



## REVIEW ARTICLE

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# The history and current status of forensic pathology

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### Abstract

Forensic pathology is currently one of the basic touchstones of forensic science in criminal investigations. Together with developing technology and science, the importance of forensic pathology in resolving judicial events is increasing. The aim of this paper was to review the historical development of forensic pathology and the current status. Since ancient times, determining the cause of death has been of the greatest importance for the determination of the punishment to be given for crimes committed. There is known to have been an autopsy to determine the cause of death following the assassination of Roman Emperor Julius Caesar (44 BC). Developments over time in medicine also led to developments in autopsies. Pathology became a separate science with developments in the knowledge of anatomy starting in the 16th century and the invention of the microscope in the 17th century, and thus the normal anatomy, histology and pathology of human tissue came to be better understood. The first pathological anatomy autopsy is known to have been performed in 1286. The importance of forensic medicine and pathology in the process of explaining the cause of death and resolving judicial events has been well understood for hundred of years and has rendered the existence of forensic pathology imperative. Thus, in current international autopsy protocols, pathological examinations have become an indispensable part of autopsies. Despite the different nomenclature in different countries, such as forensic medicine specialist or forensic pathologist, a multidisciplinary approach is necessary in all forensic autopsies. Autopsy procedures are performed by forensic medicine specialists in Europe, by forensic pathologists in the USA and some other countries, and by forensic medicine specialists and forensic pathologists together in Turkey.

**Keywords:** Forensic pathology, historical review, current status, otopsy, death

### Introduction

Forensic pathology is currently one of the basic touchstones of forensic science in criminal investigations. Together with developing technology and science, the importance of forensic pathology in resolving judicial events is increasing. The aim of this paper was to review the historical development of forensic pathology and the current status.

### Historical Development

According to the humoral theory in the medicine of Ancient Greece, the body is composed of black bile, yellow bile, phlegm and blood. Therefore, it was believed that diseases originated from an imbalance in rate of these 4 components. Throughout later centuries, this theory was accepted in Europe and developments in the subject of anatomy slowed down [1]. The majority of developments in anatomy in ancient times progressed with the anatomy of common animals. The history of autopsies is based

on the beginnings of anatomy and medicine [2]. The first autopsy was in Ancient Egypt in 3000 BC and when limited to animal autopsies, the history goes back to Babylon in 4000 BC [2,3]. The Egyptian Pharaoh Ptolemy I Soter (367-282 BC), which supported pathological anatomy, established the university and great library at Alexandria. The ancient Greek doctor, Herophilus of Chalcedon (335-280 BC), who is considered the first anatomist, performed autopsies in Alexandria, and wrote a work on human anatomy [4]. Since ancient times, determining the cause of death has been of the greatest importance for the determination of the punishment to be given for crimes committed. There is known to have been an autopsy to determine the cause of death following the assassination of Roman Emperor Julius Caesar (44 BC). As autopsies were forbidden in the Middle Ages in Europe, there were no significant developments in pathology, and medicolegal autopsies were performed for the first time in 1302. Muslim doctors investigating infectious diseases in Asia have contributed to the development of pathology, and Ibn-I-Zühr (1091-1161) was one of the physicians performing postmortem autopsies. In the 1500s, autopsy was accepted by the Catholic Church and written records of the developments in forensic pathology started in the 16th century [2]. Giovanni Bathista Morgagni (1682-1771), who is accepted as the

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founder of autopsies, considered the relationship between clinical and pathological findings on the subject of understanding diseases.

William Hunter (1718-1783) and John Hunter (1728-1793) founded the first English museum to provide being learned of pathology. Matthew Baillie (1761-1823) published the first pathology atlas in 1793 [1]. Jean Lobstein (1777-1835) became a Professor at Strasbourg University in 1819, and thus for the first time pathology started to be accepted as a separate branch.

At the end of the 19th century, pathology was accepted as a field of medicine. With the first use of microscopes by pathologists in the mid-19th century, and with the understanding of the value of the microscope in pathology by the German pathologist, Rudolf Virchow (1812-1902), who is known as the “father of pathologists” [2], the microscope became more important in pathology examinations. By further developing forensic pathology with better teaching of anatomy and general pathology, the applicability of medical science to legal events increased, and the development in forensic pathology accelerated especially at the end of the 20th century and beginning of the 21 st. However, just as there has been macroscopic interpretation of wounds since before the birth of forensic pathology, pathologists and other doctors who are relatively lacking in basic knowledge of the area of forensic medicine compared to forensic medicine specialists, performed examinations of the dead [5]. This created problems from a legal aspect and led to the formation of forensic pathology from the intersection of forensic medicine and pathology.

Forensic pathology is a sub-branch of the more extensive field of forensic medicine, and is the combined application of forensic sciences and pathology in the resolution of judicial events such as death [2,6]. The basic duty of a forensic pathologist is to perform autopsies in addition to postmortem examination. The word autopsy has the meaning of seeing with one’s own eyes. Cause of death is determined in an autopsy from a detailed medical examination of the body and internal organs of the deceased person. There are 2 types of autopsy; medical and forensic. A medical autopsy clarifies a natural death and a forensic autopsy provides clarification of a suspicious death [7].

### Conclusion and Current Status

The importance of forensic medicine and pathology in the process of explaining the cause of death and resolving judicial events has been well understood for hundred of years and has rendered the existence of forensic pathology imperative. Thus, in current international autopsy protocols, pathological examinations have become an indispensable part of autopsies. Despite the different nomenclature in different countries, such as forensic medicine specialist or forensic pathologist, a multidisciplinary approach is necessary in all forensic autopsies. In 1999, recommended guidelines were published related to the necessary rules to be followed in forensic autopsies in member states and candidate members of the European Union. These state the minimum procedures to be performed in a forensic autopsy. The minimum requirement in all forensic autopsies is that macroscopic and microscopic pathological examinations are made of the basic

organs [8]. Thus, pathology applications have become routine in forensic autopsy procedures in the countries of continental Europe. The Minnesota Autopsy Protocol was published as the rules to be followed in autopsies where the death is claimed to be related to a breach of human rights [9]. In addition to the routine histopathological examinations, this protocol makes it necessary to take samples of suspicious lesions in all cases of claims requiring investigation of suspicious death as a result of torture or similar events, such as lesions that could form associated with electricity applied to the body.

Although there are differences between countries, autopsy procedures are performed by forensic medicine specialists in Europe, by forensic pathologists in the USA and some other countries, and by forensic medicine specialists and forensic pathologists together in Turkey. Histopathological examination is a component of current forensic autopsies just as much as describing the lesions, defining the medical identity and performing toxicology examinations in all autopsies. A forensic autopsy in which histopathological examinations have not been made should be considered an insufficient autopsy.

### Competing interests

*The author confirms that this article content has no conflict of interest.*

### Financial Disclosure

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### Ethical approval

*As it is a compilation study, we do not have an ethics committee approval.*

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