs being kept for research. The form they sign must indicate whether they agree to any organs being retained, for what purpose and whether they would like them returned to the body prior to burial.

Prepared by the Department of Histopathology, Women’s and Children’s Hospital

Additional resources:


• Royal College of Paediatrics and Child Health. March 2002. *The Future of Paediatric Pathology Services*  
  http://www.rchpach.ac.uk/publications/recetn_publications/Pathol.pdf

• http://www.doh.gov.uk/tissue/

Copies of this resource are available from the Department of Histopathology, ph 8161 7333, or email histopath@wch.sa.gov.au.

Check:

• Do you have copies of the consumer information brochure “Autopsy: Questions and Answers”?
• Have you read the memory aid toll: Requesting consent for autopsy?
Memory Aid for medical staff: Requesting consent for an autopsy

1. Preparation

You might like to consider preparing your patient’s family by offering the option of an autopsy as you discuss an imminent death. Provide them with the consumer information brochure Autopsy: Questions and Answers.

2. Requesting consent

If you haven’t offered the option of autopsy prior to your patient’s death, do so when you notify the family of the death.

It’s not easy to introduce the subject of autopsy, but something like this may be worth considering:

I am……………………………….., the doctor caring for ………………………I am really very sorry to tell you that he/she has died. His/her other doctors and I think that the cause of death was……………………………… . We know that in up to 40 percent of cases the autopsy will give us useful information. To confirm this, I’d like to suggest that we perform an autopsy. An autopsy is a service that the hospital provides, at no cost to you, to help us answer any questions that you or I might have about ………….’s disease.

We feel that it’s really important to learn more about…………………………(this disease). The autopsy should not delay your funeral preparations, and once ……………………….’s clothes are put back on, you should not see any marks on his/her body, so it will still be possible to hold a viewing if you want to. His/her body will be handled with the utmost respect at all times.

I know this is a hard time for you to make decisions, and you don’t have to decide this right away—take plenty of time to think about it. I’ve brought along an information brochure that will tell you some more about an autopsy, and you’re more than welcome to discuss anything with me.

If it is not a Coroner’s case, then it’s important to stress the following:
The autopsy can only be performed with your full permission, and you will need to sign a consent form.

Would you like me to talk about this further with you, or should I come back later when you’ve had a chance to read the information? Or is there someone else I can contact for you to talk to?

Or:
Would you like us to perform an autopsy?

You may want to consider offering a limited autopsy if you think this would be more acceptable.
3. Signing the consent form:

Help the family to fill out the consent form completely, including the witness signature. Refer them to other sources of information if you think that would be helpful. Remember the family may have objections of a religious nature, you can ring the appropriate chaplain to discuss this further.

Thank the family and assure them that the autopsy will be useful to them, the hospital and future patients.

4. Who can give consent?

Unless the post-mortem is directed by law at the request of the Coroner, agreement of the senior next-of-kin must be obtained before any investigations are carried out. Relatives do not have to give their agreement unless they wish to.

5. The value of an autopsy:

The autopsy is an extremely valuable medical procedure. The value of the autopsy for families of the patients and for society is:

- Answers questions
- Assists in resolving grief and pain
- Helps identify familial disorders
- Help to ensure that the quality of medical diagnostics and care is high
- Helps to identify trends in infectious diseases

Remember

Families do give consent, if asked!

Try to make giving consent easy. Have the consumer information brochure handy, have the paperwork ready, offer alternative methods of consent: fax or phone.

Robertson, J (Ed) Autopsy: Life's Final Chapter, American Medical Association: Department of Young Physician Services, 2001
http://www.ama-assn.org