melanoma by MacKay,4 even without melanoma, these microtubules suggest the diagnosis of achromatic metastases of a melanoma.

The development of such metastasis could be explained in several ways: the blood arterial tract, the retrovocal route from the cavernous sinus through the superior petrosal sinus,5 a nerve brain route from the opto-phasie to the CPA; such a route could also explain the leptomeningeal carcinomatosis, which is responsible for the dissemination in the CNS via the CSF.

Clinically, the metastases are very different from the CPA of CPA. Brackmann6 nevertheless emphasises that the hearing loss is invariable, rapid, associated with headache, and involvement of the last cranial nerves suggests a malignant neoplasms.

The CT scan, however, often suggests an acoustic neurona. A petrous erosion10 or a vascular blush may confirm the diagnosis.8 In the absence of clinical evidence the nature of the lesion is often discovered at surgery or necropsy.

O DELERUE
A DESTEE
Department of Neurology, CHG, Boulogne, France

Correspondence to: Professor Destee.

1 Brackmann DE, Bartels J.L. Rare tumors of the cerebellum posterior angle. J Oto laryngol 1982;34:89-103.

Myasthenia gravis aggravated by pyrantel pamoate

Pyrantel pamoate is an antihelmintic agent used worldwide.1 We report worsened myasthenia gravis by pyrantel pamoate in one patient.

In October 1989 a 72 year old diabetic man noticed mild bilateral palpebral ptosis when opening his eye. He was blind in the right eye from diabetic retinopathy. In mid November of the same year, he complained of diarrhoea. A stool specimen was positive for Ascaris lumbricoides and a single 1000 mg dose of pyrantel pamoate was taken orally with breakfast on 26 November. Several hours later he became fatigued when chewing and also when walking. The following week he could not chew meat and bread and he noticed dysphonia. Neurological examination on 4 December showed bilateral palpebral ptosis with fatigability, limitation of abduction of both eyes and limitation of adduction of the right globe, hypophonia, weakness of neck extension and weakness of abduction of both arms.

Administration of 2 mg of edrophonium chloride reversed the ophalmoplegias. Electrophysiological study revealed a normal area of compound muscle action potentials in the right abductor digitii quinti muscle both at rest and after 15 seconds of maximal voluntary effort. Supramaximal repetitive stimulation of the right ulnar nerve at 3 Hz and 30 Hz were within normal limits.

Stimulation single fibre electromyography of the right extensor digitorum comunis muscles showed a mean jitter of 40 μs (normal upper 50% of insertions showing increased jitter and no blockings were found. Haematocochical and biochemical tests were normal. Antinuclear antibodies were positive at a 1/340 title with a homogenating pattern. Anti-TPO antibodies were negative. AntisMOOTH muscle and antimitochondrial antibodies were positive at a 1/80 title. CT of the thorax was normal. Anti-estriol receptor antibodies were not determined. He was treated with 180 mg of pyridostigmine bromide without alleviation of his symptoms. There was no improvement in spite of increasing the daily dose of pyridostigmine and micasartic symptoms appeared. Prednisone 60 mg day was started. Two weeks later he could tolerate solid food. Dysphonia, weakness of neck extension and weakness of the extremities disappeared, but ophalmoplegias persisted. From February 1990 he received 10 mg prednisone every other day, without neuromuscular symptoms apart from ptosis and bilateral ophalmoplegias.

We feel that, in this patient, ingestion of pyrantel pamoate aggravated a previously existing myasthenia gravis. Pyrantel exerts its antihelmintic action by blocking the worm’s neuromuscular transmission, producing a depolarising-typneuromuscule block.12 In rabbits, parenteral administration leads to paralysiss and death,8 but toxic neuromuscular effects in humans have not been reported to date to our knowledge.

ENRIQUE BESCUANA
Section of Neurology
MANUEL NICOLAS
Service of Medical Medicine
CRISTINA AGUADO
Family Medicine Unit
MANUEL A TOLEDANO
Service of Clinical Neuropsychology
MONTSERRAT VINALS
Section of Neurology, Regional Hospital Reina Sofia, Cordoba, Spain

Correspondence to: Dr Bescuana, Section of Neurology, Regional Hospital Reina Sofia, Avda Menendez Pidal s/n, 14004 Cordoba, Spain.


Myxoepipillary ependymomas arising from nerve roots of the spinal cord

Conventional pathogenesis suggests that myxoepipillary ependymomas arise from ependymal cells lying adjacent to fibrous tissue. The large majority of myxoepipillary ependymomas arise from the filum terminale where this arrangement applies. I report two cases of myxoepipillary ependymomas arising from nerve roots of the cauda equina. This unusual and so far unreported origin, may be due to myxoepipillary ependymomas arising directly from ependymal cells lying against the filum terminale.

Ependymomas form 2-6% of all gliomas.13 Myxoepipillary ependymomas belong to a distinctive subgroup of ependymoma. They are virtually restricted to the cauda equina and thought to arise either from the filum terminale and conus medullaris. Myxo- papillary ependymomas form 16% (53 to (21%) of intraspinal tumours (six and respectives). The myxoepipillary ependymoma is fibrous and histology has led to the belief that the pathogenesis of myxoepipillary ependymoma is related to ependymal cells lying against fibrous tissue mainly the filum terminale.14,

The first case was a 48 year old male with a one month history of lower back ache and left leg sciatrica with dragging of his left foot. There was weakness of the left ankle dorsiflexion, sensation of the left foot and dragging of the knee on the same side. Myelogram showed complete block at spinal level lumbar 2. The second case was a 44 year old male who had experienced lower back pain for three years. There was no history of bowel or bladder. Myelogram revealed a block at spinal level thoracic 12.

Macroscopically these were large encapsulated tumours. The myxoepipillary ependymoma in case 1 arose from the first sacral root and in case 2 it arose from the second lumbar root. Treatment for both cases was excision of tumour and resection of the nerve roots involved. Both patients did well and had no evidence of recurrence.

The presentation of these two tumours is similar in many ways to myxoepipillary tumours arising from the filum terminale or the conus medullaris, namely long back pain with myelographic block. The orthopaedic pathogenesis for myxoepipillary ependymoma is from ependymal cells lying against fibrous tissue for example the filum terminale. Other proposed theories include myxoepipillary ependymoma arising from ependymal rests in extra dural locations such as the sacrococcygeal region.15 It has been observed16 that ependymal rests occur in normal children, and occur where myxoepipillary ependymomas arise in the same anatomical region, namely the dermis-subcutaneous junction. It may be that myxoepipillary ependymomas arise in abnormal sites as a result of heterotopia, but heterotopia of tissue of the central nervous system in sites other than nasal is open to dispute.17

Others18 have suggested that the presence of ependymal cells against fibrous tissue is not essential for the formation of myxoepipillary ependymomas arising change seen in myxoepipillary ependymomas. They suggest that this myxoid change is the result of anoxia due to vascular changes. Alternative, however, is the primary cause of myxoepipillary ependymomas or the changes seen within them,
Spinal extradural venous haemorrhage controlled by a drawing pin: a new technique in neurosurgery

Massive bleeding from venous plexuses can be a life-threatening complication of surgery. This is well recognised from the cranial dural sinuses and it is also common during rectal and prostatic surgery.

We describe a case of venous haemorrhage during the removal of a cervical meningioma which was controlled by an unusual technique.

A 64 year old man presented with a one year history of progressive paraesthesiae and numbness affecting both hands associated with clumsiness of fine hand movements and loss of coordination when walking. Examination showed mild spastic quadriplegia.

Myelography demonstrated an extradural extramedullary tumour extending from C1-C3 (fig). A C1-C3 laminectomy was performed in the prone position. The dura was opened and the meningioma identified. This proved to be extremely tough and could not be removed with an ultrasonic aspirator. It was therefore removed piecemeal with cutting loops and rongeurs.

There was considerable haemorrhage from arterialised veins in the tumour bed and from the extradural venous plexus. The tumour had an en-plaque origin and haemorrhage was controlled by diathermy, packing, local pressure and suction. These manoeuvres allowed 75% of the tumour to be removed resulting in decompression of the cervical cord.

At this stage it became increasingly difficult to stop the haemorrhage from the extradural venous plexus despite using all conventional haemostatic methods. The bleeding was staunched by continuous pressure exerted on the bone by a bone wax but the close proximity of the cervical cord prevented permanent maintenance of pressure despite the use of suture buttresses. The patient had received a 30 unit transfusion becoming hypotensive for only a brief period.

The remaining haemorrhage was immediately and completely controlled by a drawing pin passed through the dura transfixing an extradural patty to the wall of the vertebral canal (fig). This provided permanent tamponade of the extradural venous plexus.

The wound was closed and the patient made an uneventful post operative recovery with significant improvement in his neurological condition and no wound infection.

Excluding the cranial dural sinuses there are three sites in the body with thin walled venous plexuses which are prone to bleed during surgery: the pre-sacral plexus, the prostatic plexus, and the spinal extradural venous plexus.

Once bleeding has started attempts at haemostasis often seem to provoke more oozing elsewhere.

The use of drawing pins to tamponade venous plexuses to control bleeding is not a new idea. The method was first used in rural China to control life threatening haemorrhage during rectal operations.1 Khan et al2 and Nivatvongs et al3 discuss four such cases. They describe the use of specially constructed titanium pins and add the caveats of possible reaction to the metal used or superadded infection.

In our case an autoclaved stationer’s brass drawing pin was used to tamponade the extradural plexus. The risk of death or morbidity from continuing haemorrhage was felt to outweigh any possible complications either from the metal constituents of the pin or from subsequent infection. Prophylactic antibiotics were used.

We describe this technique in the hope that other neurosurgeons may find it useful for the temporary or permanent control of haemorrhage or in situations where temporary dural fixation is impractical using standard methods.

KM MORRIS
GGF FINDLAY
Mersey Regional Department of Medical and Surgical Neurology, Walton Hospital, Liverpool, UK

Correspondence to: Mr Morris.