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A RARE CASE OF MUCOCELE CONFINED TO THE RIGHT PTERYGOID PROCESS.

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ABSTRACT:

Mucoceles are benign, slow-growing, locally expansive masses within cavities and filled with mocous. They typically arise in the paranasal sinuses and the frontal and ethmoidal sinuses are the most frequent location. We present the computed tomography (CT) and magnetic resonance imaging (MRI) features of a rare case of mucocele occupying the whole right pterygoid process (PP). These imaging findings, location and behavior of a mucocele have, to our knowledge, never been reported before.

CASE REPORT:

A 36 year old male with 3 years history of mild and ill-defined pain in the right maxillary area. He also referred a severe facial trauma 14 years ago which needed maxillary surgery. A Waters´ view plain film showed an opacified right maxillary sinus and the diagnosis of "post-traumatic maxillary sinusitis" was made. The absence of improvement and the occurrence of new symptoms like paresthesias in the sensitive area of the right maxillary nerve made the patient come to our centre looking for a second opinion. CT scan and MR of the paranasal sinuses were performed and they showed an oval and low attenuating mass with thin and well-defined margins which was expanding, occupying and remodeling the right PP (Fig 1, 2, 3, 4). No infiltration into surrounding structures was observed. The right maxillary sinus showed deformity without occupation (Fig 1, 3). The right foramen rotundum was also remodelated and the left pterygoid recess of the sphenoid sinus showed aeration (Fig 4). Some osseous fragments were noted occupying the inlet to the right pterygoid recess in the sphenoid sinus (Fig 4). The mass presented homogeneous high signal in T1-weightened sequences (Fig 1) and heterogeneous mild-low signal in T2-weigthened sequences (Fig 2). The diagnosis of pterygoid mucocele with foramen rotundum remodelation was made and surgical drainage was performed through maxillary access. Abundant mocous and some osseous fragments were obtained. Further pathologic analysis confirmed the diagnosis.

DICUSSION:

Mucoceles are benign, slow-growing, locally expansive masses, filled with mocous and lined by epithelium. Generally they are thought to be caused by obstruction of the sinus, but there are still other hypotheses about etiology including cystic dilatation of glandular structures and cystic development from embryonic epithelial residues [1]. As a matter of fact there have been described two categories -primary and secondary-. In the former, inflammatory blockage of mucous drainage, secretory duct obstruction, cystic dilatation of mucosal glands and cystic degeneration of polyps are believed to be the possible mechanisms. In secondary mucoceles, intranasal trauma, prior sinus surgery, or external trauma is considered to contribute to their formation [2].

They equally occur in males and females, with the highest incidence during the third and fourth decades of life [2].

The majority of paranasal sinus mucoceles occur in the frontal (60%), followed by the ethmoid (30%) sinus. Only 10% are located in the maxilary sinuses and they are rarely localized to the sphenoid [3]. Aeration of the pterygoid processes potentially occurs after the closure of the spheno-occipital suture [4]. When it happens, like all sinuses, may become involved in obstructive inflammatory disease such sinusitis and mucocele formation [5].

On imaging, the differentiation to a simple fluid retention, that is found more often than a mucocele, lies in the expansive character of the mucocele [1]. Many possible combinations of signal intensities on MR images, including signal void on pT2-weighted images [6], may be observed, depending on their stage of development, protein content and imaging parameters. Protein concentration plays a major role in determining signal intensities on T1 weighted images, while the changes in T2 signal intensities can be largely the result of dehydration [6].

The clinical manifestations associated with mucoceles depend on their location and size, being ophtalmologic symptoms the most common [2]. The potential for vision loss must be noted in some cases of sphenoid location [7].

We suggest that the bony fragments originated in the old trauma and the subsequent development of scar tissue produced a blockage of the drainage of secretions that derived in mucocele formation. These events also determined a limitation in the growing of the mucocele towards the sphenoid sinus conditioning its expansion along the PP. The foramen rotundum became also remodelated causing irritatation of the maxillary nerve with subsequent pain and paresthesias in the sensitive area of innervation. The signal features of the lesion in MR images were due to a chronic mucous accumulation. The Waters´ view plain film showed a false-positive opacified sinus because of the mucocele located behind. Although it has been described the extension of mucocele in the sphenoid sinus to the lateral recesses and to the pterygoid process [8], we present a well-documented case of a mucocele confined to the PP, with MR and CT imaging features to our knowledge never reported before.

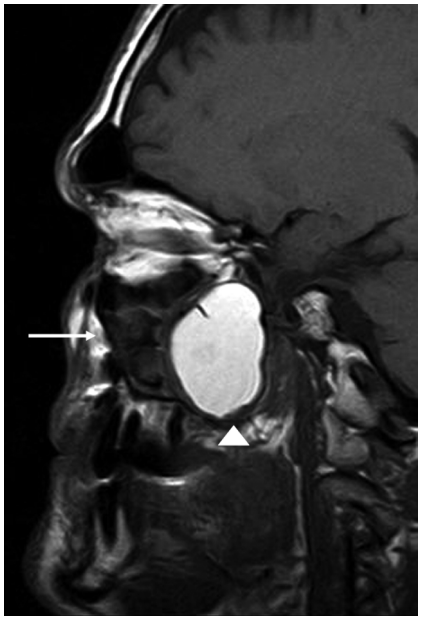

Figure 1: Non-enhanced T1-weightened saggital MR image showing a well-defined and expansive mass (white arrowhead) with homogeneous high signal located posterior to the right maxillary sinus. Note the absence of occupation in the right maxillary sinus (white arrow).

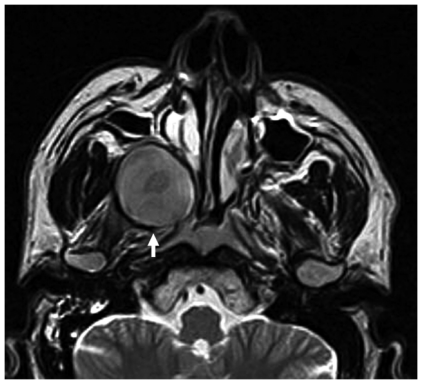

Figure 2: Non-enhanced T2-weightened axial MR image showing a round and expansive (white arrow) mass with heterogeneous low signal located in the right pterygoid area. There is no invasion of adjacent structures.

Figure 3: Non-enhanced axial CT image showing a low attenuation and expansive mass located in the right PP (arrow). Note the mass-effect on the right maxillary sinus wich is well-aerated (curved arrow).

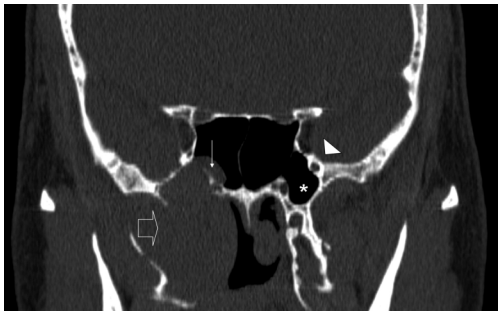

Figure 4: Non-enhanced coronal CT reformatted image showing a mucocele occupying and expansionning exclusively the right PP (empty arrow). Normal left PP with aeration of the left pterygoid recess (*). Note the normal left foramen rotundum (white arrowhead) compared to the remodelated one in the right side. Osseous fragments located in the inlet to the pterygoid reccess of the sphenoid sinus (white arrow).

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