Cranial vault reconstruction

Cranial Vault Reconstruction: This term typically refers to a surgical procedure where the entire cranial vault (the skullcap) is reshaped and reconstructed. It is often used in cases of more severe craniosynostosis or when there is a need for extensive correction of cranial shape. In cranial vault reconstruction, the surgeon may remove sections of the skull bones, reshape them, and then reattach them to achieve a more normal head shape. This procedure may involve larger incisions and a more complex surgical approach.

Cranial Vault Remodeling: Cranial vault remodeling, on the other hand, is a broader term that encompasses a range of surgical techniques used to reshape the cranial vault, but it does not necessarily involve the complete removal and reconstruction of the skull bones. Instead, it often involves less invasive approaches, such as osteotomies (bone cuts) and reshaping the bones while leaving them in place. Cranial vault remodeling may be used for milder cases of craniosynostosis or for cosmetic purposes when there are head shape concerns.

In summary, cranial vault reconstruction is a specific type of cranial surgery that involves a more extensive reconstruction of the skull bones, while cranial vault remodeling is a broader term that includes various surgical techniques used to reshape the cranial vault. The specific procedure chosen depends on the severity of the condition and the surgical goals.

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see Cranioplasty

Very large cranial defects are not very common in neurosurgical practice and there is not any widely acknowledged standard of their treatment.

Skull reconstruction can be challenging due to the complex 3-dimensional shape of some structures, such as the orbital walls, and for cases involving a large cranial vault. In such situations, computer-assisted design and modeling of prostheses is especially helpful to achieve an adequate reconstruction. Simultaneous tumor resection and skull defect reconstruction are also challenging because the preoperative imaging does not display the anticipated defect. Currently, sophisticated methods based on physical prototypes and templates are required to enable simultaneous resection and reconstruction techniques.