

Cavernous sinus chondroma.

Case report and review of the literature



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Chondromas of the base of the skull are most commonly found in the parasellar and sellar regions, and present varying degrees of involvement of the cavernous sinus. However, those confined mainly to the cavernous sinus are rare, and only a few cases have been reported.

A 50 year old man experienced left hemifacial pain followed by left abducens nerve palsy.

Computerized tomography and magnetic resonance image depicted a well circumscribed mass in the left cavernous sinus. A pterional craniotomy was performed to approach this lesion intradurally. The tumour was subtotally removed. Histologically the mass was diagnosed as a mature chondroma.

Postoperatively, the left hemifacial pain disappeared and the diplopia improved from the first postoperative day.

Successful removal of lesions in the cavernous sinus requires individualisation of the case as well as choosing the correct surgical approach for the certain patient.

KEY WORDS: Cavernous sinus, Chondroma, Skull base.

Introduction

There are a lot of comparisons concerning the selection of the best approach for tumours of the cavernous sinus. Many experienced authors stated that the approach must be tailored to the nature and the exact location of the tumour in the cavernous sinus and neighbouring structures^{2,4,5,6,11,12,13}. Although chondromas are considered to be true tumours of the cavernous sinus, because of the rarity of these lesions few reports have been made about the surgery of these tumors^{1,3,7}. In the present study we report this rare case focusing mainly on the surgical approach of these lesions.

Case report

A 50 year old patient complained for left hemifacial pain and diplopia. The pain was continuous and followed by a sensation of numbness. The neurological

examination showed paresis of the left abducens nerve and diminution of the corneal reflex.

The MRI study revealed a space occupying lesion in the left cavernous sinus with a low signal on T1-weighted image and high on T2. After contrast medium administration the lesion was inhomogeneously enhanced due to intratumoral calcifications (Fig. 1 A, B).

Operative technique

We chose the intradural approach through the lateral wall of the cavernous sinus via a pterional craniotomy. After the dura opening we approached the lateral wall dissecting the sylvian fissure. The first of the double layer lateral wall was then opened revealing the tumor which was removed in a piece meal fashion with the help of ultrasonic aspirator (Cusa). We had no significant hemorrhage because the lesion was located between the layers of the lateral wall, such compressing the venous plexus of the cavernous sinus. The trigeminal as well as the trochlear nerve were decompressed and freed of tumor. The internal carotid artery on the contrary was surrounded by the tumor leaving no possibility to remove it completely.

Postoperative brain CT scan showed that the biggest part of the intracavernous portion was removed (Fig. 2 A, B).

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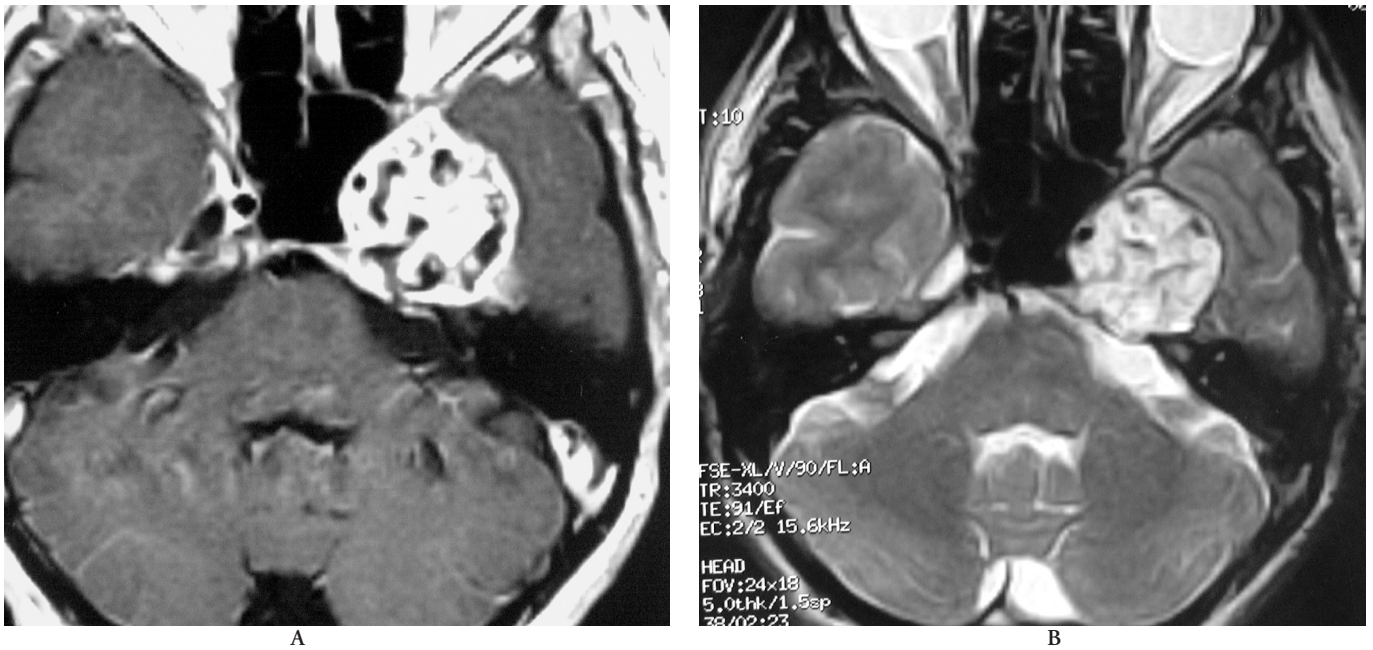


Fig. 1 A, B: MRI of the brain. Axial T1-weighted image before(A) and after(B) contrast medium administration, showing a mass lesion occupying the left cavernous sinus. Note that on T2-weighted image the signal is high. The low signal within the tumour is caused from calcifications.

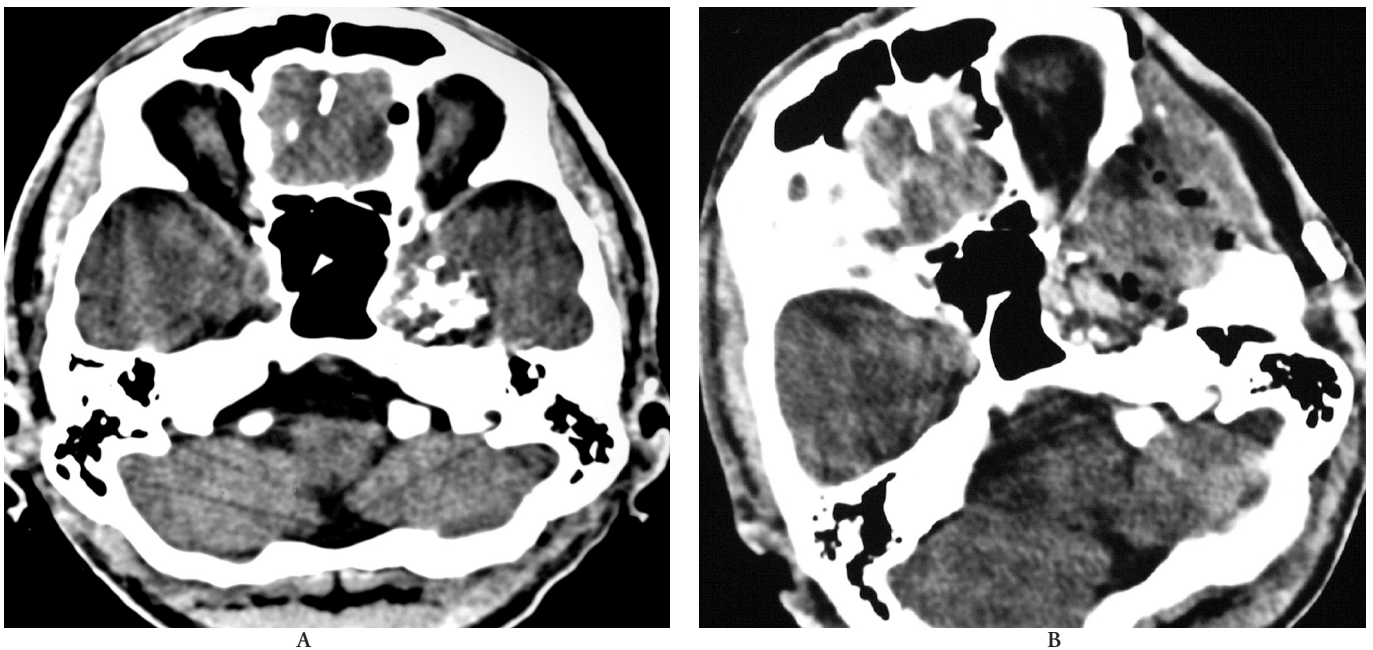


Fig. 2 A, B: Brain CT scan, before(A) and after(B) tumour removal. The intracavernous part of the tumour has been removed.

The histology put the diagnosis of matured chondroma (Fig. 3).

After surgery the patient did not complaint of any kind of facial pain, diplopia and numbness were gradually improved, the hospitalization time was 8 days.

Discussion

Chondromas are benign tumors composed of mature hyaline cartilage growing from the bone during the peri-

od of endochondral ossification ¹. These rare tumors are located exclusively in cavernous sinus. The symptoms are the same of all kind of tumors compressing the sinus and the cranial nerves passing through the sinus e.g: diplopia and homolateral hypoaesthesia. Our patient had pain and numbness in half of his face because the tumor was compressing the trigeminal nerve and diplopia due to compression of abducens nerve.

The differential diagnosis must be made with meningiomas or other cartilaginous tumors ².

The MR image of these lesions consists of multiple cal-

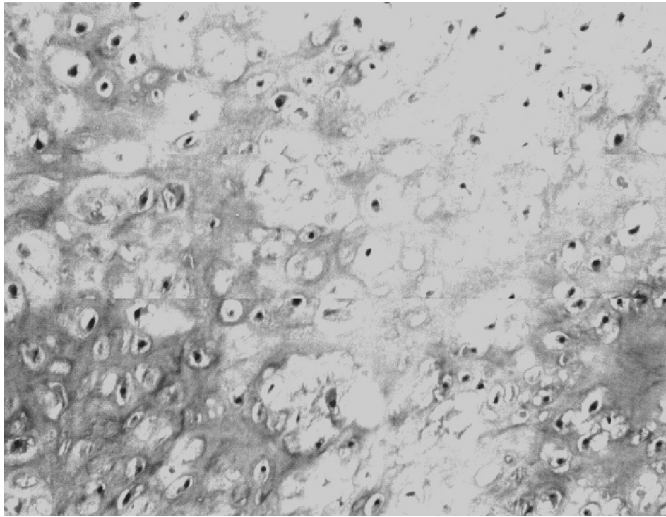


Fig. 3: A microscopically view of the extracted tumour (HE x 50), showing the typical aspect of matured cartilage cells with no sign of malignancy (without abnormal cell proliferation).

cifications, distraction and/or incorporation of the tumor with the bones of the base of the skull as well as high signal on T₂ weighted image^{3,7}. These peculiar findings were present in our patient also.

Planning the surgical approach, the very important factor was to identify the topography of the tumour within the sinus. Lesions invading the lateral wall of the cavernous sinus can be easily removed intradurally. Anatomically the dura matter of the lateral wall is composed by a double layer. Between the layers we find the cranial nerves III, IV, VI, V₁, V₂. The venous channels are lying under the second layer of the lateral wall therefore the risk of a massive bleeding from the sinus is low^{9,10}. The opening of the lateral wall is made usually from the Parkinson triangle⁸.

We have planned the same approach in our patient, during the surgical procedure the bleeding was controlled because we worked between the layers of the lateral wall of the cavernous sinus without damaging the venous plexus. The tumour was subtotally removed, the part of the tumour left was surrounding the intracavernous portion of the internal carotid artery and therefore its removal was impossible.

Postoperatively, the patient had a quick recovery from his neurological symptoms.

Conclusion

The chondromas are rare benign neoplasms arising from the base of the skull, especially from the cavernous sinus. The removal of such tumours is better performed intradurally through the lateral wall than extradurally because this approach is much simple, less traumatic, less haemorrhagic and brings the same good results in the surgery of this difficult part of the brain.

Riassunto

I condromi sono dei tumori della base cranica che di solito si localizzano in corrispondenza della sella turcica e la regione strettamente parasellare e di solito infiltrano il seno cavernoso. I condromi che prendono origine proprio in corrispondenza del seno cavernoso sono invece rarissimi e pochi riferimenti fino ad oggi sono stati fatti in bibliografia al proposito. Nel caso da noi presentato, un uomo cinquantenne si presentò al pronto soccorso riferendo diplopia, conseguente ad una paralisi del nervo abducente di sinistra, ed inoltre dolore della metà sinistra del viso, sintomi che secondo quanto detto dal paziente stesso avevano una evoluzione progressiva e si erano aggravati soprattutto nelle ultime due settimane. La TAC inizialmente, e la MRI cerebrale in seguito, mostravano una massa occupante spazio sita all'interno del seno cavernoso di sinistra. L'esame istologico della lesione asportata durante l'operazione ha confermato la diagnosi di condroma. Il decorso postoperatorio del paziente fu privo di complicazioni e la diplopia ed il dolore della metà sinistra del viso scomparvero.

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