

BACKGROUND

- Unilateral condylar hyperplasia (UCH) can lead to facial asymmetry, deformity, or malocclusion., requiring corrective operation.
- Bone scan helps in deciding the optimal timing of surgery as surgery in active growth phase can lead to subsequent post operative deformities.

OBJECTIVES

- Assessment of the condylar growth activity by Tc99m MDP bone scan SPECT-CT, using quantitative tool for indicating continued bone growth

Material and Methods

- Suspected cases of condylar hyperplasia (CH) with facial asymmetry and chin deviation, were evaluated with Tc99m-methylene diphosphonate (MDP), followed by subsequent SPECT-CT imaging of the condylar region.
- Quantitative assessment was done to determine the relative uptake

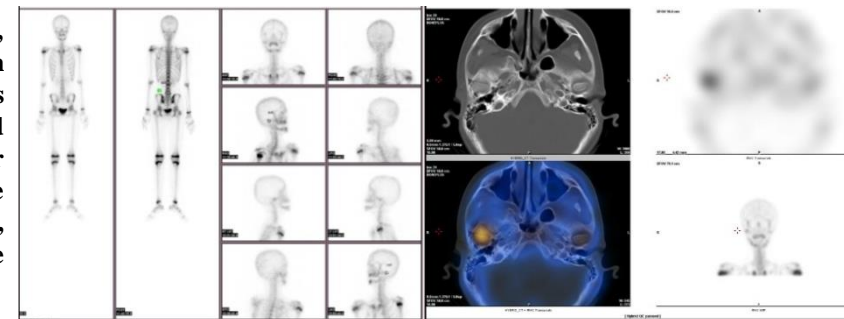
Acquisition and processing

- Right and left anterior oblique views with hyper extended neck
- ROI's were drawn over both mandibular condylar regions, fourth lumbar vertebra and another ROI lateral to L4 vertebra for correction of background activity
- The average counts per pixel in each ROI were determined and a ratio of uptake (RU) of each mandibular condyle to L4 vertebra is calculated as:

$$RU = \frac{\text{Counts in ROI of mandible} - \text{background counts}}{\text{Counts in fourth lumbar vertebra} - \text{background counts}}$$

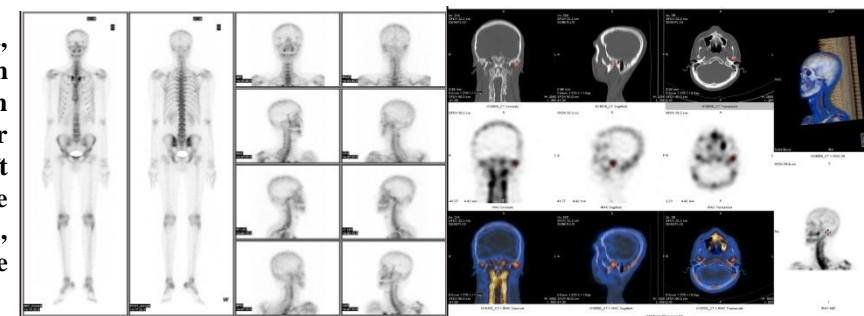
Results

12 year old female, facial asymmetry with chin deviation towards left side, suspected right sided condylar hyperplasia. Uptake difference is >10%, suggesting active condylar hyperplasia



- Uptake difference of 10% or more between the left and right condyles, with increased uptake ipsilateral to the condylar hyperplasia (CH), was considered to be an evidence of actively growing CH.

22 year male patient, Chin deviation towards left side with suspected condylar hyperplasia on left side. Uptake difference is >10%, suggesting active condylar hyperplasia



Conclusions

Bone scanning is an important technique that detects mandibular growth, and its quantification aids in deciding the optimal timing for surgery