Anterior uveal tract metastasis

As the presenting feature of bronchial carcinoma

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The purpose of this communication is to report a case of bronchial carcinoma which presented initially with the clinical features of an attack of iridocyclitis.

Case report

A 49-year-old man attended as an out-patient on March 6, 1967, complaining of watering and pain in the left eye for 2 weeks. The visual acuity was 6/9 in both eyes. The right eye was normal. The left eye showed mild ciliary congestion, but the cornea was clear; the anterior chamber (AC) was normal in depth. Posterior synechiae were present at 8 o'clock. The pupil was otherwise circular and reacting normally to light. The vitreous was clear, and the fundus and ocular tension normal. Examination with the slit lamp showed mild flare, a few cells, and pigment deposition over the anterior lens capsule. He was treated with gutt. Atropine 1 per cent. twice daily and gutt. Betnesol 2 hrly.

Progress This attack of iridocyclitis cleared in 2 weeks. The patient was asked to return, but he failed to attend until there was a recurrence on May 19, 1967, and this time the condition was more serious, the visual acuity being 6/36. There was ciliary congestion, but the cornea was clear. There were greyish-yellow nodular thickenings of the iris at 12, 8, and 5 o'clock, no vessels being seen over or around the nodules. An amorphous granular hypopyon occupied the bottom of the anterior chamber 1-2 mm. in depth. The pupil was festooned, and the slit lamp showed much debris floating in the anterior chamber, flare, and pigment deposits over the lens capsule. The tension was normal. No fundus details could be made out.

Treatment The patient was admitted to hospital for investigation and treatment. He had been a coal miner in the past when he had smoked 20 cigarettes a day, and a clinical diagnosis of pulmonary tuberculosis had been made at the Chest Clinic. However, he had not had any antituberculous treatment, and because of the possibility that the present complaint might be tuberculous iridocyclitis, antituberculous chemotherapy was started with local and systemic steroids.

After 10 days on May 31, the ocular tension in the left eye showed a marked rise to 47 mm. Hg (Schiötz) and corneal oedema developed. This secondary glaucoma was treated with Diamox 250 mg. three times a day, but this failed to check the rise in tension. Although the eye became white the hypopyon did not alter and it became inspissated in appearance. The nodular thickening of the iris became less marked. There was no pain, and the visual acuity was 6/36. The patient was discharged on July 20 on local steroids and mydriatics, systemic antituberculous drugs being continued.

On August 26 he was re-admitted to the medical ward with congestive cardiac failure. There was oedema of the legs and sacrum, and finger clubbing. The jugular venous pressure was 8 cm. The chest veins were prominent and there was a nodule on the chest wall (5th right space). The liver was enlarged and there was ascites. Biopsy from the chest wall showed an adenocarcinoma consistent with a primary bronchial origin.

Termination The patient died on September 4, 1967.

Laboratory Investigations

Haemoglobin 80 per cent. 11.8 g./100 ml.

E.S.R. (Westergren) 27 mm. in 1 hour

Total W.B.C. 9,000 per c.mm.

Lymphopenia on differential count

Albumin/globulin ratio normal 1.9 : 1

Kveim test and Wassermann reaction negative

Tuberculin test 1 : 1,000 positive

X ray of chest: slight elevation of right hilum associated with shadow at right apex, possibly tuberculous; degree of activity uncertain

X ray of skull, hands, and sacro-iliac joints negative.

Autopsy findings

The body was that of a well-nourished male with coal scars and a recent operation wound in the skin of the right side of the chest. The left cornea was pale and opaque, and the pupil was eccentric.

Death was found to have been caused by cardiac tamponade due to the presence of a large haemorrhagic pericardial effusion. The parietal pericardium was extensively infiltrated by growth spreading from the hilar region of the right lung.

The right lower lobe bronchus was the primary seat of a partly occluding tumour, spreading into the hilar and paratracheal lymph nodes. The lungs contained small soft coal dust foci. Tumour deposits were present in the para-aortic lymph nodes and right adrenal glands. There was no cerebral metastases.

Microscopically, the left eye showed a deposit of adenocarcinoma in the ciliary body. Columnar tumour cells lined the back of the cornea for a limited distance from the limbus, and the front of the iris to the pupillary margin (Figs 1 and 2). The choroid was free from growth. A similar tumour was present in the right lower lobe bronchus (Fig. 3).

FIG. 1 Metastatic bronchial carcinoma of anterior chamber, iris, and ciliary body. Haematoxylin and eosin. $\times 125$

FIG. 2 *High-power view of Fig. 1. Haematoxylin and eosin. $\times 320$*

FIG. 3 *Primary growth in lung, showing submucosal adenocarcinoma. Haematoxylin and eosin. $\times 320$*

Comment

Although carcinomata are the most common secondary tumours affecting the inner eye, their occurrence nevertheless is rare. This is probably due to the fact that the metastases are blood-borne, and since the ophthalmic artery leaves the internal carotid at right angles, it is not readily entered; it is easier for malignant emboli coming by this route to travel straight on and lodge themselves in the minute circulation of the brain and meninges. It is possible, however, that such deposits are considerably more frequent than the literature

would indicate (Duke-Elder, 1940). An extensive review of the literature was made by Greear (1950), who estimated the total number of patients described at about 300. A review of the literature since 1950 revealed 158 additional patients with intraocular metastasis (Albert, Rubenstein, and Scheie, 1967).

The uveal tract is the site of election for secondary deposits, and here the choroid is involved more often than iris or ciliary body; the ratio being 9 : 1 (Sanders, 1938). But iris involvement outnumbers ciliary body involvement by 7 : 1 (Reese, 1963).

The commonest primary site is the female breast, which accounts for 60 to 70 per cent. of cases. The lung is the second most frequent primary source of metastatic intraocular tumours (Ask, 1934). In the past 15 years, there has been a preponderance of reports of carcinoma of the lung metastasizing to the eye. This is probably a reflection of the increasing incidence of this cancer. As yet only eight cases of primary bronchogenic carcinoma with iris and ciliary body involvement have been recorded (Duke and Kennedy, 4 cases, 1958; Middleton, 2 cases, 1952; Mayer and Ray, 1 case, 1955).

In all types, choroidal, ciliary, and iridic, signs of inflammation are usually lacking, but evidence of iridocyclitis may be present, and this is liable to suggest an erroneous diagnosis of some granulomatous iridocyclitis (Duke-Elder, 1940). In three out of the four cases of anterior uveal involvement described by Duke and Kennedy (1958), iridocyclitis was the first clinical manifestation of the primary tumour in the lung.

In our case, granulomatous anterior uveitis was the earliest manifestation of primary bronchogenic carcinoma, the nature of which was not recognized so that an incorrect diagnosis of tuberculous uveitis was made. At no time was there conclusive radiological evidence of a lung tumour.

The first attack of transient plastic anterior uveitis might have been due to neoplastic emboli, but the cause of its remission is not clear. The fact that this granulomatous anterior uveitis did not respond to antituberculous chemotherapy and local treatment in the presence of a suspicious lung lesion should have aroused suspicion of neoplasia. Tumour deposits were found in the iris, ciliary body, canal of Schlemm, angle of the anterior chamber, and posterior surface of the cornea. Obviously, this angle-block was the cause of intractable secondary glaucoma. The choroid was not involved at all, which is rather surprising in view of the profuse blood supply to this tissue by numerous ciliary arteries.

Summary

Anterior uveal metastasis is reported as the presenting feature of bronchial carcinoma. There was no involvement of the choroid or brain.

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