

Case 14296

Unilateral Condylar Hyperplasia

Allan Wang, MD.
Angel Donato, MD.
Darko Pucar, MD, PhD

Augusta University Health, Medical College of Georgia, Augusta University; 1120 15th Street,
BA-1411 30912 Augusta, United States of America; Email:dpucar@augusta.edu
Augusta University Health

Section: Musculoskeletal System

Published: 2017, Jun. 8

Patient: 23 year(s), male

Clinical History

20 year old male presenting 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. (Figures 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). (Figure 2)

Discussion

Unilateral condylar hyperplasia (UCH) is a disease of nonneoplastic overgrown 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 etiology 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)

Final Diagnosis

Unilateral condylar hyperplasia of the right mandibular condyle

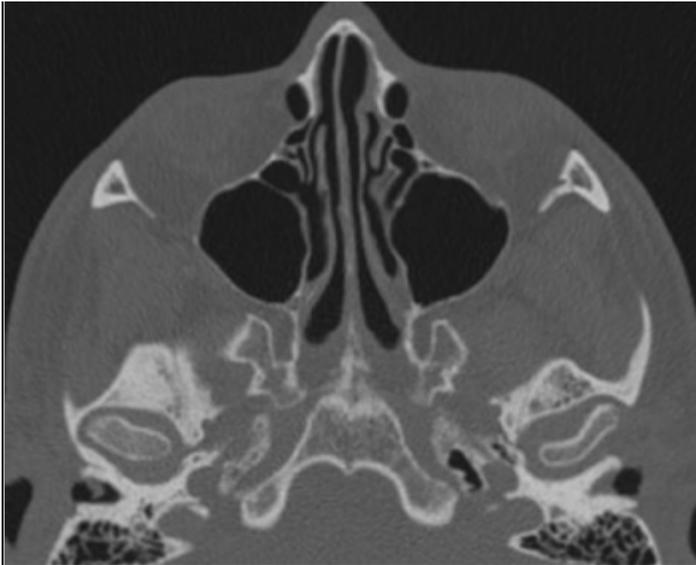
Differential Diagnosis List

osteochondroma, temporomandibular joint osteoma, post-traumatic or post-infectious growth

Figures

Figure 1 CT TMJ





Axial CT Notice the size of the right TMJ in comparison to the left.

© Augusta University

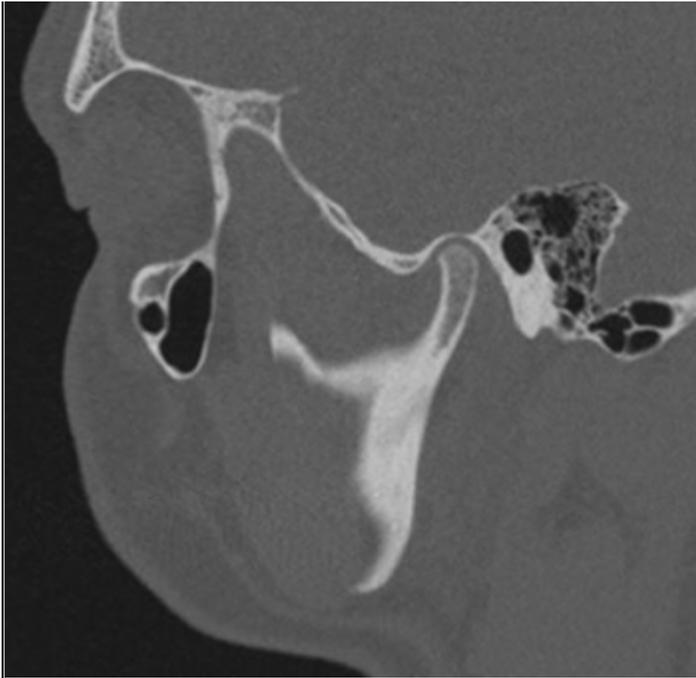
Area of Interest: Head and neck;
Imaging Technique: CT;
Procedure: Education;
Special Focus: Pathology;



Coronal CT Notice the size of the right TMJ in comparison to the left.

© Augusta University

Area of Interest: Head and neck;
Imaging Technique: CT;
Procedure: Education;
Special Focus: Pathology;



Right Sagittal TMJ.

© Augusta University

Area of Interest: Head and neck;
Imaging Technique: CT;
Procedure: Education;
Special Focus: Pathology;



Left Sagittal TMJ.

© Augusta University

Area of Interest: Head and neck;
Imaging Technique: CT;
Procedure: Education;
Special Focus: Pathology;

Figure 2 3-D volume rendered images



Right TMJ.

© Augusta University

Area of Interest: Head and neck;
Imaging Technique: CT;
Procedure: Education;
Special Focus: Pathology;

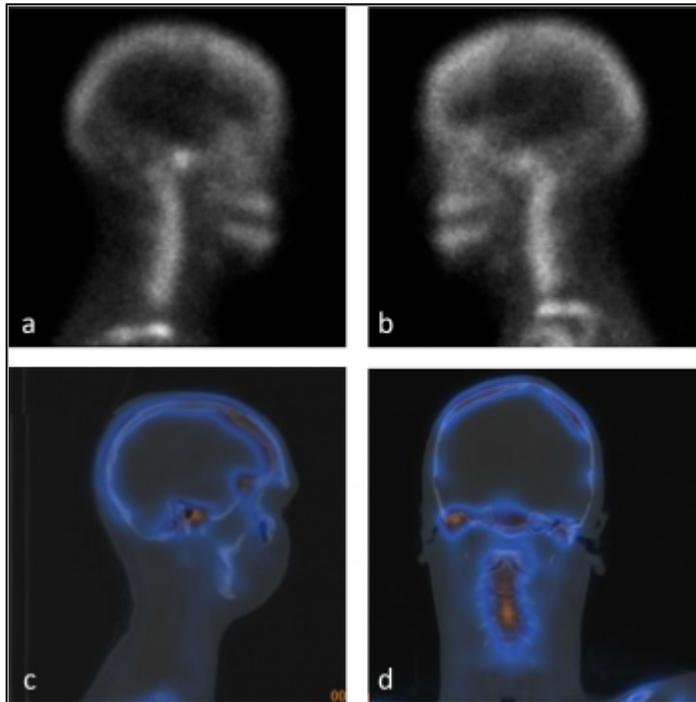


Left TMJ.

© Augusta University

Area of Interest: Head and neck;
Imaging Technique: CT;

Figure 3 Unilateral Condylar Hyperplasia



(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.

© Augusta University

Area of Interest: Nuclear medicine;
Imaging Technique: SPECT-CT;
Procedure: Computer Applications-Detection, diagnosis;
Special Focus: Hyperplasia / Hypertrophy;

References

- [1] Wen B, Shen Y, Wang CY (2014) Clinical value of ^{99}Tcm -MDP SPECT bone scintigraphy in the diagnosis of unilateral condylar hyperplasia. *Scientific World Journal*
- [2] 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
- [3] 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)
- [4] 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*

Citation

Allan Wang, MD.

Angel Donato, MD.

Darko Pucar, MD, PhD

Augusta University Health, Medical College of Georgia, Augusta University; 1120 15th Street,
BA-1411 30912 Augusta, United States of America; Email:dpucar@augusta.edu (2017, Jun. 8)

Unilateral Condylar Hyperplasia {Online}

URL: <http://www.eurorad.org/case.php?id=14296>