

## Unilateral condylar hyperplasia

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**Section:** Musculoskeletal system

**Area of Interest:** Head and neck Nuclear medicine

**Procedure:** Education

**Procedure:** Computer Applications-Detection, diagnosis

**Imaging Technique:** CT

**Imaging Technique:** SPECT-CT

**Special Focus:** Pathology Hyperplasia / Hypertrophy

Case Type: Clinical Cases

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**Patient:** 23 years, male

### Clinical History:

20-year-old male patient presented with progressively slurred and altered speech despite 5 years of speech therapy. He has had progressively worsening dental occlusion with crossbite, midline shifting and negative overjet which has required multiple corrective orthodontic procedures. Clinical history is negative for CVA, malignancy, arthralgias, weakness or muscle pain.

### Imaging Findings:

CT shows enlargement of the right condylar process with elongation of the condylar neck; normal cortical thickness and trabecular pattern. (Fig. 1 and 2)

Radionuclide bone imaging - 10% or greater absorption of the affected condyle relative to the ipsilateral side (normal subjects can have up to a 5% difference). (Fig. 2)

### Discussion:

Unilateral condylar hyperplasia (UCH) is a disease of nonneoplastic overgrowth of the unilateral mandibular condyle about the contralateral condyle [1]. UCH cause facial asymmetry by deviation of the mandible toward the normal side and altered dental occlusion. [2].

The aetiology of UCH is not well understood. Histopathologic evaluation of condylar cartilage in patients with UCH reveals a prominent proliferative zone with hyperplasia of undifferentiated mesenchymal cells and hyaline chondrocytes.

UCH can be classified in hemimandibular elongation, hemimandibular hyperplasia and a combination of these two (hybrid form) [3]. UCH can present in either an active or a stationary phase based on the growth state.

In cases of continued condylar growth causing progressive deformity, UCH treatment includes condylectomy as the preferred technique for treating active condylar hyperplasia. Disc repositioning and orthognathic surgery especially for a bilateral condylar hyperplasia. And high condylectomy, disc replacement, and orthognathic surgery together. [4] UCH during the stationary phase can be treated with osteotomy. However, a pitfall in this scenario is performing osteotomies in the setting of continued condylar activity, as this may lead to further asymmetry and necessitate subsequent correction. The timeline of condylar growth in cases of UCH is variable, and thus SPECT/CT studies are important in directing surgical management.

UCH is typically diagnosed clinically. On X-ray and CT, UCH can present as a combination of enlargement of the

condylar process with elongation of the condylar neck with normal cortical thickness and trabecular pattern. Radionuclide bone imaging has a unique advantage in evaluating the ongoing activity of condyle. It is an important quantitative tool for evaluating osteoblastic activity and thus in this application allows the evaluation of condylar metabolism. Increased radionuclide uptake in the affected condylar is constituted evidence of continued abnormal growth. Wen et al. demonstrated that on 99Tc-MDP (technetium methylene diphosphonate) SPECT of UCH patients, the relative percentage uptake on the affected condyle was 59% significantly higher than the 41% uptake on the contralateral condyle. [1]

**Differential Diagnosis List:** Unilateral condylar hyperplasia of the right mandibular condyle, Osteochondroma, Temporomandibular joint osteoma, Post-traumatic or post-infectious growth

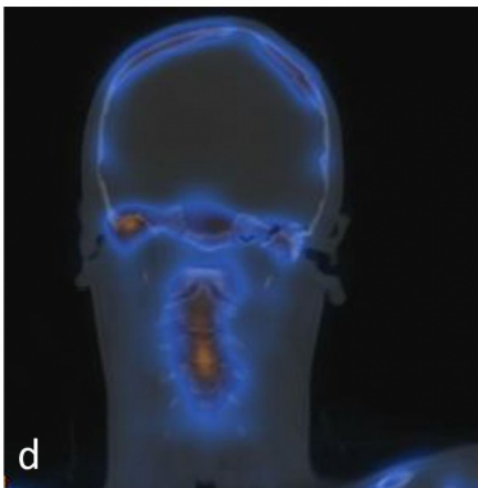
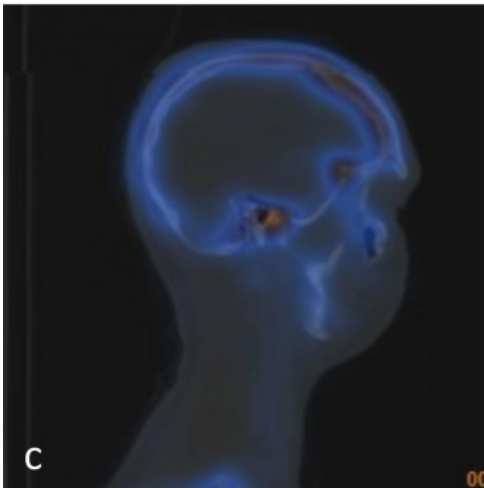
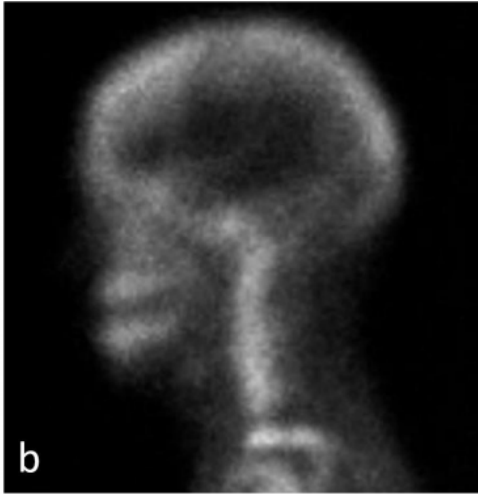
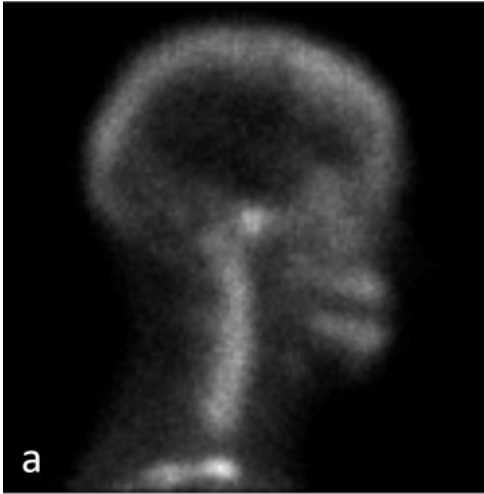
**Final Diagnosis:** Unilateral condylar hyperplasia of the right mandibular condyle

#### **References:**

- Wen B, Shen Y, Wang CY (2014) Clinical value of 99Tcm-MDP SPECT bone scintigraphy in the diagnosis of unilateral condylar hyperplasia. Scientific World Journal (PMID: [24901015](#))
- Vásquez B, Olate S, Cantín M, Sandoval C, Del Sol M, de Moraes M. (2017) Histomorphometric analysis of unilateral condylar hyperplasia in the temporomandibular joint: the value of the condylar layer and cartilage island. Int J Oral Maxillofac Surg 2017 Mar 30 (PMID: [28366448](#))
- Verhoeven TJ, Nolte JW, Maal TJ, Bergé SJ, Becking AG. Unilateral condylar hyperplasia (2013) Unilateral condylar hyperplasia: a 3-dimensional quantification of asymmetry. PLoS One 2013;8(3) (PMID: [23544063](#))
- Fariña R, Olate S, Raposo A, Araya I, Alister JP, Uribe F (2016) High condylectomy versus proportional condylectomy: is secondary orthognathic surgery necessary?. Int J Oral Maxillofac Surg Jan;45(1):72-7 (PMID: [26275962](#))

**Figure 1**

a



**Description:** (a) Right lateral view shows uptake at the right condyle. (b) Left lateral view. (c) Sagittal SPECT/CT through the right condyle. (d) Coronal view shows increased uptake in the right condyle relative to left. **Origin:** Augusta University

**Figure 2**

**a**



**Description:** Right TMJ. **Origin:** Augusta University

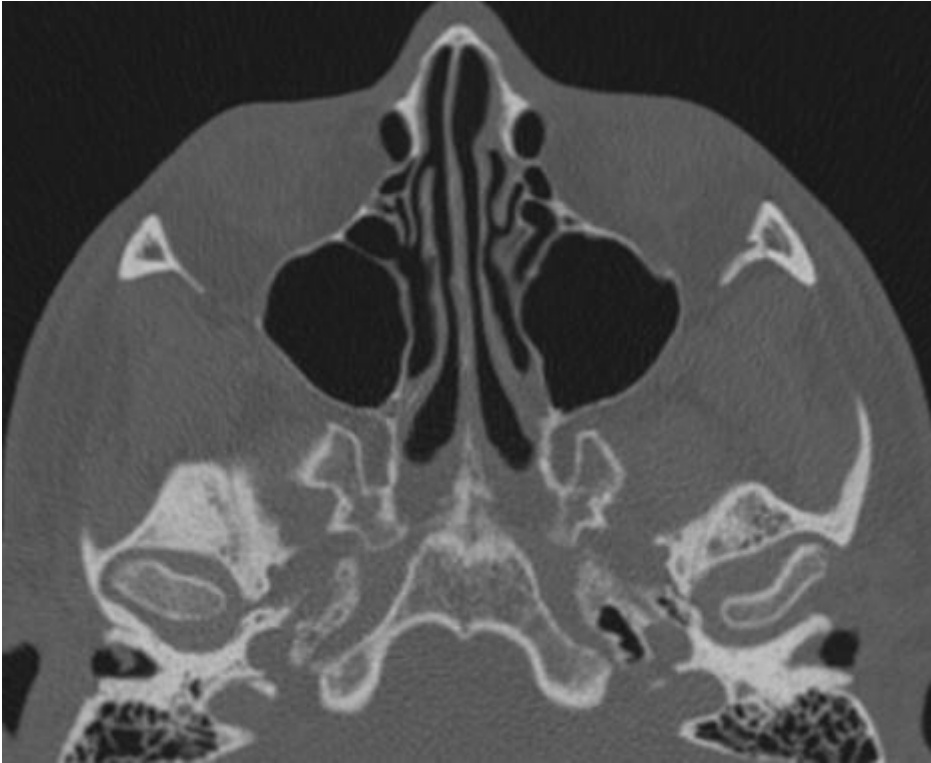
**b**



**Description:** Left TMJ. **Origin:** Augusta University

**Figure 3**

**a**



**Description:** Axial CT.

Note the size of the right TMJ in comparison to the left. **Origin:** Augusta University

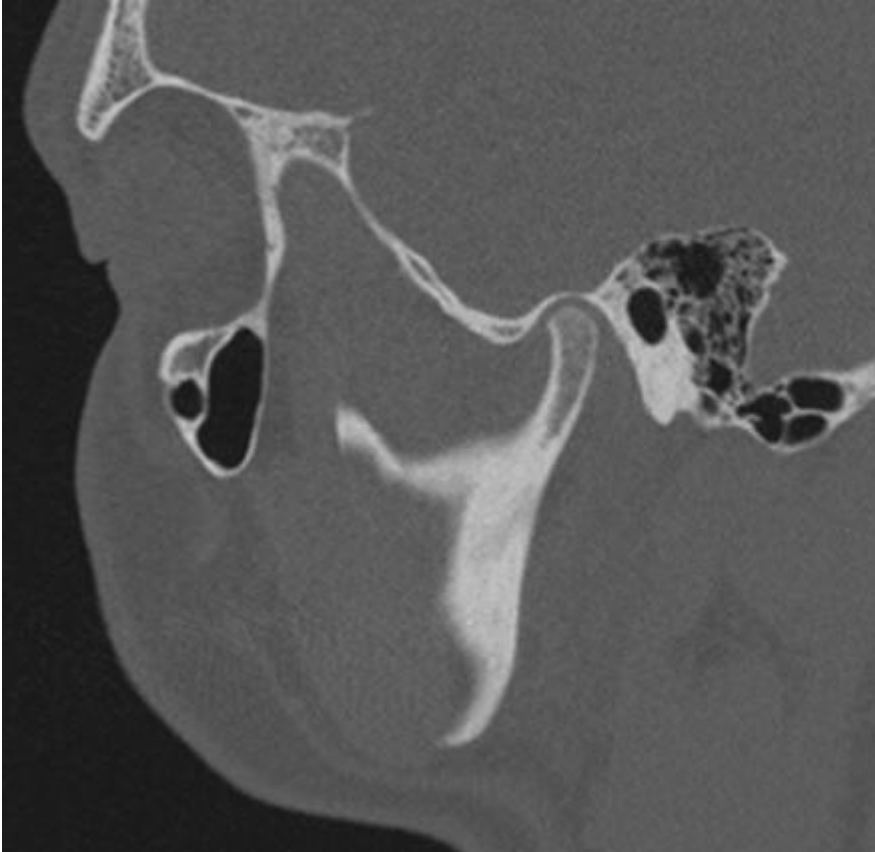
**b**



**Description:** Coronal CT.

Note the size of the right TMJ in comparison to the left. **Origin:** Augusta University

**c**



**Description:** Right sagittal TMJ. **Origin:** Augusta University



d



**Description:** Left sagittal TMJ. **Origin:** Augusta University