MENINGEAL CARCINOMATOSIS FROM ADENOCARCINOMA OF THE LUNG A CASE REPORT

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SYNOPSIS

We describe a case of adenocarcinoma of the lung who developed spinal meningeal carcinomatosis five months later. Management of carcinomatous meningitis from "solid" tumours is reviewed.

INTRODUCTION

Meningeal carcinomatosis due to "solid" tumours, though once thought to be rare, is believed to occur in 4-5% of the cases.(1) Repeated cerebrospinal fluid examination will improve the chance of diagnosis in suspected patients. There is as yet only limited experience in the management of meningeal carcinomatosis due to lung cancer and the overall prognosis remains poor.

CASE REPORT

A male Chinese aged 40 was seen on 13.7.81 with a history of right lower chest pain for one month. He had a past history of pulmonary embolism in 1978; and was on treatment for mild hypertension and depression for 3 years. He smoked 2 to 3 cigarettes per day for the last two years.

On clinical examination he was noted to have a blood pressure 135/80 mmHg., and no abnormalities were detected in the cardiovascular, respiratory or the central nervous system. His chest x-ray showed a coin lesion in the right mid zone. The sputum smear for acid fast bacilli was negative on two occasions. He had a strong tuberculin reaction of 20 mm and was hence commenced on a therapeutic trial of anti-tuberculous treatment. However, follow-up chest x-ray showed an increase in the size of the coin lesion and a secondary deposit on the right 7th rib. These findings were confirmed by CT scan of the thorax. His abdominal scan was normal. On 4.9.81 right upper lobectomy and resection of the right 7th rib was performed. Histological examination of the pulmonary lesion and rib deposit revealed it to be a moderately differentiated adenocarcinoma. He remained asymptomatic for a period of five months though his chest x-ray in November 1981 showed diffuse fine mottlings suggestive of lymphangitis carcinomatosa.

On 8.2.82 the patient was warded with complaints of numbness over his right thigh, right foot, difficulty in micturition and constipation. Neurological examination revealed diminished sensation to pinprick and light touch over the L3 and S1 dormatomes, absent right knee and ankle jerks, and the bladder was distended up to the umbilicus. The cranial nerves were intact and no papilloedema was noted on examination of the fundi. X-ray of the lumbar spine showed small anterior marginal osteophytic lipping of L1-5 The myelogram was normal. Examination of the cerebrospinal fluid showed cells 7/cc (lymphocytes), protein 65 mg%, glucose 63 mg% (blood glucose 109 mg%) and chloride 661 mg%, Cytological examination of the cerebrospinal fluid revealed malignant cells suggestive of adenocarcinoma. In view of poor response despite chemotherapy, our patient was treated symptomatically In April 1982 he developed left 3rd cranial nerve palsy and CT scan of his brain showed secondary deposits in the right temporal and left parietal regions. He improved temporarily following a course of DXT to the brain, but deteriorated later and passed away on 13.6.82.

DISCUSSION

Meningeal carcinomatosis has been well known in association with malignancies such as leukaemia and lymphoma. It was believed to occur rarely with solid tumour However, recent reports (1) suggest that it may be found in as many as 4-5% of such cases. The first pathologically confirmed description was made by Eberth (2) in 1870 and the term meningitis carcinomatosa was introduced by Siefert in 1901(3).

Meningeal seeding by carcinoma may be diffuse or focal. Symptoms range from headache, mental change, seizures and cranial nerve palsies in cerebral form to root pain, parenthesia, bladder and bowel dysfunction in spinal form of leptomeningeal carcinomatosis. In a series of fifty patients studied by Olsen et al (4) headache and root pains were the commonest symptoms in the cerebral and spinal form respectively.

The spinal form of meningeal carcinomatosis is less common and the first case was reported in 1901 by Lilienfeld and Benda (5). The raity of this condition may be more apparent than real as it can often be misdiagnosed as peripheral neuropathy or as a case of prolapsed intervertebral disc.

The diagnosis of meningeal carcinomatosis is often difficult; however, if there is a strong suspicion on clinical grounds CSF should be obtained for cytological examination. Repeated lumbar punctures may be required as the first specimen can be normal. The presence of malignant cells in the cerebrospinal fluid virtually confirms the clinical suspicion as they almost never occur when the tumour is limited to the brain (6). The only other investigation that may be useful in establishing the diagnosis in spinal meningeal carcinomatosis is a myelogram. The myelogram may reveal multiple nodular defects along nerve roots infiltrated by carcinoma. Furthermore, this examination is required to exclude the possibility of symptoms resulting from compression of spinal roots by osteophytes or prolapsed intervertebral discs. The other CSF parameters are often abnormal but are not of diagnostic value. In the series observed by Parsons (7) the cerebrospinal fluid was under increased pressure in one-third, the glucose level was decreased in 60 percent and the protein was almost always elevated. Olsen et al (4) found the CSE pressure to range from 90 to 550 mm of H20; white blood cell count from 0 to 500/cc (95% polymorpho nuclear cells), protein from 24 to 1200 mg%, glucose from 0 to 228 mg%. These findings can go with bacterial, tuberculous or fungal meningitis, hence CSF cultures should be done to exclude these infections.

Unfortunately once the diagnosis is confirmed, there is little one could do in the way of treatment. A number of studies have been carried out to assess the response to radiotherapy, intrathecal chemotherapy and a combination of both. But no trials have so far established if any of these forms of treatment significantly alter the final outcome.

Olsen et al (4 in their series of 50 patients found a variable response to radiotherapy. Ten out of fourteen patients with symptoms less than one month duration improved following radiotherapy to the site involved. Similarly, ten out of twelve patients who received chemotherapy within one month of onset of symptoms responded favourably In their observation methotrexate appeared to be superior to cytarabine. As far as metastasis from carcinoma of the lung is concerned, there were 8 patients in their study (2 squamous cell, 2 adenocarcinoma, 3 oat cell and 1 histology unknown); and as most died before adequate treatment could be administered, no conclusion could be drawn as to the efficacy of treatment. Theodore et al (8) find the combination of irradiation and intrathecal methotrexade as most rewarding in inducing at least symptomatic improvement. Irradiation is administered to the site most affected and is combined with intrathecal methotrexate 0.25 mg/kg (10.20 mg) at three day interval for a maximum of six doses per course. Only five out of thirty-three patients in their series had a primary in the lung. Two of these cases received radiotherapy and one methotrexade, and none survived more than three months. The remaining two obtained no treatment. Both Olsen and William H. Theodore have noted symptomatic improvement in some of their patients with steroids.

CONCLUSION

Meningeal carcinomatosis should be considered in patients with carcinoma who present with symptoms of raised intracranial pressure, cranial nerve palsies, radiculopathy and bladder or bowel dysfunction. One should also be aware that occasionally signs of meningeal metastasis may arise long before the primary lesion can be detected. In selected patients chemotherapy and or radiotherapy may be effective in inducing temporary remission.

With the improvement in the treatment of cancer and longer survival, more patients could be expected to present with neurological complications as most therapeutic agents do not cross the blood brain barrier well.

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