24 Skull: Introduction

The Skull section of this book is intended to address normal variations and do not touch lesions of the calvarium or structures that traverse the calvarium. Very little recent literature or texts have focused solely on the skull. Perhaps this is because the majority of variations are benign. As such, there are only a few recent works that address the normal sutures and their variants that occur as a neonate, infant, and young child, which may occasionally persist into adolescence and adulthood. Uncommonly, these sutures may not entirely fuse or may asymmetrically fuse in older children and adults and thus may mimic fractures.

Besides normal variants of the *cranial sutures*, there are many variations in the skull base and *cranial foramina* that may also simulate pathology, such as lytic neoplasms or erosions. Such *enlarged foramina* (such as parietal foramina) are most commonly not related to congenital or metabolic disorders, although in rare cases severely enlarged foramina may occur in certain disorders. Additionally, enlargement of such foramina can simulate erosions from an adjacent neoplasm.

Additionally, most *vascular channels* such as venous lakes, emissary veins, and uncommon arterial channels are readily recognizable. However, an uncommon or rare asymmetrically enlarged vascular channel can be problematic and simulate a neoplasm. Perhaps even more problematic are *low-flow vascular lesions* such as cavernous hemangiomas (cavernomas) of the calvarium, which can enhance and can have an ambiguous appearance when quite large.

There are also many *variations in the degree of aeration* (such as regarding the paranasal sinuses and mastoids), sclerosis (such as enostoses/exostoses), and *fatty deposition within the calvarium* (such as with calvarial arrested pneumatization of sinuses, lipomas, and hemangiomas) that can either be normal variations or "don't touch" lesions. To this author's knowledge, there are also scant existing references in this regard, and this section of the book is dedicated to also being a compilation of such uncommon variants. Some of these may be obvious to a radiologist as being benign, but it is still helpful to be able to correctly identify the variant to dissuade a referring physician who is inclined to send a patient to surgery.

Thus, the author acknowledges that this section has limitations, given the relatively new and sparingly addressed prior literature on such calvarial variants. Perhaps each of the following chapters of skull variations provides enough of a spectrum to generate future publications for some of the problematic variants described herein. Three-dimensional reconstructions of nonenhanced CT (NECT) are included for many of the variations when it would seem beneficial, such as when reviewing pediatric sutures in the setting of trauma to exclude fracture.

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