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NEUROLOGICAL PICTURE

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Extensive brain calcification in idiopathic hypoparathyroidism

A 24-year-old-woman showed confusion, movement disorders and asthenia related to severe hypocalcaemia (0.95 mmol/l), with low parathyroid hormone concentration (4 pg/ml, normal 15-85 pg/ml) and hyperphosphataemia (1.97 mmol/l). She was hospitalised for depression 1 year previously, but no biological examination was performed during that period. Six years previously, asymptomatic hypocalcaemia (1.48 mmol/l) was diagnosed and the computed tomography scan at that time was normal. Regarding biological explorations, the final diagnosis was idiopathic hypoparathyroidism. Calcium and vitamin replacement were prescribed at that time, but the patient did not follow it up.

The mechanism of intracranial calcification in hypoparathyroidism,¹ more often seen in pseudohypoparathyroidism than in idiopathic hypoparathyroidism, has not been completely elucidated. It may be related more to the duration of hypocalcaemia and hyperphosphataemia than parathyroid hormone itself. Hyperphosphataemia promotes ectopic calcification in brain tissue in hypoparathyroidism.

A non-enhanced computed tomography scan shows bilateral and symmetrical calcifications in basal ganglia (mainly globus pallidus), cerebellum (dentate nuclei) and at the grey-white junction (fig 1). The extent of calcification is variable, depending on the stage of the disease, duration of metabolic abnormalities and volume of calcium deposit.

A computed tomography scan allows earlier diagnosis, with high sensitivity and specificity. Magnetic resonance imaging is not useful, as the signal intensity of calcified lesions varies widely.

Clinical symptoms of hypoparathyroidism include tetany, painful muscle spasm of hands and feet, facial muscle spasms,

Figure 1 Non-contrast brain computed tomography scan showing extensive and symmetrical calcifications located at the grey-white junction and in the globus pallidus.

seizure. Hypoparathyroidism is also often associated with psychiatric symptoms, mainly delirium, but also cognitive impairment,² psychosis, depression or anxiety.

Other diagnoses³ that should be evoked on a computed tomography scan include:

- Fahr disease
- basal ganglia calcifications in the case of trisomy 21 or 5, Cockayne syndrome, radiation therapy or intrathecal chemotherapy
- hyperparathyroidism
- neurolysis

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