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### **A116 The Curious Case of Cranial Dysraphism: How a Cranial Variant Appears as Trauma or Trephination**

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After attending this presentation, attendees will be aware of a natural cranial variant rarely reported in archaeological or forensic literature. This presentation will describe the detail of the cranial variant, present supporting information from the clinical literature, and describe how to discern the variant from trauma or pathology. In particular, this presentation emphasizes the scope of knowledge required by skeletal anatomists and how the inclusion of clinical literature into skeletal analyses can broaden the understanding of natural cranial variation.

This presentation will impact the forensic science community by demonstrating the need for broad studies of pathology and normal skeletal variation. Highlighted is a rare case of cranial variation, known as cranial dysraphism, reported in clinical literature, but rarely reported in archaeological or forensic literature. This presentation, based on a case study of cranial dysraphism, provides fellow researchers the opportunity to observe and learn about this rare anomaly.

In order to locate a specific individual's remains from within a multiple interment in an indigent cemetery, human skeletal remains were recovered from a pauper's grave in Louisiana in 2015. Although the individual passed away in 2000 and should, theoretically, have been easy to locate, the destruction of records by Hurricane Katrina and other mismanagement by cemetery caretakers made this a complex recovery effort, requiring a combination of forensic archaeology, historical research, legal maneuvering, and some luck. Despite difficult recovery conditions owing to New Orleans' high water table, commingled remains, and the lack of meaningful documentation, the remains were well preserved.

Upon exhumation, an oddity was noted on the autopsied calvarium of a single individual. Initial speculation consisted of trauma or a pathological condition due to the position on the calvarium occurring at bregma. Only after cleaning of the skeletal material was it clear that the resulting defect at bregma was not the result of trauma, but rather appeared to be an unexplained cranial pathology or morphological variant.

The cranial defect was visible as a large perforating foramen occurring at bregma. Distinguishing the defect from trauma are the smooth borders and intact sutural lines — the coronal and sagittal sutures were completely present and descended the thinning bone into the foramen. The defect was widest on the external table and tapered to a five millimeter foramen, circular in shape, perforating the inner table of the cranium. Due to the perforation into the cranial cavity and the defect's smooth borders, trephination was considered as a cause; however, in this case, there was no exposure of the diploë and, based on the location at bregma, the expectation would be that a trephined section of the cranium would not retain the presence of the sutures.

This case study is proposed as an ideal example of cranial dysraphism, a relatively unknown morphological cranial variant. The detailed analysis of the defect, when researched and supported with clinical data, supports the diagnosis of cranial dysraphism and highlights the need to look beyond traditional sources of archaeological/anthropological and forensics literature when confronted with a seemingly unique morphological trait.

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#### **Skeletal Remains, Forensic Archaeology, Cranial Variation**

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