



FUNDAMENTALS OF THE CLINICAL AUTOPSY

(Ivan Fernandez Vega. Central University Hospital of Asturias)

INTRODUCTION

Autopsy means *see with your own eyes* and it is defined in technical dictionaries as: "Examination of a body, including organs and internal structures after dissection to pinpoint the cause of death or the nature of pathological changes". The clinical autopsy has about 2,000 years of history. However, the golden period of the clinical autopsy is the last 200 years, which has contributed substantially to the advancement of medicine in many and fundamental fields giving rise to Modern medicine. Thus, it was during the 19th and 20th centuries when pathologists started to describe diseases allowing a solid advance in the clinicopathological knowledge in every field. In this light, pathology departments are usually placed at the lowest floors in hospitals to remind us that Pathology is the discipline that sustain Modern medicine.

Currently, although neither the autopsy nor pathologist have not gained recognition, we perform autopsies with excellent results in the fields of teaching, research, and quality control, detecting most severe medical errors.

The general population may be enchanted by television series where autopsies are shown. However, such autopsies usually portray violent or unnatural causes constituting forensic autopsies carried out by forensic scientists within a different legal framework. The autopsies to which we refer in this course are clinical, pediatric or adult autopsies.

TYPES OF AUTOPSY

There are three types of autopsies for different purposes:

- 1) Forensic autopsy regulated in Spain by the Criminal Procedure Act (art. 343, 349, 353, and 778), ordered by the judge. Its purpose is to establish the cause of death in violent deaths or foul play, deaths in which a death certificate has not been issued.
- 2) Clinical autopsy, regulated in Spain by Law 29/1980, of 21th June, and Royal Decree 2230/1982 of 18th June, aims to establish the clinical and



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pathologic correlation, studying the course and extent of a process, its possible modification after the indicated treatments and provide support for the training of staff sanitary. For its performance, the consent of one of the deceased's relatives is necessary. It is also necessary that the corresponding physician certifies the patient's death and starts the requesting procedures for an autopsy. The cost of a clinical autopsy usually ranges from 250 € in a fetus to 2,500 € of cases of prion diseases.

a. Fetal autopsies: For dead fetuses in intermediate or late fetal stage. It usually follows a feasibility criterion. Thus, it is performed in all those early fetal deaths of more than 22 weeks of gestation or more than 500g. If at least one criterion is not noted, the dead fetus should therefore be considered as a biopsy.

3) Teaching autopsies: Teaching is carried out in the Health Science centers, using bodies donated to science.

Table 1: Differences between clinical and forensic autopsy.

	CLINICAL AUTOPSY	FORENSIC AUTOPSY
1) MAIN GOAL	Determine the cause of death	Determine cause of death + data + identification of circumstances of the deceased, etc.
2) LEGAL REGULATION	Clinical Autopsies Regulations	Criminal Procedure Law and Regulations
3) REQUIREMENTS	Relative's consent	Court order
4) PROSECTORS	Pathologists and technical staff	Forensic doctors and technical staff from forensic institutes
5) PLACE	Pathology services with autopsy room	Autopsy rooms in forensic institutes.
6) PURPOSE	- Clinic - Scientific	- Expert/ Verdict - Public health.

INDICATIONS OF AUTOPSY

Royal Decree 2230/1982 of 18th June on clinical autopsies, determines some situations where autopsy could be performed.

- Deaths in which an autopsy may help to explain existing medical



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complications.

- All deaths in which the cause of death or the main diagnosis is not known with reasonable certainty.
- Those cases where an autopsy can provide relevant information to the family such as hereditary diseases or to the general public (contagious diseases).
- Unexpected or unexplained deaths after medical or surgical diagnostic/therapeutic procedures.
- Those dead patients who have participated in hospital protocols.
- Those natural seemingly unexpected or unexplained deaths, not subject to forensic jurisdiction.
- Deaths from high-risk infections and communicable diseases.
- All obstetric deaths.
- All pediatric and perinatal deaths.
- Deaths from environmental or occupational disease.
- Organ donor deaths in which a disease that may affect the receptor is suspected.

IMPORTANCE OF AUTOPSY IN THE TWENTY-FIRST CENTURY

1) For families:

- a. Autopsy procedures will not hinder the funeral and they ensure that it will not alter the appearance of the body.
- b. Identification of genetic alterations/ hereditary diseases.
- c. Results can have a positive impact on the mourning process.

2) For professionals:

- a. Collaboration with management agencies and health statistics
- b. Residency training in Pathology
- c. Clinical and pathologic sessions
- d. Tissue donation





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- e. Research
- f. Hospital quality assurance. To confirm and complete diagnoses and to detect errors (Mortality Commission)

CLINICAL-PATHOLOGICAL DISCORDANCE IN THE AUTOPSIES

The book *To Err is Human. Building a Safer Health System* published by the American National Institute of Health in 1999, and among other things, it stated:

- Medical errors kill between 44,000 and 98,000 in the US every year.
- Medical errors are one of the leading causes of death in the US.
- Prescription errors kill more Americans than accidents at work.

During medical practice there are at least three types of errors: Action, omission, and diagnostic judgment. A meta-analysis revealed that up to 30% of all death certificates may be wrong (compared to autopsy data) and up to 13% of autopsied patients should not have died yet (Goldman's Error class I). Therefore, pathologists can save lives just from the autopsy table detecting errors!

Table 2: Goldman's classification

DESCRIPTION	
CLASS I	Discrepancy in major diagnosis. Knowledge before death would have led to a different management that could have prolonged survival or cured the patient.
CLASS II	Discrepancy in major diagnosis. Knowledge before death would not have led to longer survival, even with correct treatment
CLASS III	Discrepancy in minor diagnosis not directly related to cause of death, but with symptoms that should have been treated or would have eventually affected prognosis.
CLASS IV	Discrepancy in minor diagnosis with possible epidemiological or genetic importance.
CLASS V	No discrepancies.



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THE MORTALITY COMMISSION

The Mortality Commission is one of the four mandatory commissions by the Spanish Royal Decree of Structure, Organization and Operation of Hospitals (RD 521/87). Therefore, the autopsy is a fundamental tool of quality control in hospitals, assessing diagnosis and treatment. Moreover, the President of the Mortality Commission is usually a pathologist. Finally, after an autopsy, it is highly recommended that the pathologist in charge of the procedure should send to the Mortality Commission a formulary disclosing the findings and the "degrees of correlation" with clinical data.

CLINICAL AUTOPSY REQUEST PROCEDURE

- 1) Informed consent signed by deceased's relatives or tutors.
- 2) Death certificate. The physician requesting the autopsy must write the basic or initial cause, the intermediate cause and immediate cause as their suspicions and clinical criteria.
- 3) Autopsy request. It can be performed using analogically or electronically depending on the hospital.

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Translated and revised by Iván Fernández-Vega, M.D., PhD; and Elena Avanzas, PhD.

