Unilateral Coronal Suture Synostosis  
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History  
10 month old female with asymmetric face and skull.

Discussion  
Normal skull growth occurs in a direction perpendicular to the axis of the sutures. Primary cranial suture synostosis signifies premature closure of one or more of the cranial sutures. Primary synostosis is subdivided into syndromic (familial or hereditary) and the more common nonsyndromic (isolated and sporadic). Secondary synostoses are encountered in a variety of unrelated conditions, including metabolic derangements (hypophosphatasia and rickets), bone dysplasias, teratogens and ventriculoperitoneal shunting. Synostosis may result in complete or partial obliteration of the suture. Synostosis may occur in utero and manifest at birth, but diagnosis is usually delayed until misdirected growth manifests as calvarial asymmetry. Skull shape and facial deformity often predict the suture involved. Cloverleaf skull (kleeblattschaedel) develops when there is premature synostosis of all except the squamosal suture. Acrocephaly results from bilateral coronal suture and at least one other suture synostosis. Brachycephaly is the result of coronal and/or lambdoid synostosis. Dolichocephaly occurs from sagittal synostosis. Trigonocephaly is a keel-shaped deformity of the skull related to premature metopic suture closure. Pachycephaly is related to lambdoid synostosis. Unilateral coronal or lambdoid closure results in plagiocephaly.

Findings  
CR-Uplifted superolateral right orbit (harlequin eye) and rightward deviation of the nasal septum.  
CT-Flattened right frontal bone, shallow right orbit and anterior cranial fossa, completely fused right coronal suture.

Reference  
Benson ML, Olivero PJ, Yue NC et al. Primary Craniosynostosis: Imaging Features. AJR (1996); 166:697-703.
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