

Metastatic carcinoma in a spinal meningioma

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SYNOPSIS Metastatic mammary carcinoma invaded a spinal meningioma.

Metastasis from one tumour to another is very rare. Invasion of an intracranial meningioma by a metastatic tumour has previously been reported in five cases. Two of these arose from a breast carcinoma (Bernstein, 1933; Lapresle *et al.*, 1952), two from a bronchial carcinoma (Fried, 1930; Osterberg, 1957), and in one the histological appearance suggested a renal cell origin (Osterberg, 1957), although neither laparotomy nor necropsy was performed and the renal tumour was never satisfactorily demonstrated by other means. It is the purpose of this communication to present an instance of

metastasis from a breast carcinoma to an intradural spinal meningioma.

CASE REPORT

The patient, a 72 year old woman, was admitted to Addenbrooke's Hospital in July 1971 having had a



FIG. 1 Myelogram demonstrating upper cervical intradural tumour.

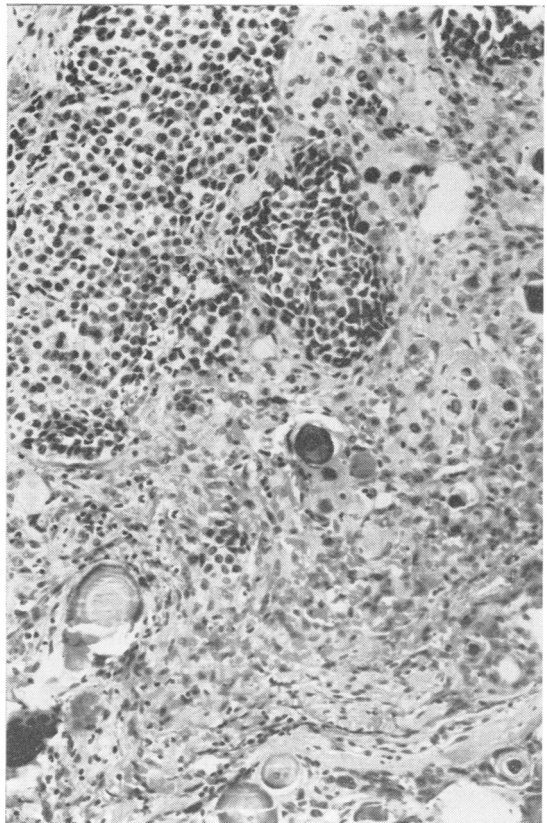


FIG. 2 Invasion of the meningioma by secondary carcinoma. H and E, ×45.

left radical mastectomy followed by deep x-ray therapy to the chest wall and left axilla for carcinoma of the breast six years previously. She complained of pins and needles in her left hand with increasing weakness of her left arm and leg over two weeks, and two days before admission she noticed pins and needles with weakness in the right leg. There had been no sphincter disturbance.

On examination there was no evidence of local recurrence of her breast carcinoma but there was a small subcutaneous nodule above the left shoulder blade. There was a spastic quadriplegia with more marked weakness of the left limbs and evidence of a Brown-Séquard lesion with sensory loss to pin prick on the right side of her body and limbs below C4 dermatome. Posterior column sensation was preserved on the right side but there was loss of joint position and vibration sense on the left.

Investigations included a haemoglobin of 12.7 g/dl and an ESR of 40 mm/hr. Radiographs of her cervical spine showed generalized degenerative changes only and there was no evidence of bony metastasis in her chest, pelvis, or remaining spine. A lumbar myelogram showed an almost complete obstruction to the flow of iophendylate opposite the second cervical vertebra (Fig. 1) with displacement of the spinal cord to the right due to an intradural space occupying lesion. Cerebrospinal fluid obtained at this examination had a protein content of 80 mg/dl.

An upper cervical laminectomy was carried out and the dura mater opened to show a hard oval tumour 2 cm in length which was removed together with its dural attachment. The subcutaneous nodule overlying the left scapula was also excised.

Histological examination of the spinal tumour showed a psammomatous meningioma invaded by secondary carcinoma (Fig. 2). The dura mater was infiltrated by tumour of similar appearances and the subcutaneous nodule also showed the same pattern of secondary carcinoma.

Postoperatively she improved, her right upper limb and legs soon returning to normal, although there was still some mild weakness and subjective sensory abnormalities in the fingers of her left hand. She returned home three weeks after surgery.

DISCUSSION

While the distribution of many metastatic tumours may be explained by the anatomy of the circulation, there are numerous examples to support the hypothesis, first suggested by Paget (1889), that some tissues provide more favour-

able metabolic or biological properties for the development of metastases, the so-called 'soil' hypothesis. Similar factors may be responsible for the occurrence of metastases in pre-existing pathological areas, such as secondary carcinoma developing in a bladder papilloma, uterine myoma, adrenal adenoma, and in abnormal thyroid tissue (Willis, 1952, 1967).

In the case described above, it is most likely that the meningioma was implanted with metastatic carcinoma, the meningioma having been present for longer. Alternatively, the carcinoma may have 'induced' the meningioma or caused it to grow more rapidly and produce symptoms. There are several reports in the literature of an intracranial meningioma found in association with a glioma elsewhere in the brain (Kirschbaum, 1945; Hoffmann, 1952) and of variable degrees of glial reaction to an intracranial meningioma including induction of a mixed tumour type with appearances resembling glioblastoma multiforme (Rubinstein, 1956). Immunological factors are unlikely to be involved. Although the early work of transplanting experimental tumours in animals raised hopes because of the tumour rejection that was seen, it soon became evident that such rejection was a highly specific reaction. Foley (1953) showed that mice with chemically induced mammary carcinoma were resistant only to the same tumour and not to other spontaneous carcinomas.

Because of the rarity of this case, however, the recurrence of a metastatic breast carcinoma involving a spinal meningioma is probably coincidental.

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