



IMAGES OF SPINE CARE

Type II Klippel-Feil syndrome with accompanying rare costa deformity: rib fusion

A 17-year-old male patient was admitted to our neurosurgery department with limitation of head and neck movements. His neurological examination was normal. Physical examination revealed short stature and short neck, low posterior hairline, and limited neck movements. There was no traumatic history. Magnetic resonance imaging



Fig. 1. Sagittal T2-weighted magnetic resonance image shows fusion of the first, second, and third vertebral bodies with the absence of tonsillar herniation (arrow).

was performed. Magnetic resonance images showed a congenital fusion of the first, second, and third vertebral bodies (Fig. 1). In addition, computed tomography was performed. Computed tomography images showed the fusion of second and third ribs, basilar invagination, occipitalization of the atlas, and vertebra anomalies (Figs. 2 and 3). Klippel-Feil syndrome (KFS) is a complex syndrome of osseous and visceral anomalies. Its classical clinical triad includes short neck, low posterior hairline, and limitation of head and neck movements. Fusion of two or three vertebrae with associated hemivertebrae, occipito-atlantoid fusion, or other cervical spine abnormalities indicate Type II KFS. Cervical ribs are noted for their association with KFS; fusion of ribs is rarely reported. In our case, there was no Chiari malformation associated with tonsillar herniation; so, surgical treatment was not considered.

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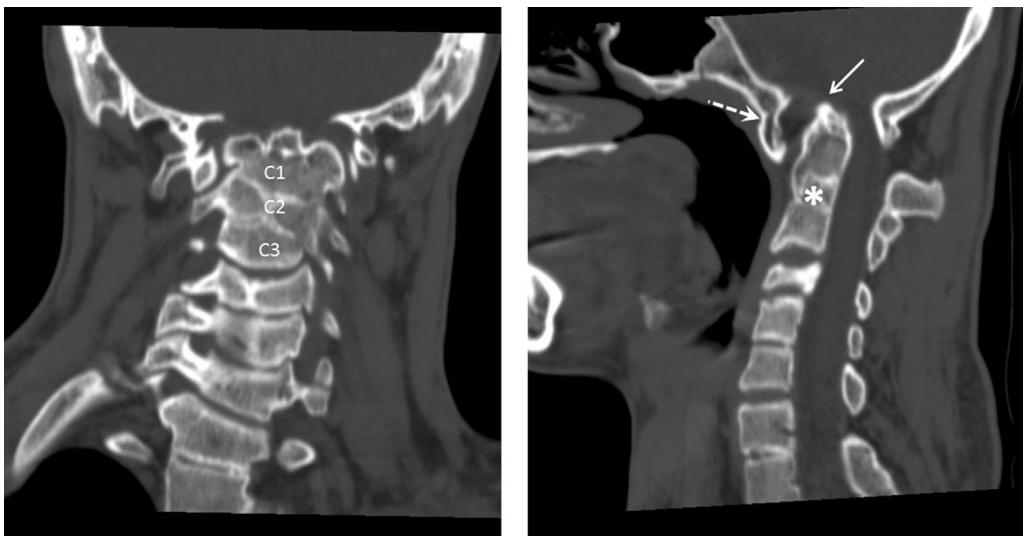


Fig. 2. Coronal (Left) and sagittal (Right) computed tomography images show the fusion of first three vertebral bodies (asterisk), basilar invagination (white arrow), and occipitalization of the atlas (white dashed arrow).

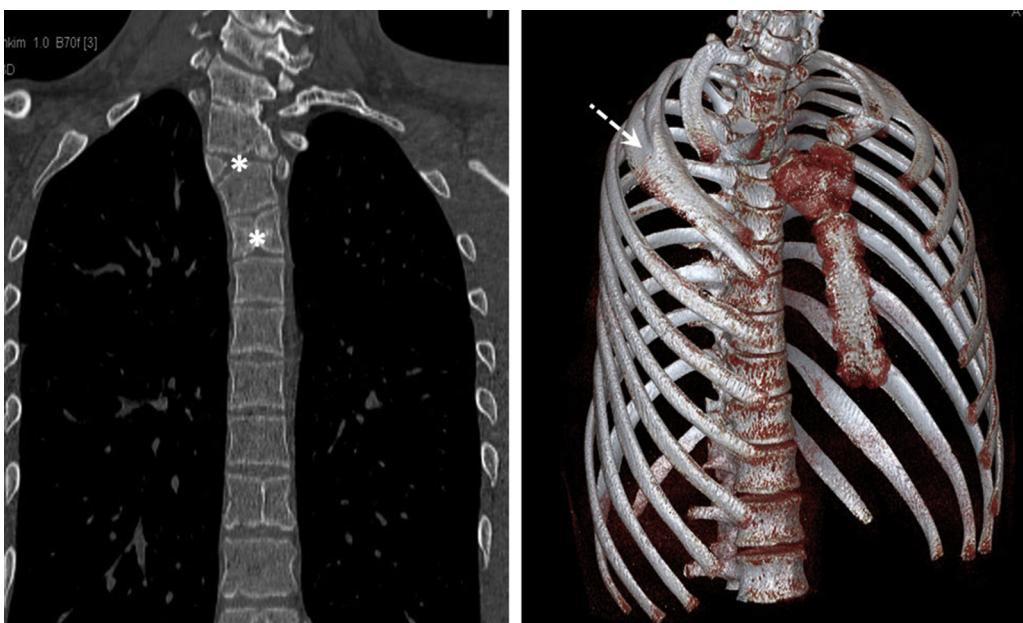


Fig. 3. Three-dimensional volume rendering computed tomography (CT) (Right) and coronal CT (Left) images show butterfly vertebrae anomalies (asterisks) and fusion of right second and third ribs (arrow).