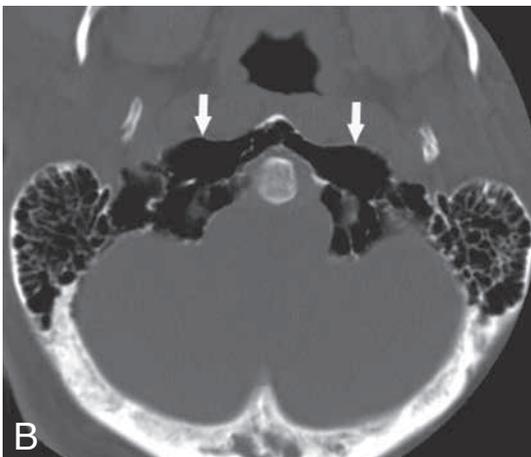
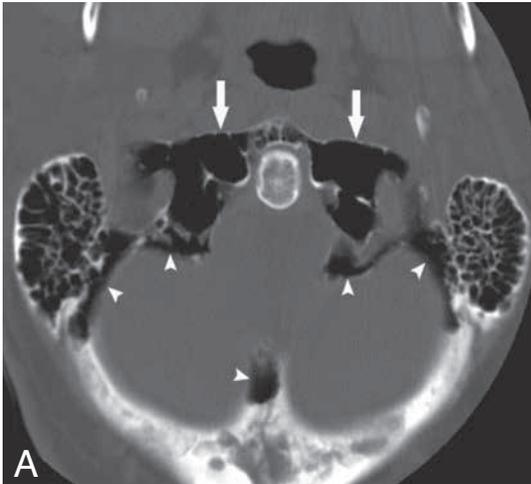


IMAGES IN CLINICAL RADIOLOGY



Skull base bone hyperpneumatization

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A 50-year-old male with a long standing history of compulsive Valsalva maneuvers, complaining of episodes of vertigo underwent head computed tomography. Axial CT slices at the level of the skull base (Fig. A) and the first cervical vertebrae (Fig. B) shows an extensive unusual pneumatization of both the body and lateral processes of the first cervical vertebrae (arrows), with air pouches dissecting planes between bone cortex and the periosteum around the occipital bone and the lateral processes of the first cervical vertebrae (arrowheads). These pneumatoceles cause no compression to the central nervous system and the cranial nerves.

Comment

Extent of temporal bone pneumatization varies greatly between individuals. There may be accessory sites of pneumatization caused by unlimited migration of air cells into the zygomatic and styloid processes of the temporal bone during embryogenesis. Pneumatization of the occipital the bone and cervical vertebrae is very uncommon.

Since the first description in 1940, only 12 other cases have been reported so far in the literature (1).

Although anecdotic cases of posttraumatic cervico-occipital bone pneumatization via direct communication of the bones with air-containing structures have been reported (1), the vast majority of cases are caused by repetition of Valsalva maneuvers.

Long term compulsive repetition of Valsalva maneuver cause hypertension in middle ear and induce diffuse bone loss by microfractures of the mastoid cavity. The bone erosion may lead to the formation of an indirect communication between Eustachian tube, the mastoid cells and through the synovial joints.

In general, the main clinical manifestation of skull base hyperpneumatization is a palpable mass under the scalp, due to a pneumatocele. Neurological disorders may occur by compression of the

nervous system when the pneumatocele points toward the subdural space. In our case, the vertigo was likely caused by pressure sensitivity during Valsalva maneuvers. Soon after the patient was advised to control his compulsive Valsalva maneuvers, the symptoms improved but the psychiatric disorder went later out of control and the patient lost to follow-up.

References

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