Case 15395

Eurorad

Odontogenic myxoma of the mandible

Published on 20.03.2018

DOI: 10.1594/EURORAD/CASE.15395
ISSN: 1563-4086
Section: Head & neck imaging
Area of Interest: Head and neck
Procedure: Diagnostic procedure
Procedure: Computer Applications-3D
Imaging Technique: CT
Imaging Technique: MR
Imaging Technique: MR-Diffusion/Perfusion
Special Focus: Neoplasia Case Type: Clinical Cases
Authors: Dr Hemraj Salodiya1, Dr Shailesh Bhuriya1, Dr Lata Kumari1, Dr Amit Achyut Ban1, Dr H.P. Parekh2, Dr. N.U Bahri3
Patient: 37 years, male

Clinical History:

A 37-year-old male patient presented with the complaint of swelling on the right side of the mandible for 1 year.
Imaging Findings:

CT images show well-defined expansile lesion (Fig. 1-3) involving the mandible on the right side with internal trabeculations giving soap bubble appearance (Fig. 2a, d; 3a, d - white arrows). The lesion involves the body of the mandible on the right side from the first premolar till the 3rd molar tooth, angle and ramus of the mandible on the right side with non-visualisation of the right lower second premolar and all molar teeth due to destruction by tumour spread (Fig. 2e, 4). On T2-weighted axial image (Fig. 5a), a lobulated lesion is noted which appears hyperintense (white arrow), shows internal septations (yellow arrow) and extends to involve surrounding soft tissue (red arrow). On T1-weighted axial image (Fig. 5b), the lesion appears iso to hypo-intense (white arrow) with internal septations (yellow arrow). The lesion shows no restriction (Fig. 5c - red arrow) on diffusion-weighted imaging and high ADC values (Fig. 5d - red arrow). Above imaging and histopathological findings confirm diagnosis of odontogenic myxoma.
Discussion:

Odontogenic myxoma (OM) is a rare entity. Its prevalence ranges from 0.04 to 3.7%. [1] It is a benign but locally aggressive tumour that arises from mesenchymal components of the teeth. [2, 3] OM most commonly involves the mandible, with the ramus being a common site followed by the maxilla. [2] OM is more common in women in the age group of 20 to 30 years. [2, 3, 5] Clinically, OM is slow-growing and painless. Hence, patients usually present with large lesions. Tooth displacement, thinning and expansion of cortical bone are noted in larger lesions. [4, 6] Radiographically, OM has varied appearances, from being unilocular to a multilocular lesion with internal bony trabeculations. The trabeculations give a “honey-combed” appearance. [2, 7] CT typically shows an expansile lesion within the mandible with thinning and erosion of cortical plate along with intra-lesional trabeculations. CT assesses perforation and pattern of septations while radiographs allow better assessment of the definition of the lesion's margin with adjacent normal bone. [8] MRI helps to evaluate tumour contents, pattern of growth and extensions into surrounding tissue. MRI imaging of OM shows a well-defined, lobulated mass lesion appearing hyper-intense on T2-

weighted images and hypo to isointense on T1-weighted images. [9, 10] OM mimics various other jaw lesions such as odontogenic and non-odontogenic cysts, ameloblastomas and keratocystic odontogenic tumours. [2] Odontogenic and non-odontogenic cysts that present as uniloculated expansile lesions in the jaw do not commonly show divergence of the roots of adjacent teeth. [11] Keratocystic odontogenic tumours are uniloculated or multi-cystic lesions with surrounding daughter cysts and no trabeculations. [12] Ameloblastomas, specifically the solid variants, are quite difficult to differentiate from OM on basis of imaging. [12] However, root erosion and tooth disruption are more common in ameloblastomas. [13] OM does not show restriction in diffusion-weighted imaging; however, odontogenic cysts, keratocystic odontogenic tumours and solid areas of ameloblastomas show restricted diffusion. [14] Although imaging helps to narrow down the differential diagnosis, histopathological correlation is required for confirmation of diagnosis and treatment protocol. Histologically, OM is non-capsulated, hence shows infiltration into the adjacent bone and soft tissue. [4] OM exhibit spindle-shaped cells in background of a loose myxoid stroma which correlates with our case. Imaging in OM is essential as the tumour can grow to considerable size with almost no complaints. Also, it helps to define the boundaries of the tumour, thus avoiding inadequate surgical excision. Regular follow up is necessary as recurrence rate is high. [15]

Differential Diagnosis List: Odontogenic myxoma of the mandible, Ameloblastomas, Keratocystic odontogenic tumours, Odontogenic cysts

Final Diagnosis: Odontogenic myxoma of the mandible

References:

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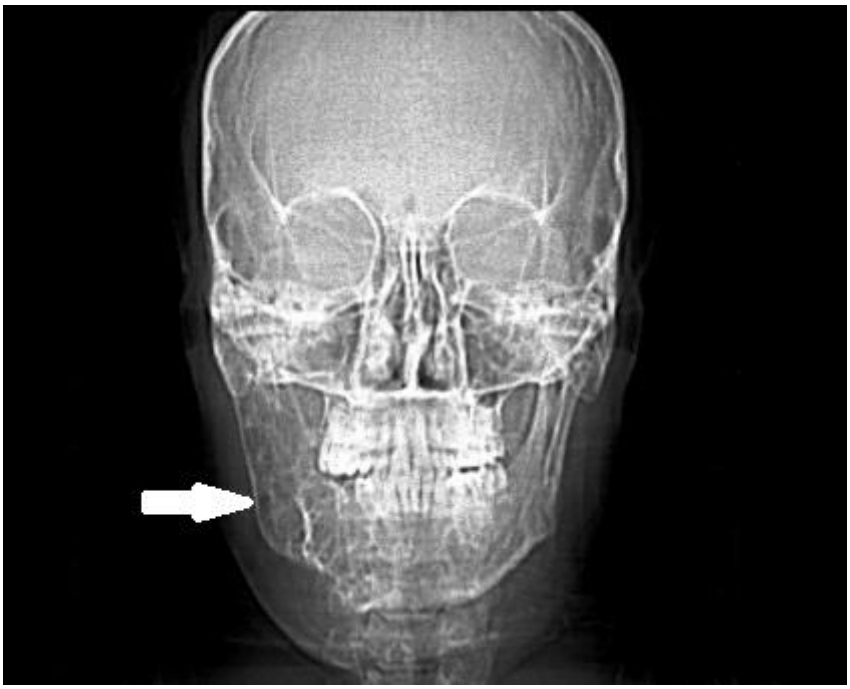
Figure 1

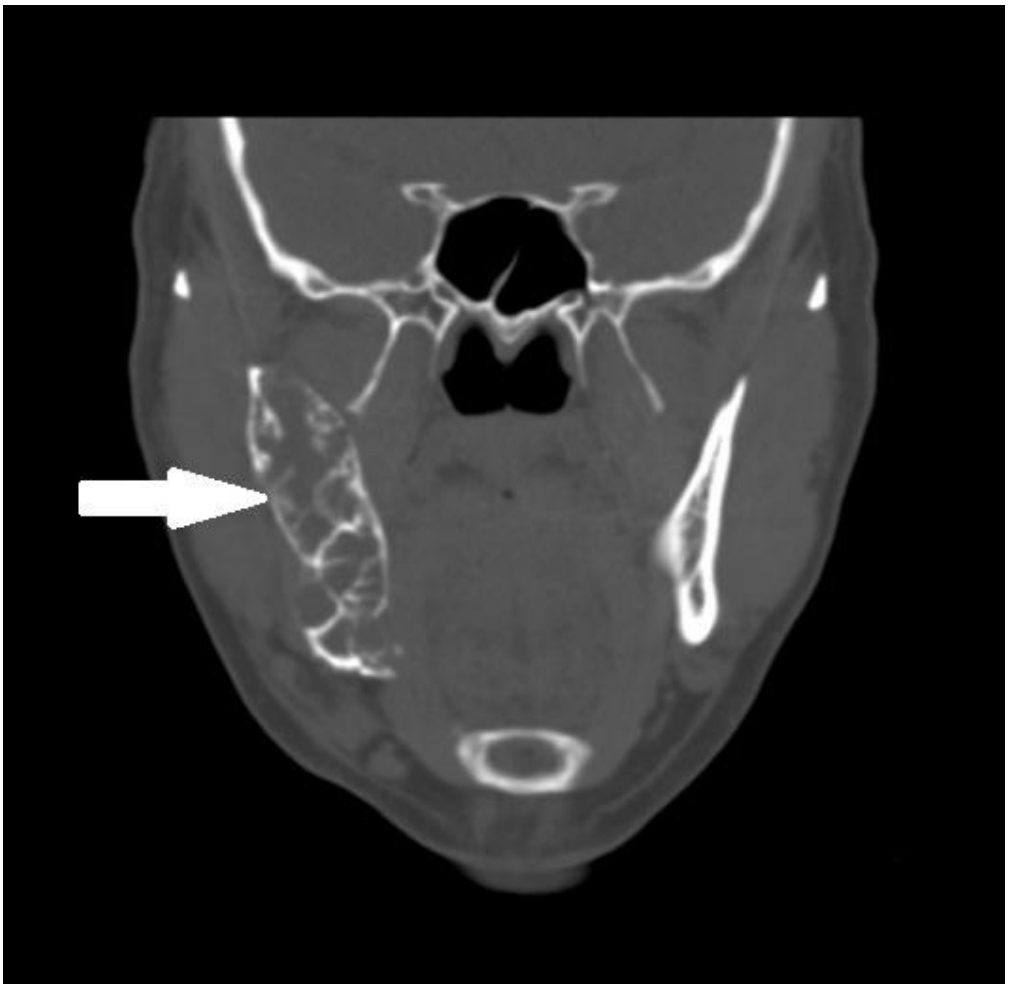
a



Description: CT scout image shows a multilocular expansile lesion with internal bony trabeculations involving right side of mandible associated with teeth resorption. **Origin:** Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

Figure 2

a



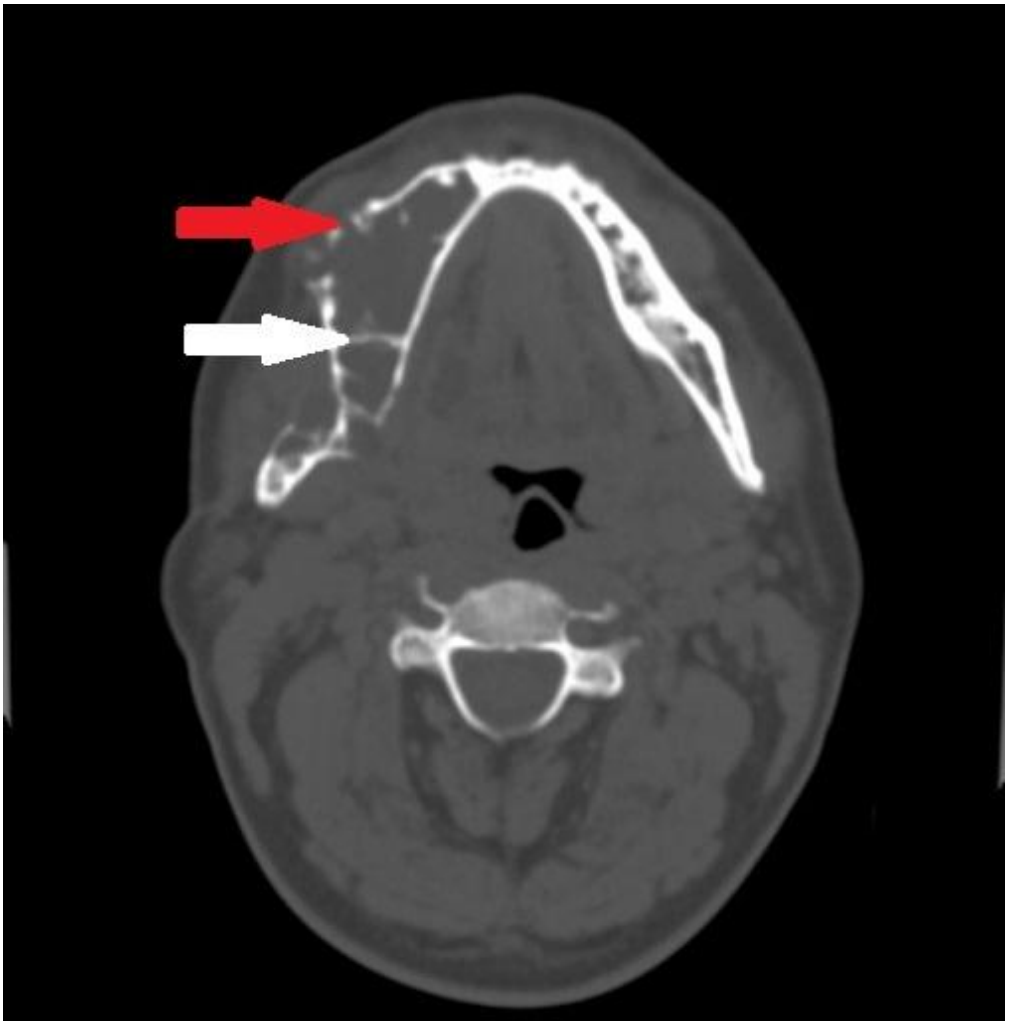
Description: Bone window coronal image showing a multilocular expansile lesion involving right side of mandible with internal bony trabeculations expressing a honey-combed or soap-bubble appearance.

Origin: Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

b

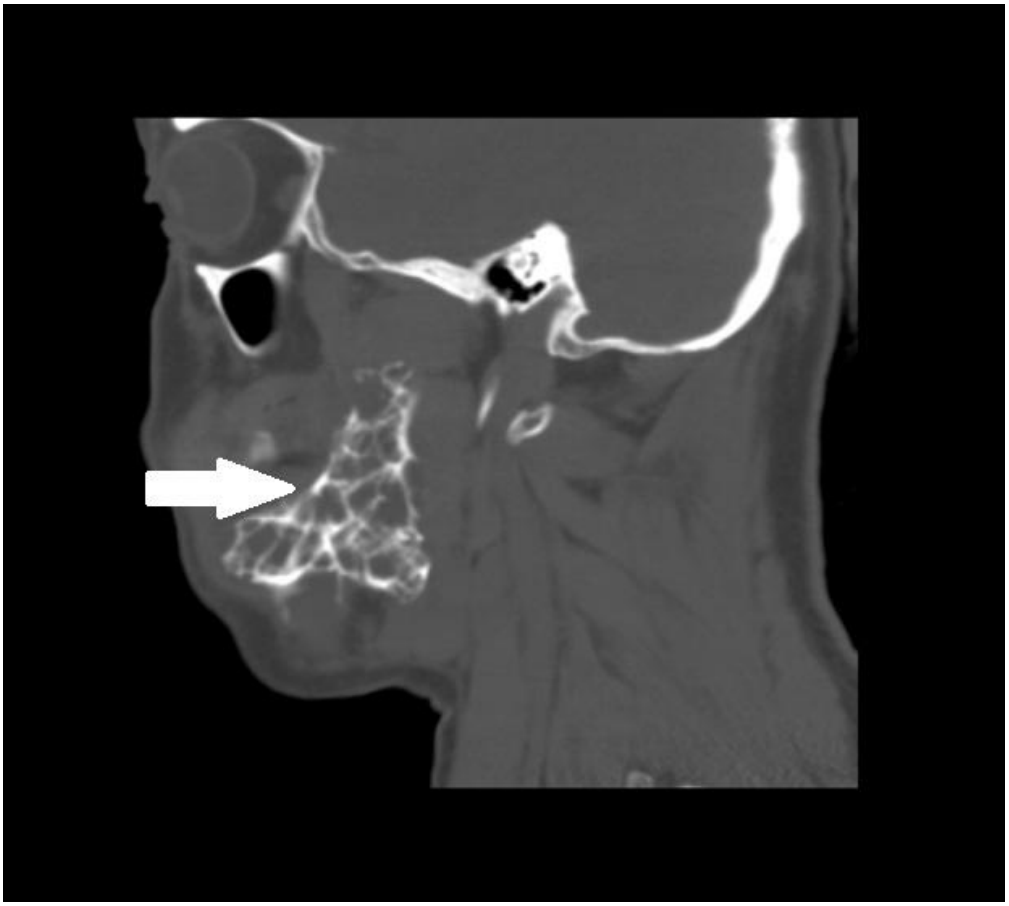
Description: Bone window coronal image showing an expansile lesion involving right side of mandible.
Origin: Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

c



Description: Bone window axial image showing a multilocular expansile lesion (red arrow) involving right side of mandible with internal bony trabeculations (white arrow) expressing a honey-combed or soap-bubble appearance. **Origin:** Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

d



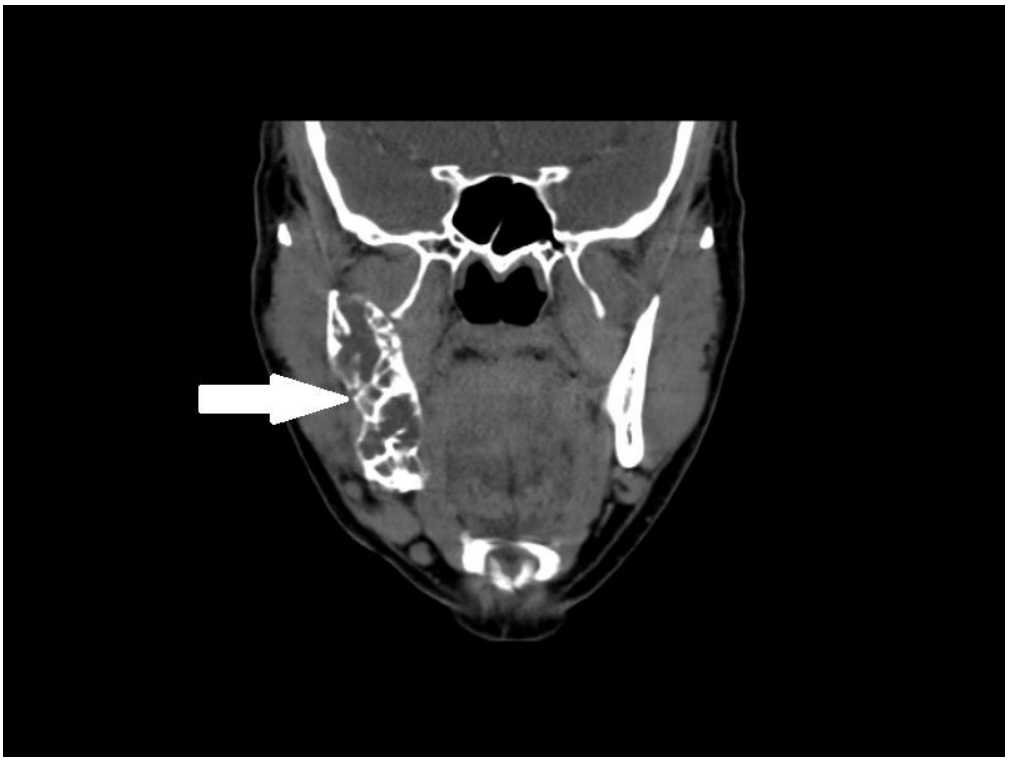
Description: Bone window sagittal image showing a multilocular expansile lesion involving right side of mandible with internal bony trabeculations expressing a honey-combed or soap-bubble appearance.
Origin: Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

e

Description: The anterior boundary of the lesion is the root of first premolar of mandible on left side (red arrow). **Origin:** Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

Figure 3

a

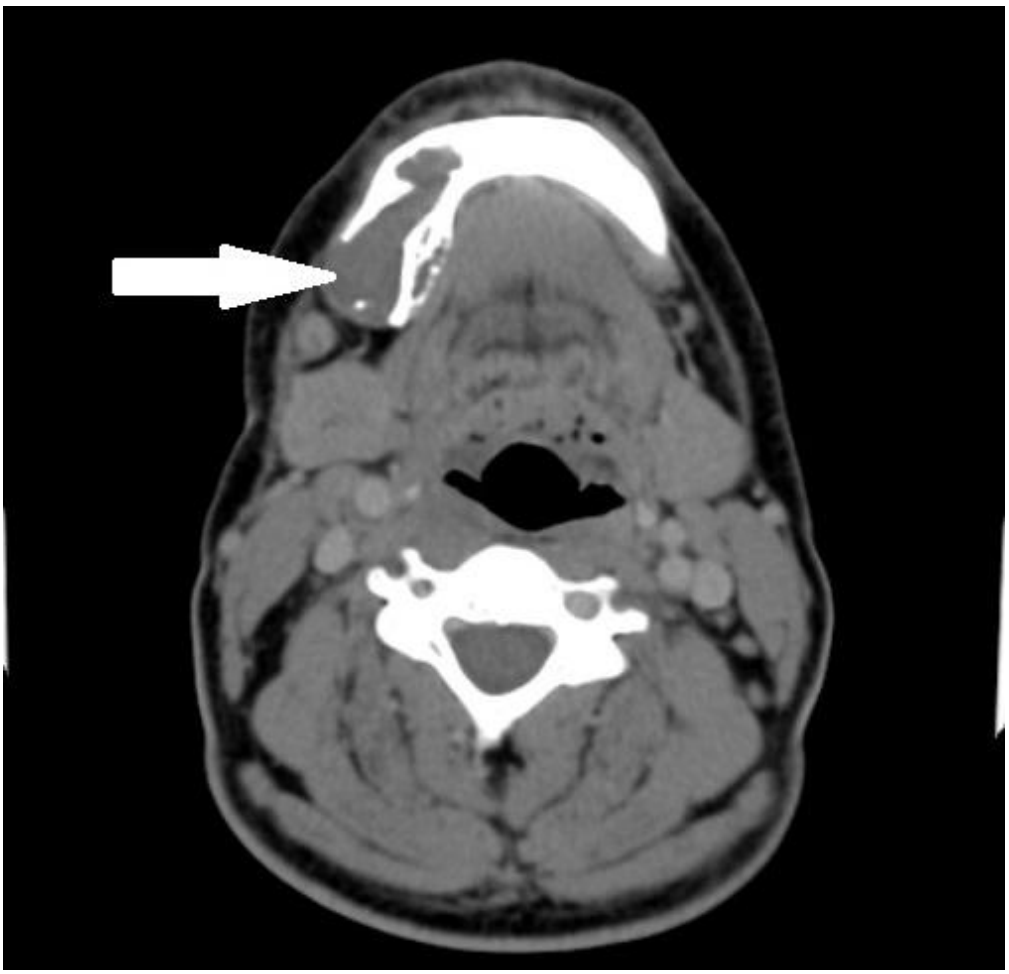


Description: Soft tissue window coronal image showing a hypodense expansile lesion involving right side of mandible with cortical erosion. **Origin:** Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

b

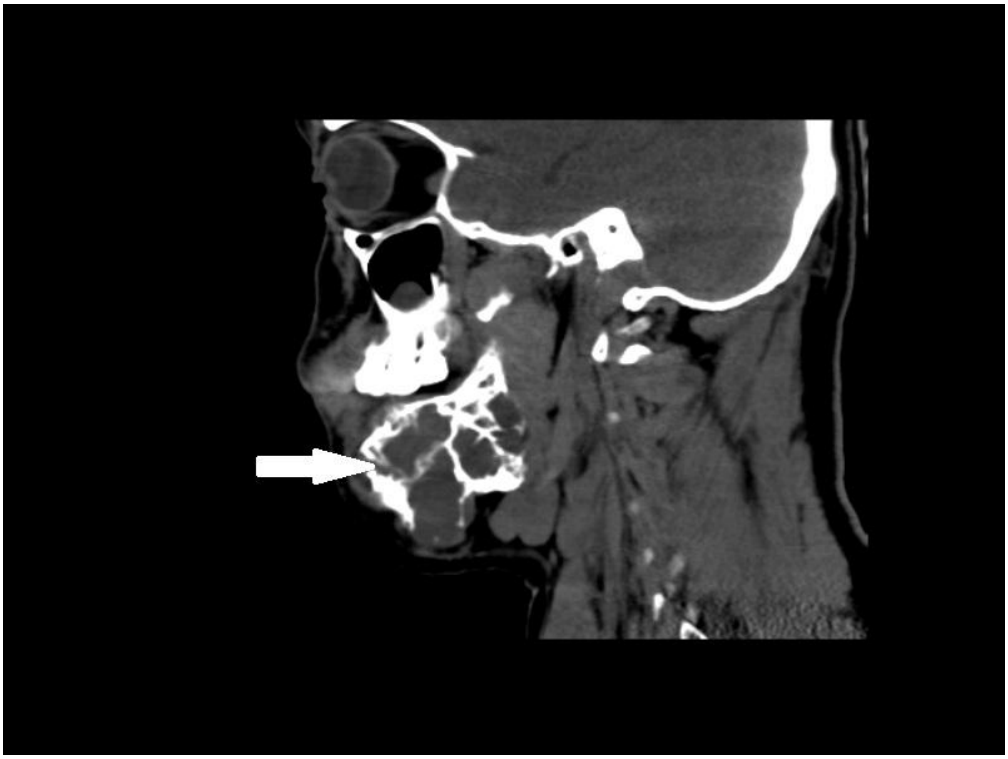
Description: Soft tissue window axial image showing a hypodense expansile lesion involving right side of mandible. **Origin:** Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

c



Description: Soft tissue window axial image showing a hypodense expansile lesion involving right side of mandible. **Origin:** Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

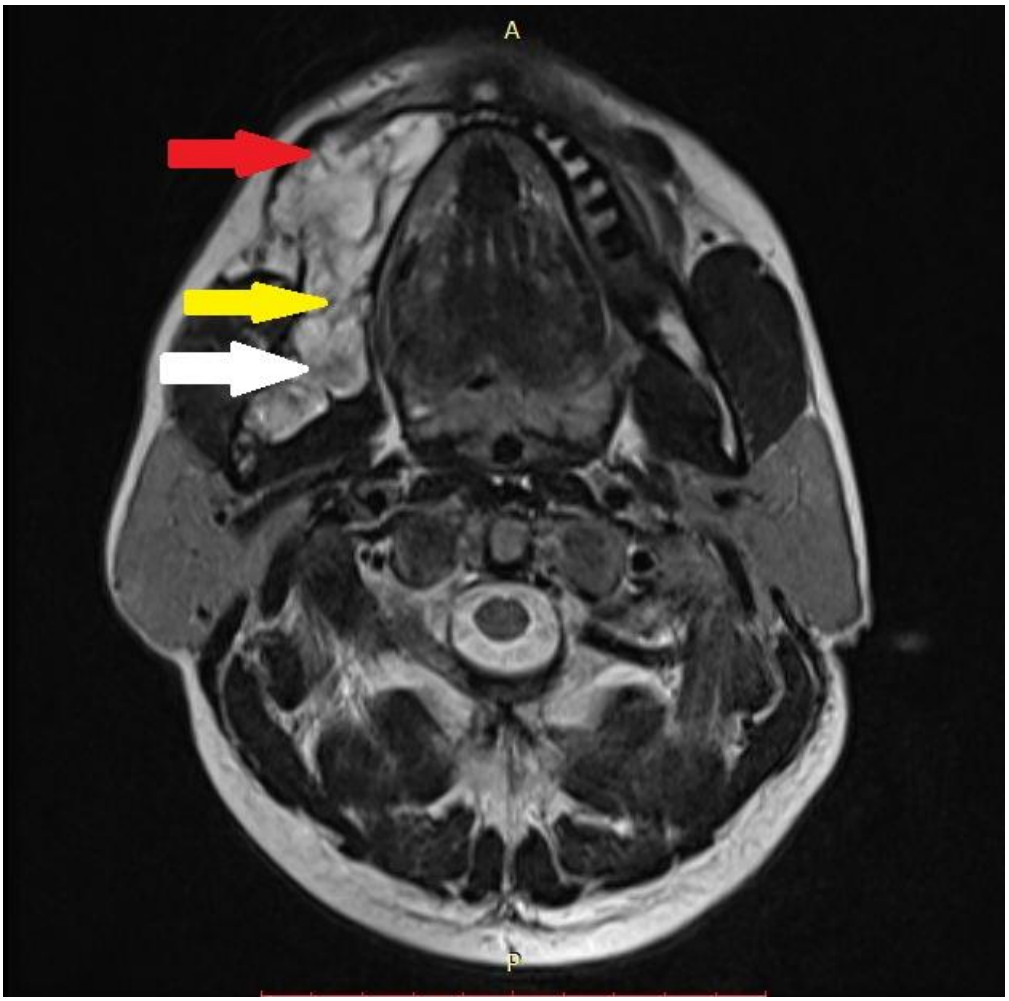
d



Description: Soft tissue window sagittal image showing a hypodense expansile lesion involving right side of mandible showing internal trabeculations giving honey-combed appearance. **Origin:** Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

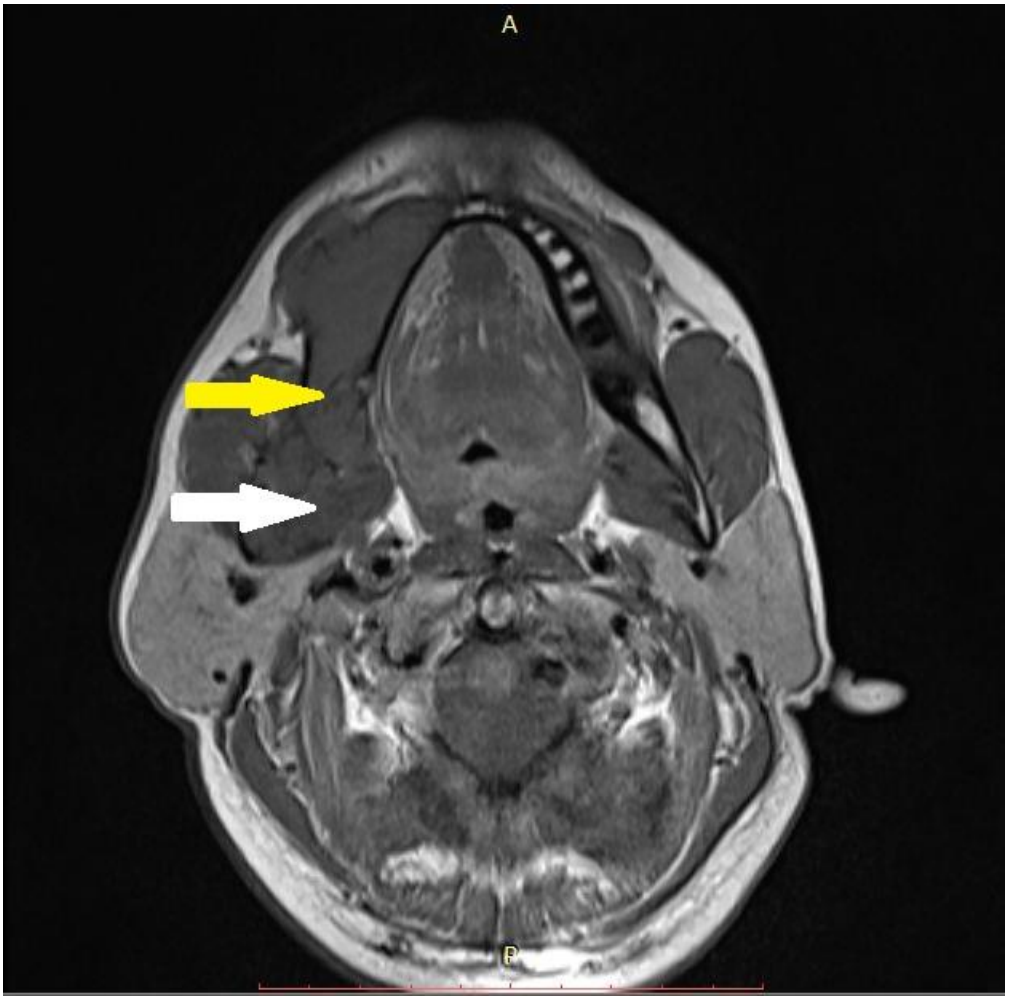
Figure 4

a



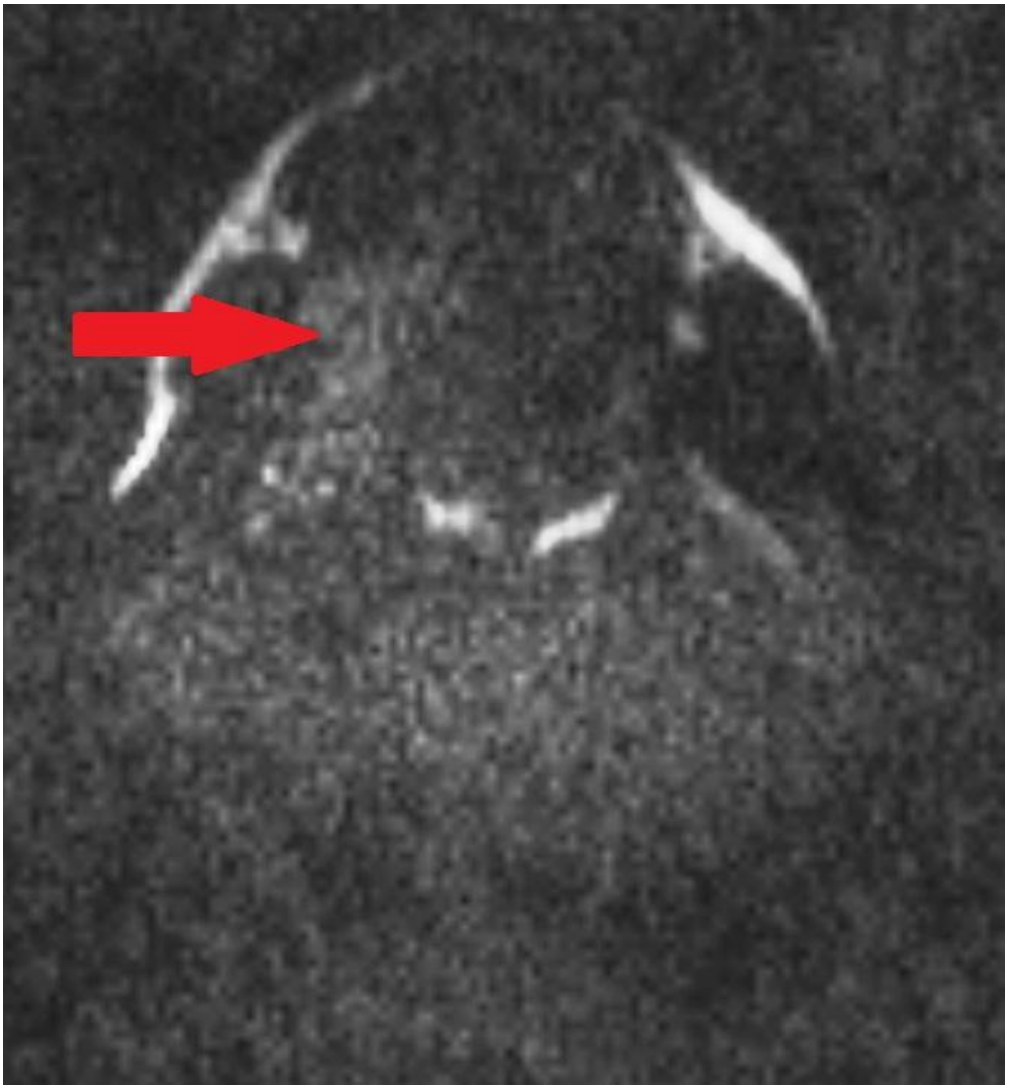
Description: T2-weighted axial image showing a hyperintense lobulated lesion (white arrow) involving right side of mandible with internal septations (yellow arrow). There is spread of lesion into the surrounding soft tissue (red arrow). **Origin:** Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

b



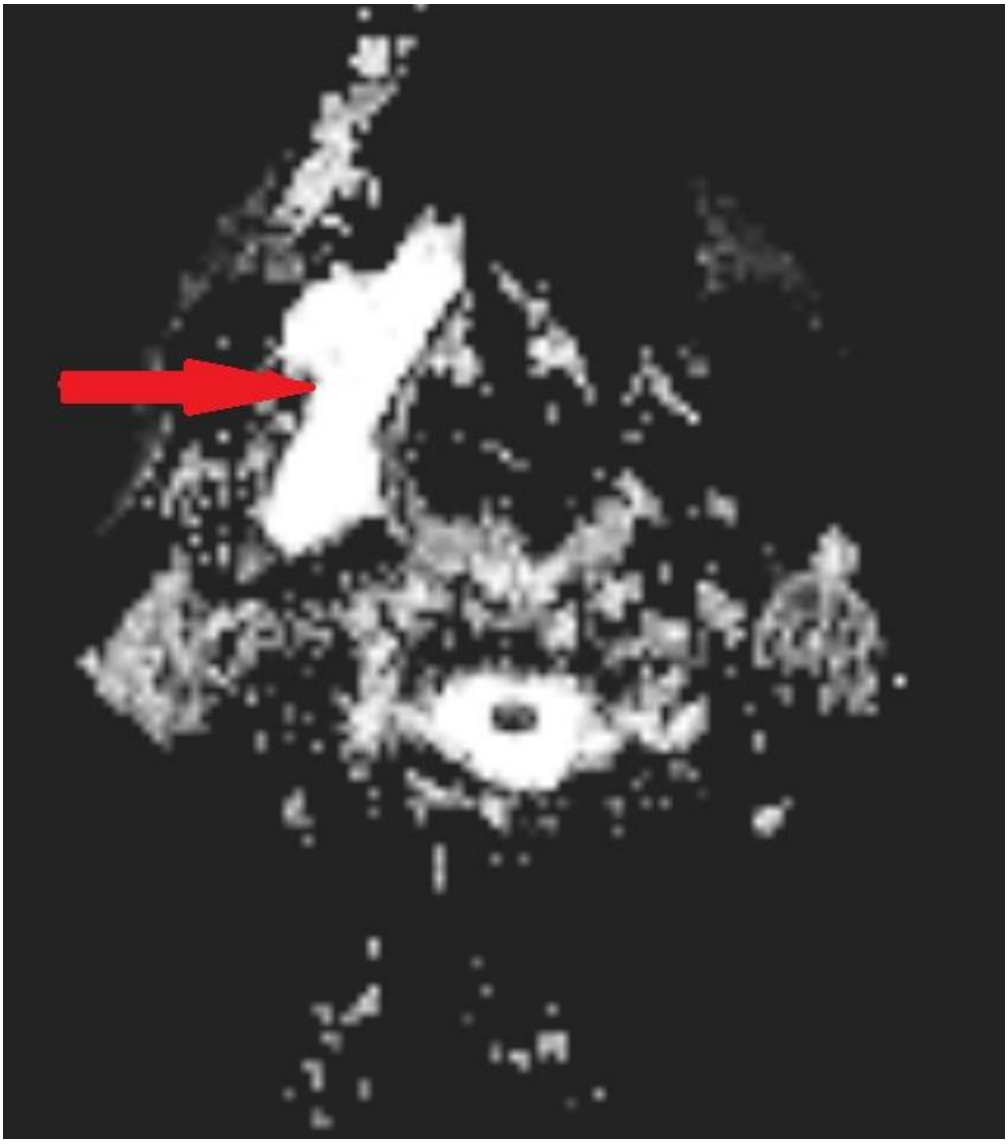
Description: T1-weighted axial image showing an iso to hypointense lobulated lesion involving right side of mandible with internal septations. **Origin:** Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

c



Description: The lesion involving right side of mandible shows no restriction (red arrow) in diffusion-weighed imaging. **Origin:** Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

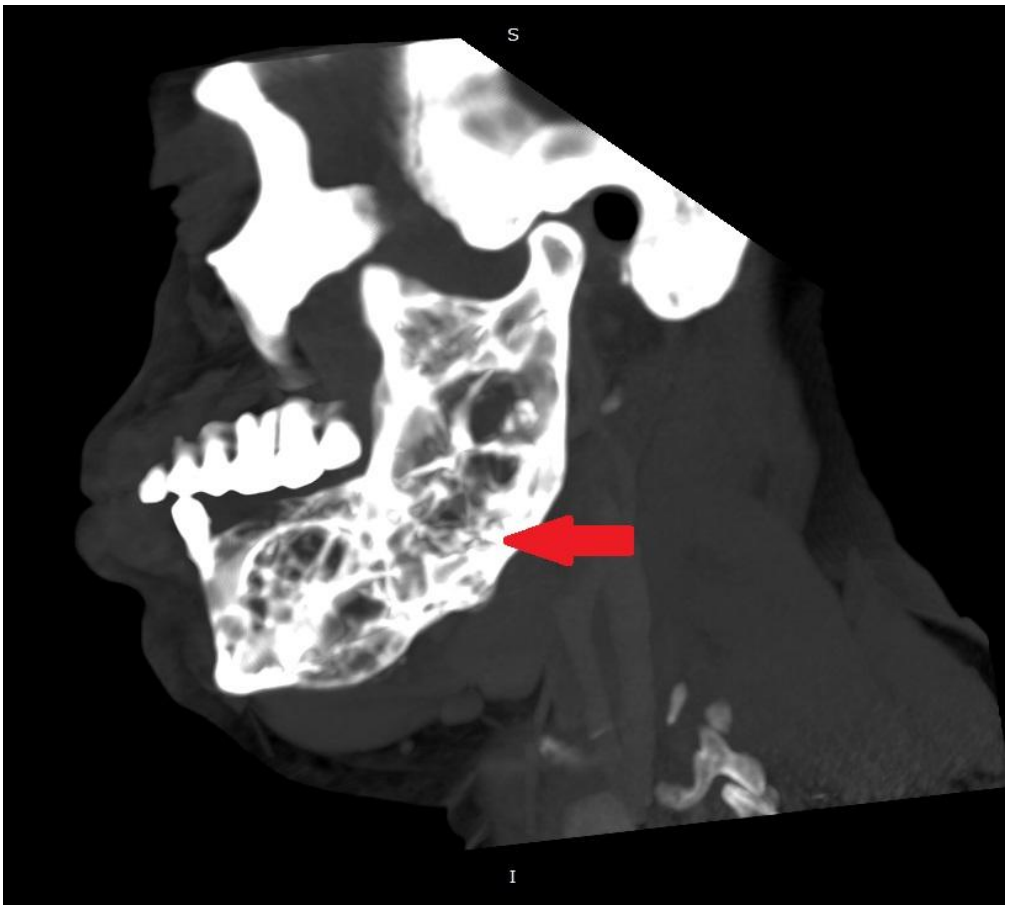
d



Description: The lesion shows high ADC values (red arrow) suggestive of free diffusion through the tumour mass. **Origin:** Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

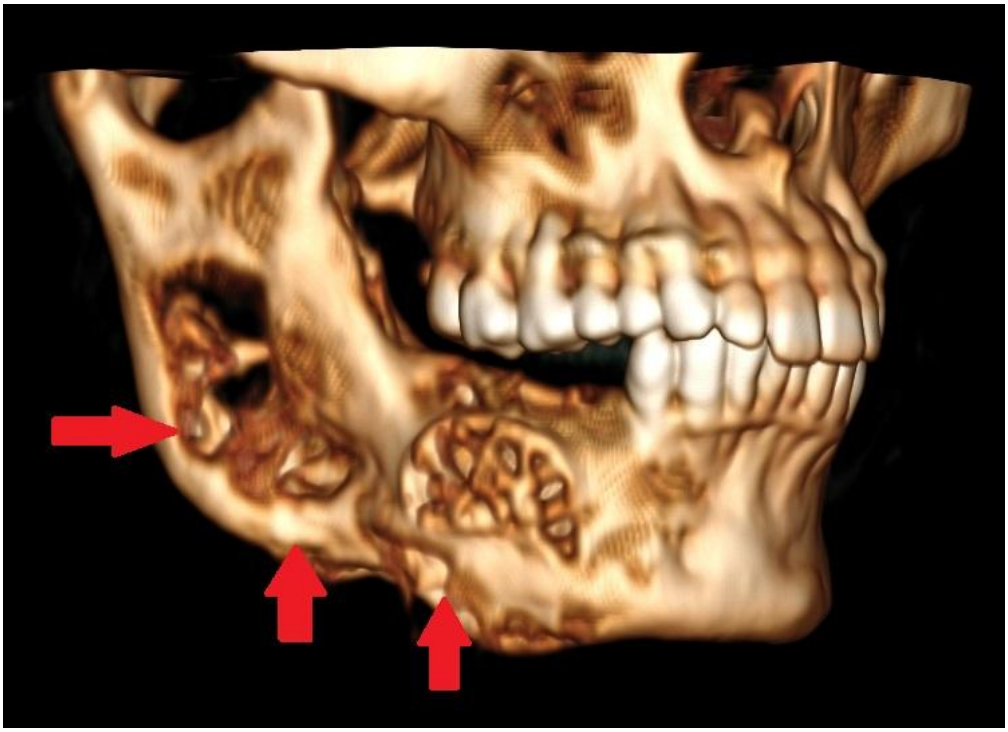
Figure 5

a



Description: Reconstructed CT oblique MIP image showing the multilocular expansile lesion involving body, angle and ramus of right half of mandible. Second premolar and all molars of right mandible are not visualised. **Origin:** Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India

b



Description: Reconstructed CT 3D VR image showing the multilocular expansile lesion involving body, angle and ramus of right half of mandible. Second premolar and all molars of right mandible are not visualised. **Origin:** Department of Radio-diagnosis, Shri M.P Shah Medical College, Guru Gobind Singh Hospital, P.N.Marg, Jamnagar, Gujarat, India