

## CBCT scan:

Dental CBCT scan (Medium FOV) was performed. Image processing in 3D was performed with On-Demand 3D™ s/w. 3D cross-sectional & Panoramic images are provided with On-demand view s/w on CD. Cross sectional numbers for prospective sites are w.r.t given panoramic section. Cross sectional interval = 1.5 mm.

Tooth No (Region)	Cross-section no.	Bone Division**	Ridge Angulation w.r.t vertical
17	19- 23	C-h/ D	--
16	25- 29	C-h/ D	0- 32 deg
13	39- 41	C-h	30- 35 deg
11	48- 50	C-h	27- 37 deg
22	57- 59	B-w/ C-w	36- 44 deg
23	61- 63	C-h/ C	24- 27 deg
24	65- 67	C-h	13- 20 deg
27	81- 85	C-h	12- 17 deg
Tooth No (Region)	Cross-section no.	Bone Division**	Ridge Angulation w.r.t vertical
47	37- 41	C-h/ C	10- 17 deg
46	43- 48	C-h	0- 7 deg
44 & 45	50- 54	C-h	0- 9 deg
43	56- 58	C-h	16- 17 deg
41 & 42	60- 63	C-h	15- 18 deg
31 & 32	65- 68	C-h	15- 23 deg
36	80- 84	C-h/ C	0- 9 deg
37	86- 90	C-h/ C	08- 22 deg

\*\*Adapted from Misch Carl E. Available bone & dental implant plan. In: Contemporary Implant dentistry. Mosby Inc. 2008 Missouri. P 178 - 199.

***The available bone height, width in the edentulous region is provided on the films. The bone height in maxilla is provided from ridge crest (or sub-crestal area) till the nearest anatomic landmark (nasal / antral floor).***

***The bone height in mandible is provided from ridge crest (or sub-crestal area) till the inferior alveolar / incisive or mental canal (shown on the films with arrows).***

\*\*\* Jacobs R. Neurovascularisation of the anterior jaw bones revisited using high-resolution magnetic resonance imaging. OOOOE 2007; 103: 683-93.

## Subjective Bone assessment:

- **17 region** consists of sub-optimal bone density (D4).
- **16 region** consists of sparse (D5) to sub-optimal (D4) bone density.
- **13 region** consists of optimal bone density (D3).
- **11, 22, 23, 32- 43 region** consists of coarse bone trabeculation (D3).
- **24 region:** Largely of coarse bone trabeculation (D3) to mild sclerosis (D2).
- **27 region:** consists of sparse bone trabeculation (D5).
- **46 & 47 region:** consists largely of optimal bone density (D3); interspersed areas of sub-optimal bone (D4) is also noted. Patchy areas of coarse bone are also noted in the 46 region.
- **37, 44 & 45 region:** consists largely of optimal to coarse bone trabeculation (D3).
- **36 region:** consists of coarse bone (D3) mesially and sub- optimal bone density (D4) in the rest of the alveolus.

Provisional virtual implants simulation was performed as per the available bone height and width, along the long axis of the alveolar ridge. A minimal inter-implant distance of 3

mm, clearance of  $\geq 1.5$  mm from the adjacent natural teeth, clearance of approx. 1.0 mm from the buccal & lingual cortices was maintained with 2mm surgical clearance from the inferior alveolar nerve canal.

Clinical correlation, prosthetic consideration is necessary prior to extrapolation of the given simulation.

Implant Site	Diameter Occlusal (mm)	Length (mm)
13	3.4	11.0
11	3.0	11.0
24	3.8	9.5
46	3.8	8.0
43	3.4	9.5
41	3.0	11.0
31	3.0	11.0

## Virtual implant simulation based only on the available bone quality & quantity; correlation with clinical data is necessary to formulate definitive treatment plan.

### Dental Findings:

- Generalised moderate periodontal bone involvement is noted.
- Grade-II furcation involvement is noted with the 26.
- Focal buccal cortical plate dehiscence is noted with the root apex of 14.
- Focal round dentin-like densities with an outer enamel cap is noted w.r.t. the inter-radicular region of #13- #14; this could represent developing supernumerary tooth-buds.
- **12:** Mesial cervical caries upto the pulp chamber is noted.
- Mild apical periodontitis is noted with the 24 & RC treated tooth 21.
- Labial cervical wear is noted with the 33- 35.

### Incidental notes –

- S-shaped deviation of the nasal septum is noted with an osseous spur indenting the left inferior turbinate is noted.
- Paradoxical curvature of the middle turbinates is noted bilaterally.
- Mild to moderate mucosal thickening of the maxillary sinuses is noted bilaterally; smoothly marginated ossification is noted peripherally in the left maxillary sinus near the medial wall embedded in the mucosa thickening. This could be due to chronic non-fungal maxillary sinusitis.
- There is flattening, erosion of the articular surfaces of the condylar heads bilaterally; roughening of the posterior slope of the articular eminence is also noted. These findings could be due to mild to moderate degenerative arthropathy.

Divisions of Bone for Implant Dentistry**		
Division	Width	Height
A	$\geq 6$ mm	$\geq 12$ mm
B	4 - 6 mm (B+), 2.5 - 4 mm (B-w)	$\geq 12$ mm
C	0 - 2.5 mm (c-w)	< 12 mm (c-h)
D	Severe Atrophy, Basal bone loss = Flat maxilla / Pencil thin mandible	