



H102 Cranial Abnormalities Seen at Autopsy

*Timothy Wysozan, BS**, Western Michigan University School of Medicine, 300 Portage Street, Kalamazoo, MI 49007; *Carolyn V. Isaac, PhD*, Western Michigan University School of Medicine, Dept of Pathology 1000 Oakland Drive, Kalamazoo, MI 49008; *Jered B. Cornelison, PhD*, Western Michigan University School of Medicine, Dept of Pathology, 1000 Oakland Drive, Kalamazoo, MI 49008; and *Joseph A. Prahlow, MD*, Western Michigan University School of Medicine, 300 Portage Street, Kalamazoo, MI 49007

After attending this presentation, attendees will be more familiar with incidental cranial abnormalities that may be present at autopsy. This presentation will explore the etiology, appearance, and what, if any, significance the abnormalities may represent.

This presentation will impact the forensic science community by providing a reference series of select cranial abnormalities that may be encountered at autopsy, with a discussion regarding their significance.

Autopsies are an integral part of the medicolegal paradigm. During an autopsy, a pathologist is typically focused on identifying abnormalities related to the death of the individual. Examination of the brain is an important component of a complete medicolegal autopsy, requiring reflection of the scalp with removal of the upper cranial vault. This is typically followed by dura mater removal. Following brain and dura mater removal, a careful examination of the skull is part of the standard autopsy practice. This includes examination of not only the external aspect of the skull, but also the interior surface adjacent to the brain. A variety of cranial findings may be evident during complete internal and external skull examination at autopsy. Some of these may have significant relation to the cause of death, for example, gunshot wounds and other similar traumatic events; however, many others may be considered incidental findings and likely play no direct role in the death of the patient.

The aforementioned cranial abnormalities can be broadly classified into several categories. One classification scheme includes the following categories: acute and remote trauma, defects related to medical intervention, disease-related entities, genetic anomalies, and developmental or other natural processes. Each category will be discussed, providing specific examples of each, including etiology, appearance, and significance. Examples include: acute and remoted trauma, including cranial defects and healing fractures related to past trauma; defects related to medical intervention, including bone discoloration, healing surgical interventions, and birth-related injuries; disease processes, including Paget's disease and malignancies; and developmental or other natural processes, including arachnoid granulations, prominent parietal foramina, hyperostosis frontalis interna, and intrasutural bones.

Cranial abnormalities may suggest recent (or remote) trauma, medical therapy and/or intervention, disease processes, or various developmental, genetic, and other natural processes. These abnormalities may represent incidental findings, and it is important for the forensic practitioner to understand the etiology and significance of the findings to determine whether they may be related, either directly or indirectly, to the cause of death. Forensic pathologists should be cognizant of the wide variety of cranial abnormalities they may encounter in order to appreciate their etiology and understand their significance, or lack thereof, in the individual's death.

Cranial Abnormalities, Autopsy, Postmortem Examination