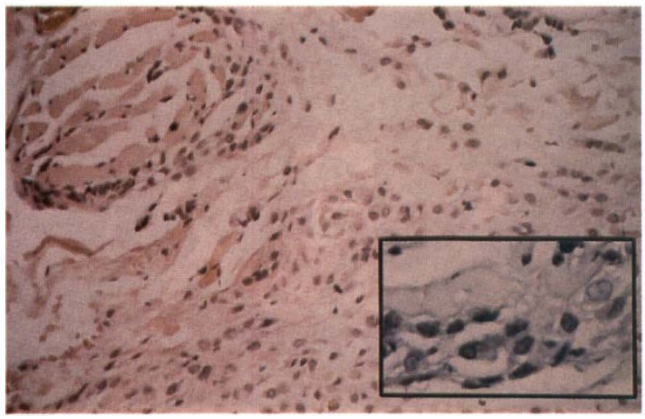


Fig. 3. *Photomicrograph of the histological specimen obtained from the orbital biopsy (H&E stain, ×125). This shows orbital fat, skeletal muscle and nerve widely infiltrated by metastatic adenocarcinoma. The tumour cells infiltrate singly and in cords and many contain intracytoplasmic lumina consistent with an infiltrating lobular carcinoma of breast of primary origin. The inset (combined alcian blue and periodic acid–Schiff stain, ×600) shows mucin-containing cells.*

disease, whereas coronal views at that time may have revealed the presence of orbital masses. Though metastases to the orbit from breast carcinoma are known to occur bilaterally, it is very unusual for bilateral clinical signs to occur so floridly and symmetrically. The diffuse growth pattern simulating an inflammatory process favoured the clinical diagnosis of thyroid eye disease. The lid retraction in the presence of proptosis was also consistent with a clinical diagnosis of thyroid eye disease, but was in fact due to infiltration of the levator palpebrae superioris and upper eyelids by the tumour mass. Though no papable mass was detected, the texture of the lid skin may have offered a helpful clue to the diagnosis. In thyroid eye disease the lid skin has a doughy feel, whereas in our patient the upper eyelid skin texture was board-like and, at biopsy, the upper eyelids were tethered and immobile. Orbital metastases usually respond to a low dose of radiotherapy; however, in this case there was a rapid deterioration in the patient's overall condition after the first radiotherapy session for her suspected thyroid eye disease, and death occurred before a palliative effect was achieved.

This case demonstrates that patients presenting with exophthalmos require a full ophthalmic and general medical examination, followed by confirmation of the clinical diagnosis with CT scan, especially if there is a history of malignancy.

M. C. Rhatigan
J. L. Ashworth
S. Shah
R. E. Bonshek
B. Leatherbarrow

Manchester Royal Eye Hospital
Oxford Road
Manchester M13 9WH
UK

References

1. Office of Population Censuses and Surveys. Mortality statistics: causes 1992. Series DH2/19, table 2.
2. Bloch RS, Gartner S. The incidence of ocular metastatic carcinoma. Arch Ophthalmol 1971;85:673–5.
3. Ferry AP, Font RL. Carcinoma metastatic to the eye and orbit. I. A clinicopathologic study of 227 cases. Arch Ophthalmol 1974;92:276–86.
4. Bullock JD, Yanes B. Ophthalmic manifestations of metastatic breast cancer. Ophthalmology 1980;87:961–72.
5. Mottow-Lippa L, Jakobiec FA, Iwamoto T. Pseudoinflammatory metastatic breast carcinoma of the orbit and lids. Ophthalmology 1981;88:575–80.

Sir,

Visual Loss in Metastatic Sclerochoroidal Calcification

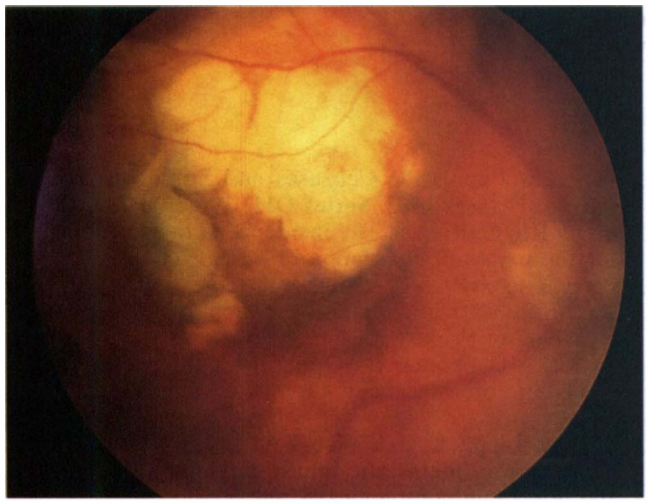
Metastatic calcification involving the eye is usually limited to the anterior segment, and posterior segment involvement is both rare and asymptomatic. We report a patient with hypercalcaemia in whom involvement of the posterior segment led to profound visual loss. This has not been reported previously in the literature.

Case Report

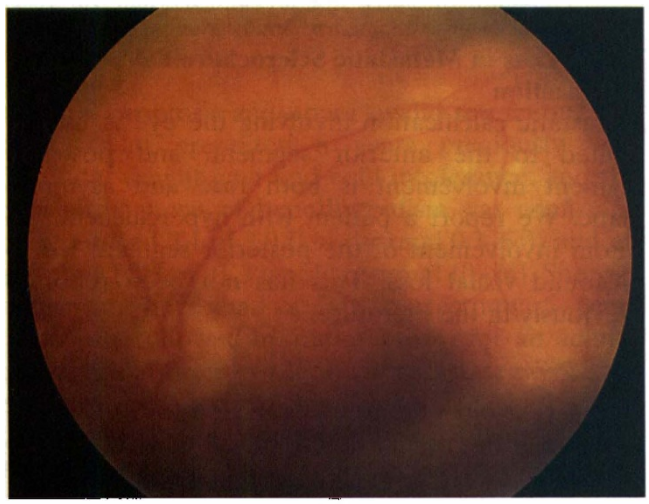
An 84-year-old woman was referred to St Thomas' Hospital with gradual deterioration of vision in the right eye, the left eye having had poor acuity for many years. She was symptomatically well and had no past medical history of note.

On examination, visual acuity was 2/60, N36 in the right eye and 6/24, N8 in the left eye. No abnormalities were detected in the anterior segments or vitreous cavities and funduscopy revealed multiple large raised white choroidal masses with overlying retinal atrophy in both eyes. The lesions varied in size from 2 disc diameters to several disc diameters and there was a lesion at the right macula (Fig. 1). Both optic discs appeared normal and general examination of the patient revealed no abnormalities; in particular there were no features suggestive of malignancy.

Ultrasound examination of the eyes and a CT scan of the orbits confirmed the calcific nature of the lesions (Fig. 2). The corrected serum calcium was elevated at 3.04 mmol/l with a normal serum phosphate (1.0 mmol/l). The serum parathyroid hormone (PTH) level was 0.29 U/l (normal range 0–0.79 U/l); chest, abdominal and skeletal radiographs were normal. There was no evidence of myeloma or sarcoidosis and the patient was not on any medication. In the presence of hypercalcaemia and normally functioning parathyroid glands, PTH levels would be expected to be much lower than seen



(a)



(b)

Fig. 1. *Fundus photographs showing large raised calcific lesions at the right (a) and left (b) posterior poles.*

in our patient, and the inappropriately high level of PTH thus suggested a diagnosis of primary hyperparathyroidism. An ultrasound scan of the parathyroid glands was normal, however, and consent for surgical exploration was denied.

Discussion

The differential diagnosis in our patient included choroidal osteoma, but this has a characteristic clinical appearance and a predilection for the posterior pole.[1] Melanoma and metastatic carcinoma were considered but neither ultrasound nor CT scans were consistent with these diagnoses and there was no evidence of a primary carcinoma. The presence of inappropriately high PTH levels in the context of hypercalcaemia led to a diagnosis of metastatic calcification secondary to hyperparathyroidism.

Extraskeletal deposition of calcium salts may occur as an amorphous precipitation (calcification) or as structured bone formation (ossification), and both

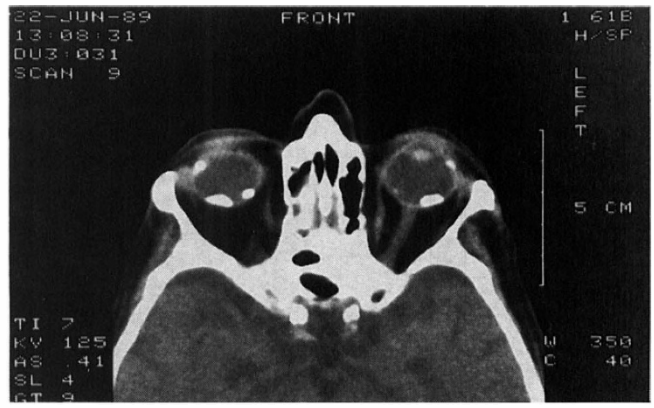


Fig. 2. *Axial CT scan of the orbits demonstrating prominent high-density lesions in the posterior poles of both eyes.*

have been reported in the human eye.[1,2] Calcification may be either dystrophic, metastatic or idiopathic. Dystrophic calcification (deposition of calcium in abnormal tissues in the presence of normal serum levels of calcium and phosphate) may be secondary to senile degeneration, chronic inflammation or trauma. Metastatic calcification (deposition of calcium salts in previously normal tissues as a result of homeostatic abnormalities of calcium and inorganic phosphate) occurs in hyperparathyroidism, pseudohypoparathyroidism, vitamin D intoxication, sarcoidosis and renal failure, and involvement of the eye may be seen in these conditions.[3–6] However, metastatic calcification involving the eye is usually limited to the anterior segment, particularly the conjunctiva and cornea. Involvement of the posterior segment is uncommon and profound visual loss as in our patient is previously unreported.

Anwar G. Zaman, FRCOphth
David J. Spalton, FRCOphth

The Medical Eye Unit
St Thomas' Hospital
London, UK

Correspondence to:
A. G. Zaman
Department of Ophthalmology
University Hospital
Nottingham NG7 2UK
UK

References

1. Gass JDM, Guerry RK, Jack RL, Harris G. Choroidal osteoma. Arch Ophthalmol 1978;96:428–36.
2. Lim JI, Goldberg MF. Idiopathic sclerochoroidal calcification. Arch Ophthalmol 1989;107:1122–3.
3. Goldstein BG, Miller J. Metastatic calcification of the choroid in a patient with primary hyperparathyroidism. Retina 1982;2:76–9.
4. Jensen OA. Ocular calcifications in primary hyperparathyroidism. Acta Ophthalmol (Copenh) 1975;53:73–86.
5. Wong S, Zakou ZN, Albert DM. Scleral and choroidal

calcification in a patient with pseudohypoparathyroidism. Br J Ophthalmol 1979;63:177–80.
6. Gartner S, Rubner K. Calcified scleral nodules and hypervitaminosis D. Am J Ophthalmol 1954;52:106–7.

Sir,

Bilateral Ptosis, Tonic Pupils and Abducens Palsies Following *Campylobacter jejuni* Enteritis

There is a well-described relationship between *Campylobacter jejuni* gastroenteritis and subsequent Guillain–Barré syndrome. Some variants involving ophthalmoplegia[1] have been described including Miller–Fisher syndrome[2] and one reported case of isolated bilateral abducens palsies.[3] We report a case of bilateral ptosis, tonic pupils and bilateral abducens palsies following *Campylobacter jejuni* infection.

Case Report

A 21-year-old woman presented to the ophthalmology department with diplopia and ptosis of approximately 10 days' duration. Two weeks earlier she had suffered an episode of gastroenteritis proven to be due to *Campylobacter jejuni* by positive stool culture; she was treated with a course of ciprofloxacin and she recovered within a week.

On examination, she had normal visual acuities. Both pupils were noted to be dilated, with sluggish reaction to light and a tonic reaction to a near target. Vermiform movements of the irides were noted on slit lamp examination. She had a moderate degree of ptosis bilaterally. Examination of the ocular movements showed limitation of abduction of both eyes to just beyond the midline. Horizontal jerk nystagmus

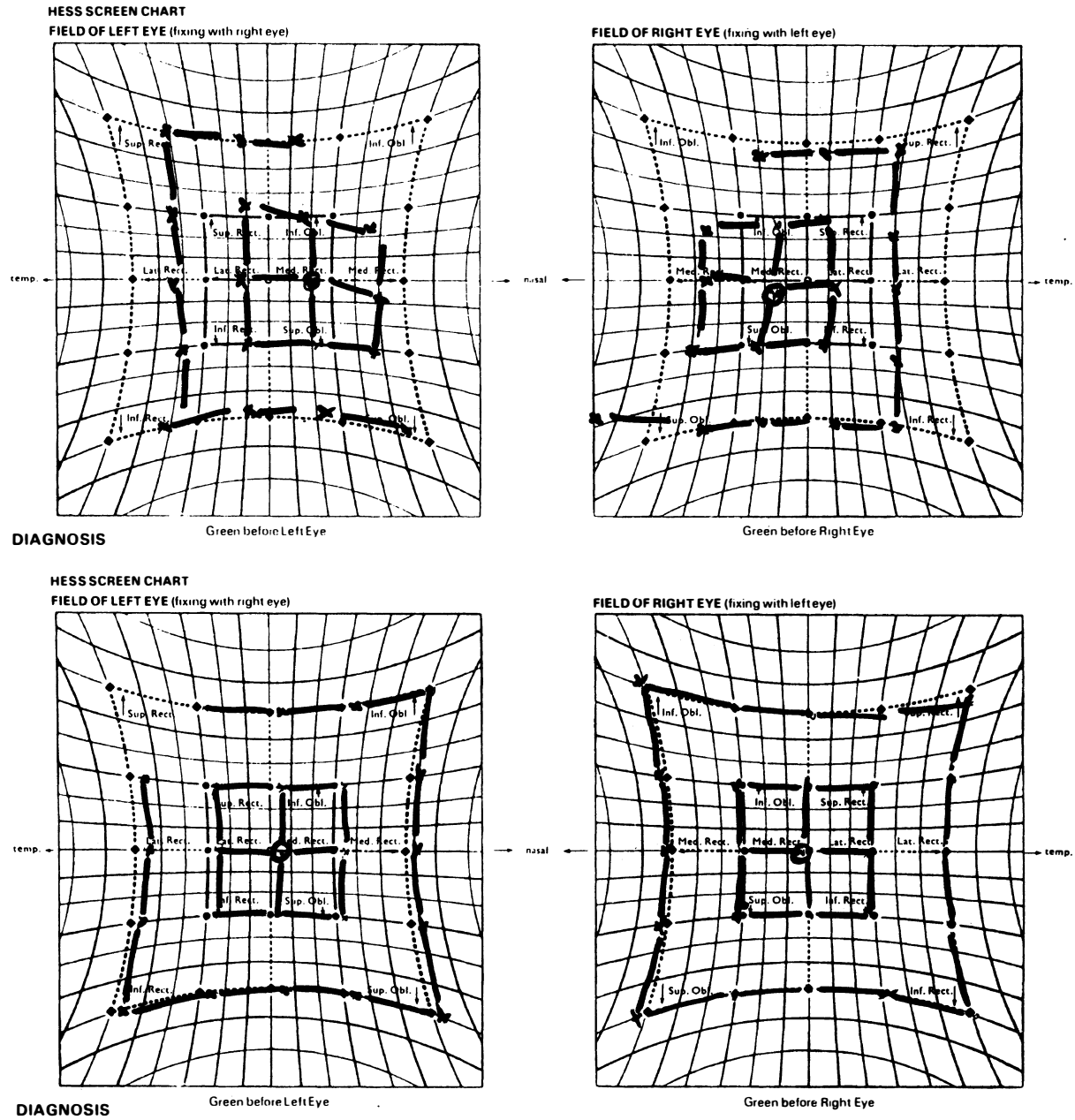


Fig. 1. *Serial Hess charts.*