

## **Orbital Metastasis of an Undifferentiated Nasopharyngeal Carcinoma: A Case Report**

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### **Abstract**

NPC (nasopharyngeal carcinoma) with orbital invasion, is rarely reported in the literature, and is found in a relatively low percentage of patients with orbital tumour.

NPC is characterized by its high metastatic power, the orbital involvement can be revealed by locoregional tumor extension, very rarely by metastatic spread.

Radiotherapy is the treatment of choice for NPC and its regional nodal metastasis, chemotherapy was used to supplement radiotherapy.

we report the case of a 58-year-old patient presenting with exophthalmos with redness of the eyes.

A CT scan of the face revealed mass, a biopsy under neuro-navigation concluded to an undifferentiated nasopharyngeal carcinoma.

**Keywords:** *Nasopharyngeal Carcinoma; Orbital Extension; Radiotherapy*

### **Introduction**

Cavum cancers are predominantly dominated by undifferentiated carcinomas [1].

NPC (nasopharyngeal carcinoma) with orbital invasion, is rarely reported in the literature, and is found in a relatively low percentage of patients with orbital tumour [2].

Clinical, biological and histological entity different from other cervicofacial cancers by its relation with the Epstein bar virus, It is observed at any age even in the adolescent and the child, affecting the two sexes but more frequently the man [2].

NPC is characterized by its high metastatic power, the orbital involvement can be revealed by locoregional tumor extension, very rarely by metastatic spread [3].

Compressive optic neuropathy can then be manifested with symptoms such as blurred vision, diplopia or proptosis [3].

Radiotherapy is the treatment of choice for NPC and its regional nodal metastasis.1 Chemotherapy was used to supplement radiotherapy [2].

### **Case Report**

Patient 58 years old, treated for nasopharyngeal carcinoma 2 years ago, declared in remission, who presents at the consultation for right exophthalmos which worsens with time, with a redness and visual blur evolving since 2 months.

The clinical examination finds a decrease of the visual acuity on the right (4/10), whereas the rhinoscopy does not aim any particularity.

A CT scan of the face was requested which revealed a well-limited oval-shaped right intra-conical tissue process enhanced by contrast injection, invading the optic nerve and oculomotor muscles, coming into contact with the posterior pole of the eyeball. measures 42/30/37.3 mm (Figure 1).



Figure 1: CT scan of the face, axial section showing the tumor process.

An MRI was requested that confirmed the orbital extension of the tumor process (Figure 2).



Figure 2: MRI T1 sequence: axial section showing the tumor process with orbit extension.

The patient underwent endoscopic exploration under general anesthesia, with neuro-navigation protocol, and a mass biopsy was made without incident.

Histopathological examination of the mass found undifferentiated nasopharyngeal carcinoma UCNT (Undifferentiated Carcinoma of Nasopharyngeal Type).

The extension assessment was requested and a concomitant chemo-radiotherapy protocol was instituted. The evolution was good with a regression of the intra-orbital tumor mass. With a decline of 6 months.

### Discussion

NPC with orbital invasion, is rarely reported in the literature, and is found in a relatively low percentage of patients with orbital tumour [2].

NPC is a highly infiltrative tumour and, when it does invade the orbit, it may do so via several routes [2]. The pterygopalatine fossa and inferior orbital fissure are the most common routes of invasion, followed by invasion via the paranasal sinuses [2]. The inferior orbital fissure represents a direct communication between the orbit and infratemporal fossa [2]. Its most posterior part also meets the most superior extension of the pterygopalatine fossa, thus forming direct communication between the pterygopalatine fossa and the apex of the orbit [2]. NPC involving the pterygopalatine fossa and infratemporal fossa may thus infiltrate directly into the orbit through the inferior orbital fissure [2,5]. On the other hand, tumours in the ethmoid and/or sphenoid sinuses may erode the lamina papyraccia to reach the medial orbit and retrobulbar region [2]. The route from ethmoid/sphenoid sinuses was the second most common pathway of orbital invasion [2,5]. On rare occasions, NPC involving the maxillary sinus may invade the inferior orbit via the floor of the orbit [2]. As the lamina papyraccia and the orbital floor are thin, they are relatively weak barriers for protecting against tumour infiltration [2].

The clinical manifestations related to these orbital metastases are not very specific: exophthalmia, binocular diplopia, edema or peri-orbital swelling, sometimes it can be associated with pain, a decrease in visual acuity or a cranial nerve involvement [1,6].

The paralysis of the cranial nerves in NPC is usually associated with the direct erosion of the skull base [4].

Diagnostic biopsy of the tumour is usually performed via fiberoptic scopes [2].

Computed tomography (CT) is very effective in demonstrating bone lesions of the skull base, orbital frame and naso-sinus walls [1] while magnetic resonance imaging (MRI) has demonstrated its superiority compared to CT in the demonstration of the invasion of the soft tissues and the cranial pairs, in the characterization of some intra-sinus masses, and in the distinction between tumor recurrence and post-radiation cicatricial fibrosis remodeling [1].

Raditherapy remains the standard treatment for NPC and its regional nodal metastasis [2,7].

Indeed, after orbital irradiation, sequelae can appear from 35 Gy for the eyes and from 54 Gy for the nerve and the optic chiasma, even after the use of suitable protective covers [1].

Chemotherapy is used in complementarity with radiotherapy, especially for nodal metastasis and visceral metastases [2,7].

Surgery plays a minor role in the treatment of NPC, sometimes, however, those radioresistant nodes need to be removed by radical neck dissection [2].

Local recurrence of NPC has been reported to be more frequent than distant metastasis [4,8]. Patients with locoregional relapse of NPC were found to have a higher distant metastasis rate [4,9].

The prognosis of patients with NPC with orbital invasion remains a poor prognosis according to the studies [2].

### Conclusion

NPC with orbital extension remains a rare entity, but this diagnosis must be considered especially in the presence of ophthalmological signs.

Therapeutic protocols must be adapted to each case and take into account the extent of the disease.

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