

## Temporalis muscle hypertrophy: Imaging and clinical implications

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### Clinical Image Description

A 56-year-old male with past medical history of end stage renal disease, hypocalcemia, hypertension and coronary artery disease presented at our institution for fall and brief loss of consciousness. Computed tomography of the head was requested revealing bilateral temporalis muscle hypertrophy as an incidental finding (Figure 1).

Temporalis Muscle Hypertrophy (TMH) is an uncommon condition that affects muscles of mastication [1-5]. This disease is most frequently seen in a bilateral distribution and is commonly associated to other types of masticatory muscles hypertrophy, such as pterygoid or masseter hypertrophy [1]. The exact etiology of TMH is unknown but risk factors that had been documented to be related to this condition include bruxism, dental malocclusion, excessive chewing gum and trauma [1-5]. Clinical manifestations of this entity involve painful or painless bilateral temporal swelling, recurrent headaches, temporalis muscles contraction and limitation of mouth opening [2]. Minotaur syndrome is the disproportionate cosmetic concern in a patient with TMH resulting in anxiety and facial morphopsychological conflict [6].

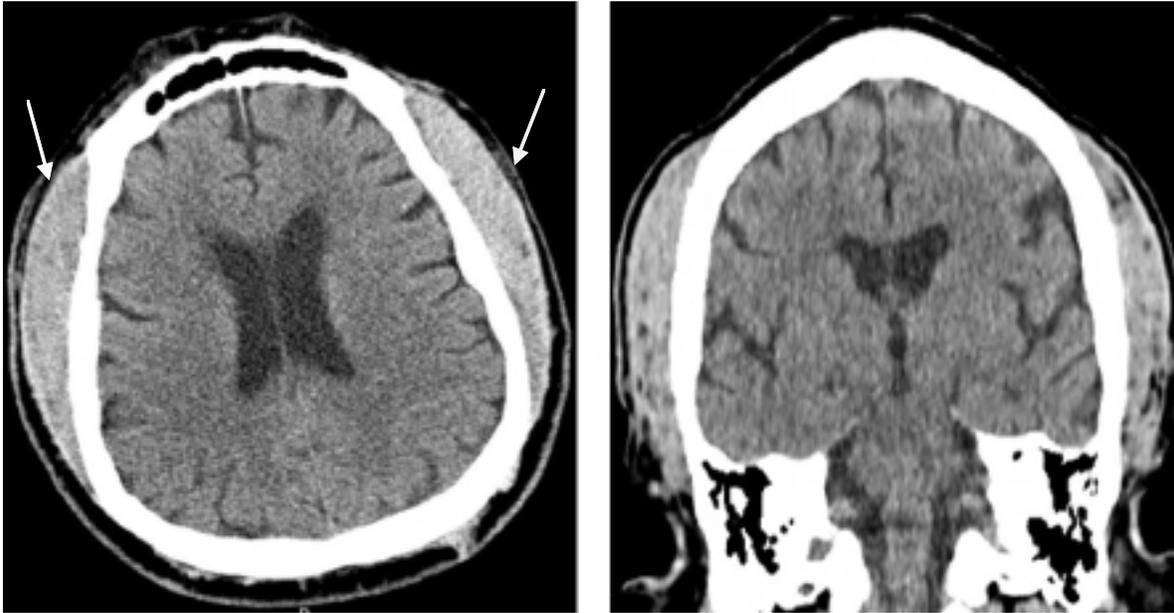
Imaging modalities for the diagnosis of this condition include computed tomography of the head that reveals soft tissue densities pseudo-masses located in the temporalis muscles bilaterally and magnetic resonance of the head that shows enlarge temporalis muscles as intermediate signal intensity on T1-weighted imaging and high signal intensity on T2-weighted imaging [1-4].

Biopsy of the temporalis muscle is the standard test to obtain the definitive diagnosis demonstrating increased number of hypertrophic muscle fibers on Hematoxylin and Eosin staining [1,7].

Differential diagnoses of TMH include neoplastic infiltration by a malignant tumor such as lymphoma, rhabdomyosarcoma or metastasis, vascular malformations localized fluid collection, hemorrhage or abscess

formation [4,7].

Conservative treatment for TMH involve botulinum toxin injections resulting in paralysis and subsequent muscle atrophy. Surgical management by plastic surgery are indicated in patients presenting facial disfigurement concern (Minotaur Syndrome). Surgical procedures include bilateral resection of the deep portion of the temporalis muscle through coronal approach resulting in reduction of the muscle hypertrophy [8]. In our case, TMH was an incidental imaging finding and the patient did not report any cosmetic concern or symptoms associated to this condition.



**Figure 1:** Computed Tomography of the head. **(A)** axial and **(B)** coronal planes reveal bilateral temporalis muscle hypertrophy (arrows).

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