DISCRETE INTRADURAL OSTEOMA

REPORT OF A CASE

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The compact osteoma of the vault of the skull that arises from the external table, and the paranasal osteoma are familiar lesions. Much rarer, however, are osteomas that arise from the inner table of the skull to extend through the dura mater and displace the underlying brain. A review of the literature has confirmed the rarity of cases of this type.

The case presented here is an unusual problem of an intracranial osteoma which was discovered as an incidental finding when diagnostic roentgen-ray studies were made on a patient with a complaint of cervical myalgia. It is interesting that this patient had sustained a serious head injury 24 years previously and there was a large scar in the scalp directly overlaying the intracranial ossification. At operation this proved to be a firm bony mass intradurally with one small attachment to the inner table of the skull.

CASE REPORT

The patient, a 43-year-old colored female, was referred to Duke Hospital for evaluation of a calcified intracranial lesion in the right frontal region. This had been discovered incidentally at her local hospital at the time of treatment of a cervical myositis. On admission to Duke Hospital her only complaint was mild residual pain in the neck, muscular in type, and occasional mild headache of the vertex which was unaffected by coughing or straining. She gave a history of having been involved in an automobile accident 24 years previously in which she received multiple lacerations of the scalp and a mild cerebral concussion and in which two other passengers in the car were killed. No roentgenograms are available, and it is not known whether a fracture of the skull was present at that time. There was no apparent residual neurological difficulty attributable to this injury. She had sustained no other significant head trauma in the past.

Examination. A detailed survey revealed no abnormal findings except for a 5 cm. linear scar in the right frontal region. Results of routine laboratory studies were within normal limits. An electroencephalogram was normal. Roentgenograms of the skull revealed a dense calcified mass in the right frontal region (Figs. 1 and 2).

Operation. After preliminary study, a right frontotemporal osteoplastic craniotomy was performed. The 5 cm. scar mentioned above lay almost directly over the area of intracranial ossification. A bone flap was turned laterally and slight difficulty was encountered in separat-

ing the dura mater from the inner table of the skull, especially in the region of the ossification. After reflecting the bone flap, there was a dural defect, measuring 4×2 mm., through which the underlying mass had been firmly attached to the inner table of the skull. The dura mater was opened and was noted to be slightly thickened, especially adjacent to the area of underlying ossification. As the dura mater was reflected a bony, hard, white mass was encountered which was separated from the dura mater without difficulty (Figs. 3 and 4). The arachnoid could be seen to extend over the bony tumor. The mass was separated easily from the underlying cortex and vessels which it displaced as it extended forwards. The dura mater was closed and the bone flap was wired back into place.

Course. Postoperative recovery was uneventful.

Pathologic Examination. The specimen was an ivory-hard mass measuring 3.0×3.2×0.9 cm. and weighing 11.5 gm. Its inner surface was smooth but irregular, being grooved by the cortical vessels and corresponding to the cerebral convolutions that it had displaced. The outer surface was smooth except for the small area, 2×4 mm. in size, where it had extended through the dura mater to join the inner table of the skull. The cut surface through the center was equally hard and homogeneous. Microscopically, the tumor was a typical osteoma consisting of very dense mature cortical bone containing occasional narrow spaces occupied by fat.

DISCUSSION

Discrete intracranial osteomas involving the inner table of the skull and extending through the dura mater to compress or displace the underlying brain are rare lesions. Pilcher described a case in which such an osteoma arose from the inner table of the temporal bone and emphasized that such tumors might result in pressure symptoms and epilepsy. Rand described an osteoma in the right frontal region which was attached to the lateral surface of the inner table of the skull just back of the external angular process and to the roof of the orbit. Meredith presented a similar case in which an osteoma of the inner table of the right temporal bone in an elderly patient grossly eroded the dura mater and markedly indented the underlying right temporal lobe, producing a contralateral homonymous hemianopsia. In all 3 of these cases the osteoma had a well outlined intracranial border, but arose from a fairly wide base at the site of attachment to the inner table of the skull.
Fig. 1 and 2. Roentgenograms of the skull showing the area of intracranial ossification in the right frontal region.

The case presented here differs from those reported previously because of the location of the osteoma almost entirely within the arachnoid and dural membranes. Through these membranes there passed a small stalk of bone by which it was firmly attached to the inner table of the skull.

The frequency of a history of trauma and its possible importance as a causative factor in cases of cranial osteomas has been noted by numerous writers.\textsuperscript{1,6,7} Pilcher\textsuperscript{4} stated that osteomas arising from the external table of the skull frequently follow trauma. In none of the reported cases of osteomas of the inner table was there reported a history of significant trauma, either recent or remote.

In the present case the possible etiologic significance of trauma presents itself strongly for consideration since the osteoma arose directly beneath the site of previous injury which was well marked by a 5 cm. linear scar in the scalp. This suggests that at the time of injury a fragment of periosteum may have penetrated the dura mater and arachnoid to act as a nidus from which the bony growth arose.

Fig. 3 (left). Operative exposure showing the clear-cut plane of separation between the osteoma and the underlying cortex.

Fig. 4 (right). With the dura mater reflected the osteoma is seen in place. The dural defect through which it was attached to the inner table of the skull is visible.