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VIEWPOINT

The Crown of Our Queen: The Axial Keystone

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Traditionally, rhinoplasty is called the "queen of facial plastic surgery." Historically, a queen's crown is symbolic of her strength and power. Although the K-junction has long held this distinction in rhinoplasty, we would like to introduce two more contemporary, conceptual anatomical terms—the "double arch" and the "axial keystone" (AK)—to better describe the anatomy, aesthetics, and integral strength of the nasal dorsum. The double arch concept anatomically describes the dorsal cartilaginous vault, which lies beneath the bony vault cephalically, which combine to form the nasal vault.[1] Following the art and science of architecture, the nasal vault is a 3-dimensional extension of these two arches in the axial plane. All arches have a keystone at the top, allowing the arch to bear weight, which is considered the hallmark of its strength. The historical description of the nasal keystone is the K-junction, where the caudal ends of the nasal bones meet the cartilaginous vault dorsally. Other descriptions define the keystone anatomically based on what we see at the nasal dorsum after hump removal, viz. 6 elements comprising the paired nasal bones, perpendicular plate of the ethmoid bone, the dorsal nasal cartilaginous septum (DCS), and the paired upper lateral cartilages.[2] The dorsal keystone area was described by Palhazi et al in 2015, based on cadaveric dissections that showed the extension of the DCS cephalically under the bony cap.[3] The DCS is fused in a T- or Y-configuration to the paired upper lateral cartilages. This begins cephalic to the dorsal hump, as recently confirmed by CT imaging.[4] The T-bar extends caudally to roughly the midpoint of the middle third of the nasal dorsum, which is confirmed histologically by McKinney et al in 1986.[5] From these findings, it is notable that the keystone is not a point, not a K-junction, and is not located just under the nasal bones. Rather, the keystone consists of the entire cephalo-caudal length of the T-bar in the axial plane. This we call the axial keystone (AK), and it best describes the true "crown" of the nasal vault. In rhinoplasty, it is mandatory to maintain or reconstruct the structural and aesthetic integrity of this crown, this being the "crown concept." In structural rhinoplasty, the T-bar is often removed, demanding re-creation of the tunnel shape of the nasal vault throughout the AK by using spreader grafts and/or flaps extending to the previously described K-junction or even beneath the nasal bones. In dorsal preservation rhinoplasty, the entire AK, with or without its overlying bony cap, is maintained intact, as the hump is corrected through excision of a strip of the nasal septum and let down or push down. In both approaches, the natural arch shape of the nasal dorsum is maintained.

By visualizing the double arch and axial keystone (AK) anatomically, rhinoplasty surgeons can appreciate the crown concept and its importance. They can then thoughtfully select structural or preservation approaches and appropriate technical maneuvers to obtain a strong and aesthetic axial keystone, and a more satisfying rhinoplasty result. (**See Video [online],** which demonstrates reconstruction of the integrated natural-looking nasal dorsum in primary rhinoplasty, based on the crown concept.)

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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Received for publication January 5, 2021; accepted January 5, 2021.

Plast Reconstr Surg Glob Open 2021;9:e3445; doi: 10.1097/GOX.0000000000003445; Published online 15 March 2021.