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Short report

Cavernous sinus syndrome due to lymphoma

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SUMMARY In both the cases described, painful ophthalmoplegia was the first indication of infiltration of the cavernous sinus by a lymphosarcoma. The onset of symptoms and the course of the disease were different in the two cases. CT scan which has been the crucial investigation for detecting lymphomas in the cavernous sinus, was normal in the early stages. Symptomatic remission could be obtained with treatment, although the prognosis remained poor.

Painful ophthalmoplegia can arise from several causes. Inflammation and neoplastic changes are the most common. Among these aetiologies, infiltration of the cavernous sinus by lymphosarcoma is not often reported, although its incidence may well be underestimated. We report two cases where painful ophthalmoplegia was due to primary infiltration of the cavernous sinus by a lymphosarcoma.

Case reports

Case 1

A 46-year-old man in good general health was first seen on 16 March 1979. He presented with sudden onset of diplopia associated with paraesthesia and pain in the right orbital region. The patient had previously been treated in 1961 and 1971 for gastro-duodenal ulcers. On examination there was paralysis of the right VI cranial nerve and reduced visual acuity at 5/10. The visual fields and optic disks were normal. Within the next week partial involvement of the right IIIrd cranial nerve appeared with ptosis and pupillary dilatation. A loss of sensation in the area of right trigeminal nerve appeared during the next week. By 9 April, that is three weeks after onset of symptoms, there was total ophthalmoplegia. General examination and laboratory investigations (ESR, CBC, CSF) were normal. No bone lesions were seen on skull radiographs and CT scan. Tomodensitometry on 9 April did not detect any lesion although orbital phlebography showed a thrombosis in the right cavernous sinus. Tolosa Hunt syndrome was diagnosed and gastric fibroscopy was carried out before treatment with prednisolone was started. This showed a fulminating ulcerous gastric tumour. Examination of the gastric tissue removed, by gastrectomy on 23 April, confirmed a lymphosarcoma of centroblastic type according to the Kiel classification.

On 9 May the patient's health had deteriorated. Lymph-node involvement and lymphoblastic invasion of blood and bone marrow specimens were found. A second CT scan detected a tumour in the right cavernous sinus (fig 1). Systematic chemotherapy with rubidomycin-daunorubicyn vincristine-cyclophosphamide was started combined with five intra-thecal injections of methotrexate (10 mg) and cerebro-meningeal radiotherapy (30 Grey). Almost complete remission of the neurological symptoms was obtained but the patient died on 10 October from marrow aplasia seven months after the onset of symptoms.

Case 2

A 70-year-old woman presented in February 1982 with pain in the right orbit. Diplopia and a right ptosis developed later. She had lost 3 kg in weight within the previous three months. On examination on 7 April isolated paralysis in the right IIIrd, and loss of sensation in the area supplied by the right Vth cranial nerve were found. CBC, chest and skull radiographs, CSF, and biopsy of the temporal artery were normal. ESR was 23/50 mm in 1/2 h. No abnormalities were detected on orbital phlebography and CT scan (fig 2a) performed in April. Treatment with 50 mg prednisone daily was started.

By July, the patient's condition was worse and there was total paralysis of the IIIrd nerve with more severe pain; visual acuity and optic discs were normal. Loss of sensation in the facial region reached the areas supplied by the first two branches of the trigeminal nerve. CT scan (fig 2b) showed involvement of the cavernous sinus with slight intra orbital invasion. Right carotid arteriography was normal.

In September the condition deteriorated with total right ophthalmoplegia associated with exophthalmos and reduced visual acuity at 4/10, and the right disk was slightly

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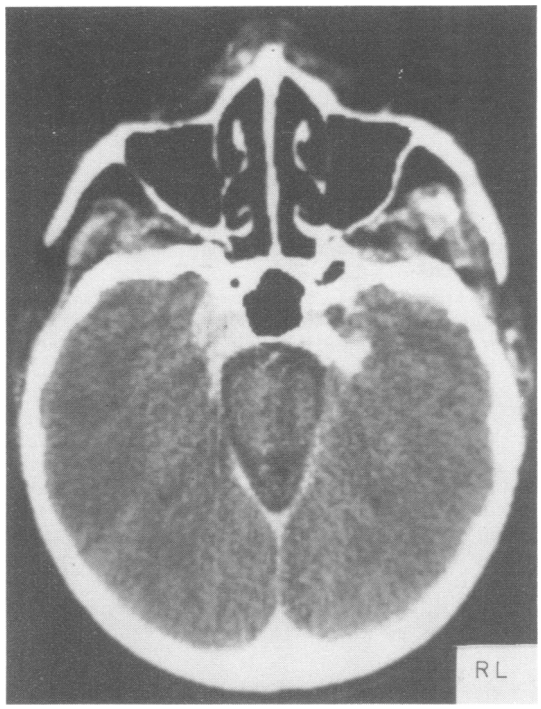

Fig 1 *Neoplastic infiltration of the right cavernous sinus.*

oedematous. CT scan (fig 2c) confirmed intra-orbital involvement and examination of the intra orbital mass by biopsy showed a lymphosarcoma of high grade malignancy according to the Kiel classification. In spite of radiotherapy (40 Grey) to the base of the skull, bone metastasis appeared in the spinal column and the patient died in March 1983, 13 months after the onset of symptoms. There was no regression of the neurological signs.

Discussion

The literature reports a variable incidence of neoplastic infiltration in painful ophthalmoplegia. Thomas and Yoss[1] in 1970 studied 102 cases of "parasellar syndrome" of which 70 were due to tumours and for four of these there was lymphomatous or myelomatous infiltration. Out of the 130 cases of "superior orbital syndrome" reported by Lenzi and Fieschi[2] in 1977, only 8% were due to neoplastic causes.

Apart from the four cases reported by Thomas and Yoss we are only aware of the publication by Kori and Mitsumoto[3] which describes six other cases of lymphoma infiltration of the cavernous sinus. Four of these patients presented with symptoms and the other two were discovered on necropsy. The involvement of the cavernous sinus was only indicative of the lymphoma in one of their cases.

The onset and course of the syndrome are variable. In our *case 1* the onset was sudden with painful ophthalmoplegia developing within 48 hours and reaching its final stage in two weeks. Although the patient's state and blood tests were normal at the beginning, the lymphoma became generalised within a month. This rapid generalisation is commonly seen in cases of neurological involvement of lymphosarcomas.[4] In our *case 2* on the other hand, the onset was progressive and total ophthalmoplegia developed over seven months and this remained the only tumour site for nine months. This variability in course has been pointed out in the report from the Mayo Clinic authors.[1]

In both our cases, investigations at the beginning, including CT scan, were inconclusive. This was also found in most of the cases reported by Kori and Mitsumoto, as well as for most cases of neoplastic

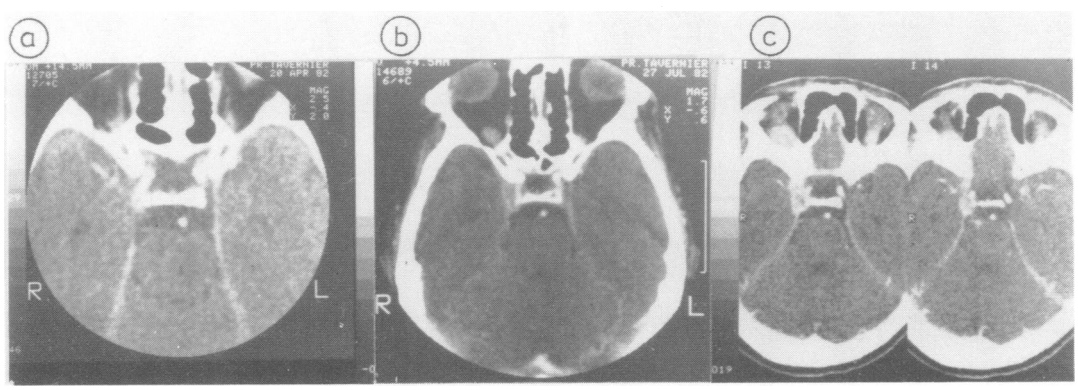

Fig 2 (a) *Normal scan,* (b) *Neoplastic infiltration of right cavernous sinus with slight intra-orbital invasion,* (c) *Further extension of tumour growth in the intra-orbital region.*

infiltration of the cavernous sinus.[5] The absence of conclusive evidence from early investigations and the therapeutic effectiveness of prednisolone do not however exclude the possibility of a tumoral process.

In cases of painful ophthalmoplegia with no obvious cause, computed tomography with injection of contrast medium should include both coronal and axial scans. These examinations should be repeated even if they are negative initially. Carotid arteriography can detect vascular pathology but orbital phlebography is without value and can lead to erroneous conclusions. In case 1 it showed the presence of thrombosis in the cavernous sinus which would have led one to suspect an inflammatory origin. In case 2 it was normal. If a neoplastic process is strongly suspected, biopsy of the cavernous sinus can be carried out. Early diagnosis can then lead to appropriate treatment.[6 7] The course of the neurological symptomatology varies after treatment. The striking remission in case 1 contrasts with the almost complete absence of effect in case 2. However in both situations the prognosis is poor.

The involvement of the cavernous sinus can be the first sign of a lymphoma and the neurological signs can appear suddenly or progressively. Abnormalities that can be detected by CT scan appear later than the clinical signs, and so the correct diagnosis can be missed.

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