Hyperostosis frontalis interna

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Section: Neuroradiology
Case Type: Clinical Cases
Authors: Gossner JOststadt- Krankenhaus, Hannover Teaching Hospitals, Hannover, Germany.
Patient: 86 years, female

Clinical History:

A 84 year old women with syncope and fall.

Imaging Findings:

A 84 year old women was referred to the hospital because of a syncope with fall. There was no focal neurology. To rule out fracture or intracranial bleeding a cranial computed tomography was ordered. In a bone window setting the scans showed extensive bifrontal thickening of the tabula interna.

Discussion:

Hyperostosis frontalis interna (HFI), first mentioned 1765 by Santorini and Morgagni in an autopsy case, is characterised by progressive thickening of the inner table of the frontal bone [1]. In most studies an incidence around 10% is reported, with a wide variation between studies because of different criteria and techniques (for example pathological vs. roentgenographic study) [1, 2]. A common finding is that predominantly older females are affected [1, 2]. With the evolution of cross sectional imaging it is frequently discovered incidentally on imaging studies. There are nonetheless numerous case reports linking HFI to headache and neuropsychiatric symptoms like dementia and epilepsy [for example 3]. In extensive HFI compression of the frontal lobes may occur with subsequent clinical signs, but in most cases clinical symptoms are lacking or could be attributed to another disease [2]. HFI has also been described as a part of syndromes like the Morgagni-Stewart-Morel syndrome, where it is accompanied by obesity and virilism [2].

The aetiology is unknown. Because of the female predominance a hormonal aetiology with prolonged oestrogen stimulation is proposed and a correlation with obesity has also been established [2]. Imaging shows typical symmetric thickening of the tabula interna of the frontal bone and is diagnostic. Sometimes asymmetric HFI can be found. Since HFI sometimes shows a tracer uptake in bone scintigraphy, asymmetric HFI with uptake could easily be confounded with bone metastasis [4]. Asymmetric uptake has also been described with leukocyte scintigraphy [5]. In contrast to the localized thickening in HFI diffuse skull thickening can be caused by phenytoin therapy, acromegaly and shunted hydrocephalus. The differential diagnosis for focal thickening includes Paget disease, fibrous dysplasia, and metastases.

Differential Diagnosis List: Hyperostosis frontalis interna

Final Diagnosis: Hyperostosis frontalis interna

References:

Figure 1

Description: Cranial computed tomography scan in a 84 year old women. In a bone window setting there is extensive bifrontal thickening of the tabula interna. Origin: