

Mini Review

# Eponyms in Forensic Pathology

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Abstract

Eponyms are being used in several fields in medicine. Forensic pathology is no exception. The aim in this work is to shed some lights on the eponyms in forensic pathology.

## INTRODUCTION

Forensic pathology is a branch of pathology which focuses on determining the cause of death by examining a corpse [1]. It involves the study of the cause of death of human being, time of death, postmortem changes, sudden death from natural disease or physical injuries and toxicology.

A post mortem is done by a doctor, usually during the investigation of criminal law cases and civil law cases in some jurisdictions. Forensic pathologists are also frequently asked to confirm the identity of a corpse.

Forensic pathologists examine the microscopic changes of samples obtained from dead bodies and identify the presence or absence of natural disease and other microscopic findings such as asbestos bodies in the lungs or gunpowder particles around a gunshot wound.

There are several eponyms in forensic pathology, and more than one paper were written on this topic [1,2].

It has been noted that eponymous terms in forensic pathology are characteristic for the German speaking countries and for all countries influenced by the German school of forensic pathology. They are less frequently used in the English medical literature [2].

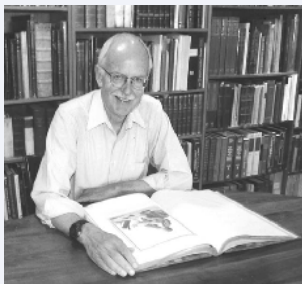


Figure 2 John Bruce Beckwith.



Figure 3 Johann Ludwig Casper (1796-1864).



Figure 1 Jean Zuléma Amussat (1796 -1856).

The aim in this short communication is to shed some lights on the eponyms used in forensic pathology.

In Table 1 [2-26]; we listed selected eponyms in forensic pathology.

One needs to mention few noticeable remarks about eponyms.

Some eponyms are difficult to be pronounced or spelled correctly from medical practitioners in other countries. Also,



Figure 4 Rudolf Ulrich Krönlein (1847-1910).



Figure 5 Georg Christoph Lichtenberg (1742-1799).



Figure 6 Auguste Ambroise Tardieu (1818-1879).

Confusion may arise medically as some of the name of some of the scientists had been linked to several medical conditions.

Eponyms do not reflect the whole contributing scientists to this field, as there are great contributions not been coined eponymously.

Scientists who have been coined eponymously have not the same levels of contributions to the field.

Scientists like Auguste Ambroise Tardieu, Johann Ludwig Casper and Carl Liman have made great effort to develop forensic pathology into a science based on empirics.

Table 1: Selected eponyms in forensic pathology.

Selected eponyms in forensic pathology	Remarks
Amussat's sign <sup>3-5</sup>	It is typically a transverse laceration of the intimal layer of carotid arteries described in cases of hanging. Subtotal laceration of the carotid artery is not strictly specific for hanging and can be also caused by blunt neck trauma, extreme overstretching, or whiplash-injuries. It is suggested that the most probable cause of Amussat's sign is a combination of direct compression of the artery by the rope and indirect stretching because of the gravitational drag produced by the weight of the body. It is named after French surgeon Jean Zuléma Amussat (1796-1856), (Figure 1).
Beckwith's Sign <sup>6,7</sup>	This term is rarely used in the current practice. It refers to the intrathoracic bleedings, mostly, petechial thymus hemorrhages seen in cases of sudden infant death syndrome. It is named after, an American pathologist, John Bruce Beckwith, (Figure 2).
Casper's rule <sup>8</sup>	It is a rule used for estimating the time of death of buried human bodies. It is being used since 1860. The rule relates the decomposition process to different environmental conditions (air, water, earth). It says that 1 week in air equals 2 weeks in water equals 8 weeks buried. It is named after Berlin forensic physician Johann Ludwig Casper (1796-1864), (Figure 3).
Krönlein shot <sup>9-11</sup>	It is a high velocity gunshot wound to the head which has caused evisceration of brain. It is named after, Rudolf Ulrich Krönlein (1847-1910), (Figure 4), who was a Swiss surgeon. He was a reputable Professor of Surgery at Zurich University and was nominated for Nobel Prize in 1902.
Lichtenberg figures <sup>12-17</sup>	Also known as a ferning pattern. It is a tree-like electrical discharge patterns seen in the skin of the victims of lightning strikes. It is named after Georg Christoph Lichtenberg (1742-1799), (Figure 5), who was a German physicist. It is a transient finding, and not a burn, and biopsies of the skin reveal no pathologic changes. Lichtenberg figures are now known to occur on or within solids, liquids, and gases during electrical breakdown.
Nysten's rule <sup>2</sup>	It describes the sequential onset of rigor mortis in the various muscle groups. The basic sequence of the solidifying body begins from the head down the body, in the order. The rule does not occur in all cases, as described. It is named after a French pediatrician, Pierre-Hubert Nysten (1771-1818).
Paltauf's Spots <sup>18</sup>	Also known as Paltauf's hemorrhages. It refers to subpleural hemorrhages, seen in cases of drowning. In the forensic literature the opinion is often held that the presence of aqueous liquid in the paranasal sinuses in conjunction with other findings (plume of froth around the mouth and nostrils, emphysema aquosum, Paltauf's spots, increased haemolysis etc.) can be regarded as a sign of drowning. It is first described in 1882 by Arnold Paltauf (1860-1893), professor of forensic medicine at the German university in Prague. In the literature, they are also referred to as Rasskazov-Lukomskij spots, named after the two authors who described those 28 and 19 years, respectively, prior to Paltauf. Lukomskij (1841-1876) defined this phenomenon in the file O pjatnach Tardmje pri zadus'enii in 1869.

Puppe's rule <sup>19,20</sup>	The rule states that it is possible to determine the sequence of injuries in skull fractures caused by blows to the head: the second fracture ends at the point where a break in cohesion is already present. It soon became clear that the rule also applies to gunshot fractures. In the case of gunshot injuries. However, its applicability is limited by incomplete ossification or ossification disorders. It is named after Georg Puppe (1867–1925), who was a German physician. Puppe proposed the rule in the paper <i>Traumatische Todesursachen in Gerichtliche Medizin</i> in 1903.
Sehrt's sign <sup>21</sup>	Also known as [rupturae parvulae mucosae curvaturae ventriculi minoris]. It refers to the micro-ruptures of gastric mucosa, seen in cases of drowning. It occurs due to overstretching of stomach due to swallowed liquid. It is named after German pathologist sehrt ernst [born 1879] who first described them in 1932.
Simon's bleedings <sup>22,23</sup>	It refers to the intervertebral hemorrhages as a sign of hanging. It is described by in 1968 by the German forensic pathologist axel simon. Simon in 1968 .They occur in 40-50 % of hanging cases, most frequently in the lumbar spine, in younger age groups, and in cases of free suspension. The hemorrhages are not unique to hanging, but may occur in particular as a result of other traumatic elongation or overextension of the spinal column (e. g. in the course of traffic accidents).
Sveshnikov's sign <sup>2</sup>	Also known as liquor sinuum paranasalium. It refers to the presence of free liquid in the paranasal sinuses (most commonly in maxillary and sphenoid) as a diagnostic finding in wet drowning. It is named after Russian pathologist sveřnikov vjačeslav alexandrovic [1918-1988], who first described it in 1965.
Tardieu's Spots <sup>24</sup>	Also known as Tardieu's ecchymoses. It is subpleural spots of ecchymosis that follow the death of a newborn child by strangulation or suffocation. It is named after Auguste Ambroise Tardieu (1818-1879), (Figure 6), who was a French forensic medical scientist. He was the first to describe the clinical features in the battered children. Therefore, battered child syndrome is also known as Tardieu's syndrome. However, Subpleural, epicardial and pericranial ecchymoses have been described in cases of suffocation since the 18 <sup>th</sup> century. According to today's knowledge of pathophysiology, the hemorrhages concerned cannot have specificity for suffocation.
Wischnewski Spots <sup>25,26</sup>	It refers to superficial erosive gastritis occurring in the hypothermic fatalities. They have been largely reported in human deaths occurring from exposure to freezing temperatures. Its incidence varying between 40 and 100%. The underlying mechanisms contributing to the formation of Wischnewski spots are still not clearly understood. But, it is suggested that, the stress may be a significant effect modifier in the development of Wischnewski spots in lethal hypothermia.
Wydler's sign <sup>2</sup>	It refers to the presence of three-layered fluid in stomach. It is characteristic but nonspecific sign of drowning Entire gastric content is collected in a beaker and allowed to stand for an hour. The contents divide into 3 layers - foam on the top, liquid in the middle and a solid component at the bottom. First described in 1869 by Ferdinand Wydler in his book <i>Zur Diagnose des Ertrinkungstodes</i> .

On the other aspects, there are eponymous terms which are sometimes called by its non-eponymous synonyms. For example, Waterhouse-Friederichsen Syndrome (WFS) is also called hemorrhagic adrenalitis.

WFS are toxic febrile illness of acute onset with rapid deterioration, classically seen associated with *Neisseria meningitidis*. It is named Rupert Waterhouse (1873-1958), an English physician, and Carl Friderichsen (1886-1979), a Danish pediatrician.

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