Diagnostic Images

Pathognomonic intracranial calcification

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The patient

A female aged 72 years who was a known hypertensive with diabetes mellitus, hypothyroidism and hypoparathyroidism presented with a 2 month history of involuntary movements of the right side. On examination there were no localizing signs, power was normal, as were sensation and reflexes.

Investigations

Lateral skull film and cranial computed tomography.

Comment

Non-pathological intracranial calcification is common in the pineal, choroid plexus and in the falx cerebri and is readily recognizable by their positions. Large calcifications can occur in a pinealoma, in the choroid plexus in tuberous sclerosis and neurofibromatosis and at the falx with a meningioma. Healed granulomas, especially tuberculosis and parasites, can produce small single or scattered nodules of intra-parenchymal calcification. Calcification in the globus pallidus is not uncommon in the elderly and usually non-pathological. Tumours, aneurysms and subdural haematomas can also calcify, have characteristic sites and are linear or curvilinear while periventricular calcification occurs following intra-uterine infections with toxoplasmosis and cytomegalic inclusion disease. Congenital malformations such as lipoma of the corpus callosum and Sturge-Weber syndrome are also localized and have characteristic appearances.

However, bilateral symmetrical calcification of the caudate and dentate nuclei and associated calcification in the corona radiata is characteristic of hypoparathyroidism and pseudohypoparathyroidism. This patient was known to have hypoparathyroidism for the last 30 years.

Figure 1 Lateral skull film. Faint calcifications are shown anterior to the pineal (arrows) and there are also faint calcifications in the posterior fossa.
Figure 2  Marked calcification is present bilaterally in the dentate nuclei of the cerebellum and small areas of calcification in the temporal lobes (arrow).

Figure 3  A nodule of calcification is present in the centre of the medial lemniscus of the brain stem (arrow) and also in the cerebellar vermis.

Figure 4  A section at the calcified pineal (arrow) where there is gross calcification in the deep white matter of the frontal lobes, in the caudate nuclei, globus pallidus and surface of the cerebellum but sparing the thalamic nuclei.

Figure 5  Gross calcification in the white matter adjacent to the lateral ventricles outlines the corona radiata.

Reference
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