

**Radiology Case Report****Radyoloji Olgu Sunumu**

## A giant mixed tumor originating from the parapharyngeal space

### Parafarengeal bölgeden kaynaklanan dev mikst tümör

Selin Ünsaler, M.D., Bora Başaran, M.D., Kemal Değer, M.D.

*Department of Otolaryngology, Medical Faculty of İstanbul University, İstanbul, Turkey*

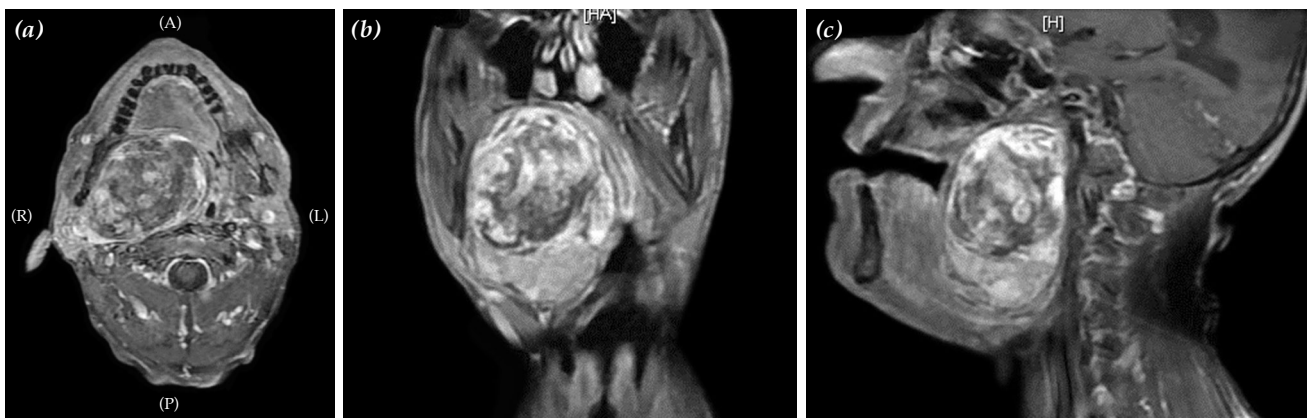
A 66-year-old man presented with difficulty in breathing and swallowing caused by swelling in his throat. He was aware of this swelling for the last three years but he had avoided referring to a hospital until he started to have serious apnea attacks. Physical examination revealed a large mass in the oropharynx bulging submucosally from the right lateral pharyngeal wall that nearly occluded the whole oropharynx. The other remarkable findings were absence of the gag reflex on the right soft palate, deviation of the tongue to the right side and right vocal cord paralysis, reflecting glossopharyngeal, vagus and hypoglossal nerve palsies. On magnetic resonance imaging (MRI), a mass in the right parapharyngeal space was observed with the dimensions of 83x51x84 cm (anteroposterior x transverse x craniocaudal) obliterating nearly the whole parapharyngeal space at the level of the oropharynx and hypopharynx. The tumor had pushed the carotid space posteriorly and the masticator space anterolaterally. It had a heterogeneous hypointense signal but peripheral hyperintense signal due to hemorrhage on T<sub>1</sub> weighted (T<sub>1</sub>W<sub>1</sub>) and heterogeneous hyperintense signal on T<sub>2</sub>W<sub>2</sub>. This mass lesion had also enlarged the stylomandibular foramen and had a solid component enhancing contrast intensely with a central large necrotic component (Figure 1a-c).

Following MRI of the mass a transoral fine needle aspiration (FNA) biopsy was performed, the result of which was non-diagnostic necrotic cells. The mass was surgically excised through a transcervical-transparotid approach.

**Diagnosis:** A giant benign mixed tumor (BMT) of the parapharyngeal space.

Benign mixed tumor is the most common benign tumor of the parapharyngeal space (PPS).<sup>[1]</sup> They may originate from the deep lobe of the parotid or from parapharyngeally-located accessory minor salivary glands. The clinical picture of benign PPS tumors may be miscellaneous, and patients may present with a wide variety of symptoms and signs with the increase of the tumor size. Smaller tumors can remain as an asymptomatic mass displacing oropharyngeal structures medially, while in larger tumors the most common symptom is a neck mass. With the exception of direct invasion by malignancy or a neurogenic tumor, cranial nerve palsies are unusual for PPS tumors. Large PPS tumors can also burden the airway.

The differential diagnosis of a PPS mass is based on radiological and pathological findings. Either computed tomography (CT) or MRI reveal the boundaries of the mass and its relationship



**Figure 1.** (a) Axial section of the tumor in T1 weighted magnetic resonance imaging. (b) coronal section of the tumor in T1 weighted magnetic resonance imaging. (c) Sagittal section of the tumor in T1 weighted magnetic resonance imaging.

with the surrounding spaces.<sup>[2]</sup> When a BMT arises from the deep lobe of the parotid gland, it is seen as a pear-shaped mass displacing the PPS fat medially and widening the stylomandibular tunnel. In contrast to this finding, PPS fat is expected to be displaced anterolaterally if the mass originates from the extra-parotid minor salivary glands in the PPS. However, in most of the cases it can be difficult to distinguish the space of origin of a large mass occupying the PPS since PPS fat may not be detected. A small BMT is a hypointense, uniform lesion on T1W1 MRI and shows uniform intermediate to high signal on T2W2. In contrast, a large BMT is a lobulated lesion with heterogeneous signal on T1W1 and heterogeneous high signal on T2W2.<sup>[2]</sup> If very high T2 signal is present, it is specific for BMT. On contrast enhanced CT a large BMT enhances inhomogeneously and may show areas of lower attenuation representing necrosis and old hemorrhage. Dystrophic calcification may also be seen which is unusual in other glandular tumors. Fine needle aspiration should be performed in all of the PPS tumors to distinguish between malignant and benign tumors, and influences the decision of the surgical approach. However the major problem with FNA of PPS tumors is difficulty in obtaining adequate tissue samples, so it may be performed transorally or transcervically with an ultrasound, CT or MRI guidance.<sup>[3]</sup> In our case FNA was performed transorally as the mass was easily reached through oropharynx but it was reported as non diagnostic material due to necrosis which is not surprising for such a large mass. Despite the negative FNA result, we strongly considered BMT

as the possible histologic diagnosis based on the radiological findings and the cranial nerve palsies were thought to have occurred due to pressure applied by the large mass.

Most of the malignant tumors of the PPS require mandibular split techniques for adequate resection with clear margins, whereas it is well accepted that mandibulotomy is generally not necessary for resection of benign lesions of the PPS. Therefore, benign tumors can be resected through a transcervical-transparotid approach.<sup>[1,4]</sup> Due to the increased risk of tumor spillage, transoral approaches should be avoided as well.

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