EASY 3D® PROTOCOL

Version 3.0

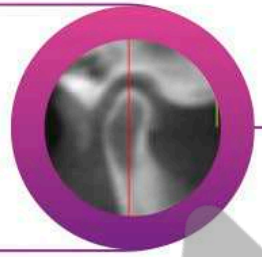
[PATIENT'S NAME]
PATIENT'S AGE

DR.'S NAME REQUEST
Date of solicitation:

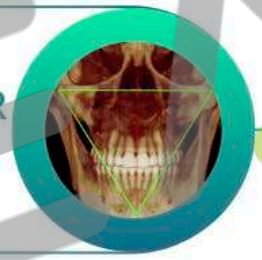
EASY 3D PROTOCOL v 3.0

CLINICAL AND MORPHOLOGICAL ANALYSIS

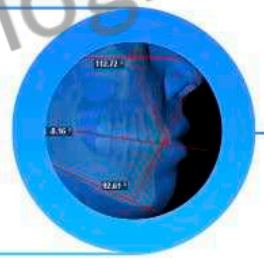
MANDIBULAR CRANIOMETRY/ATM



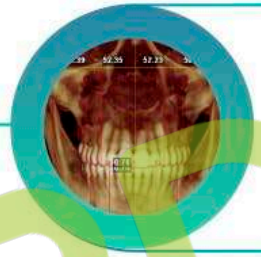
MAXILLO-MANDIBULAR RELATIONSHIP



SAGITTAL EVALUATION

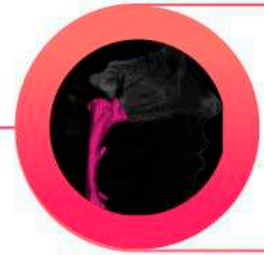


OCCLUSAL PLANE EVALUATION



TRANSVERSAL AND SYMMETRY

AIRWAY EVALUATION



RADIOGRAPHIC ANALYSIS

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CLINICAL AND MORPHOLOGICAL ANALYSIS

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EXTRAORAL PHOTOS

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INTRAORAL PHOTOS

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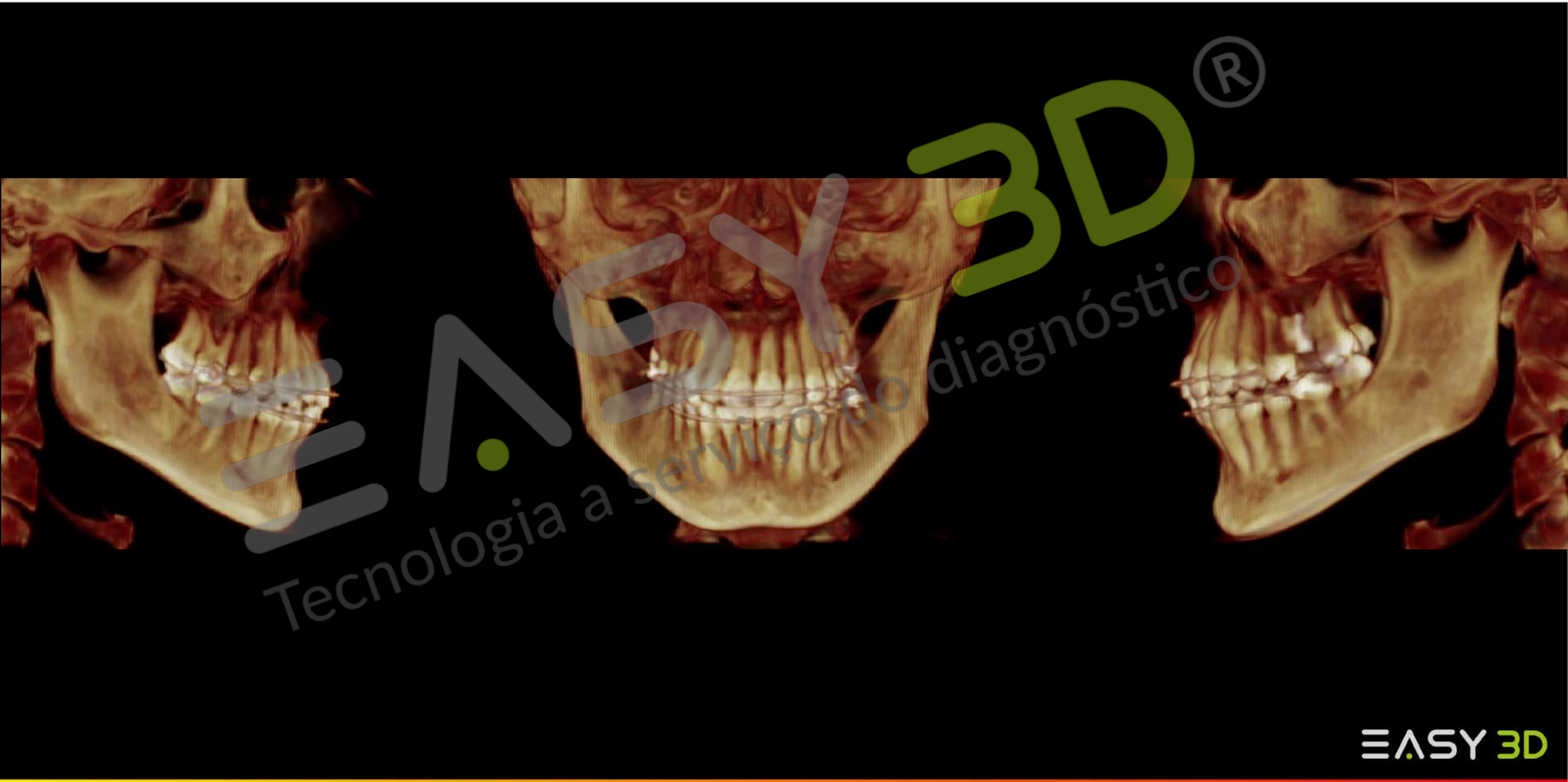
EXTERNAL OCCLUSAL ANALYSIS



INTERNAL OCCLUSAL ANALYSIS

SAGITTAL CUTS OF INCISORS AND MOLARS - MIC

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FRONTAL AND PROFILE MORPHOLOGICAL ANALYSIS

ORIENTATION IN PNC

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FRONTAL AND PROFILE MORPHOLOGICAL ANALYSIS

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MANDIBULAR CRANIOMETRY/TMJ

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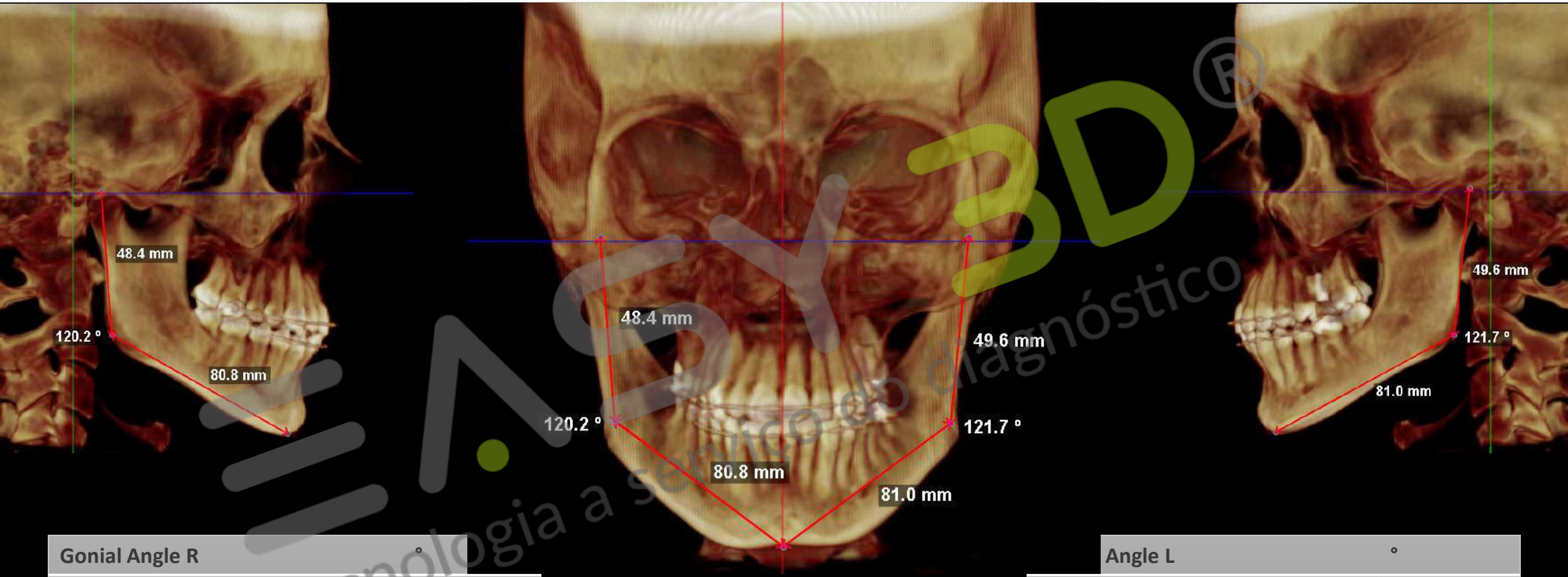
BODY AND MANDIBULAR RAMUS ANALYSIS



Gonial Angle R	°
Co-Go R	mm
Go-Me R	mm
Total: Co-Go + Go-Me R	mm

Linear difference R x L	mm

Angle L	°
Co-Go L	mm
Go-Me L	mm
Total: Co-Go + Go-Me L	mm

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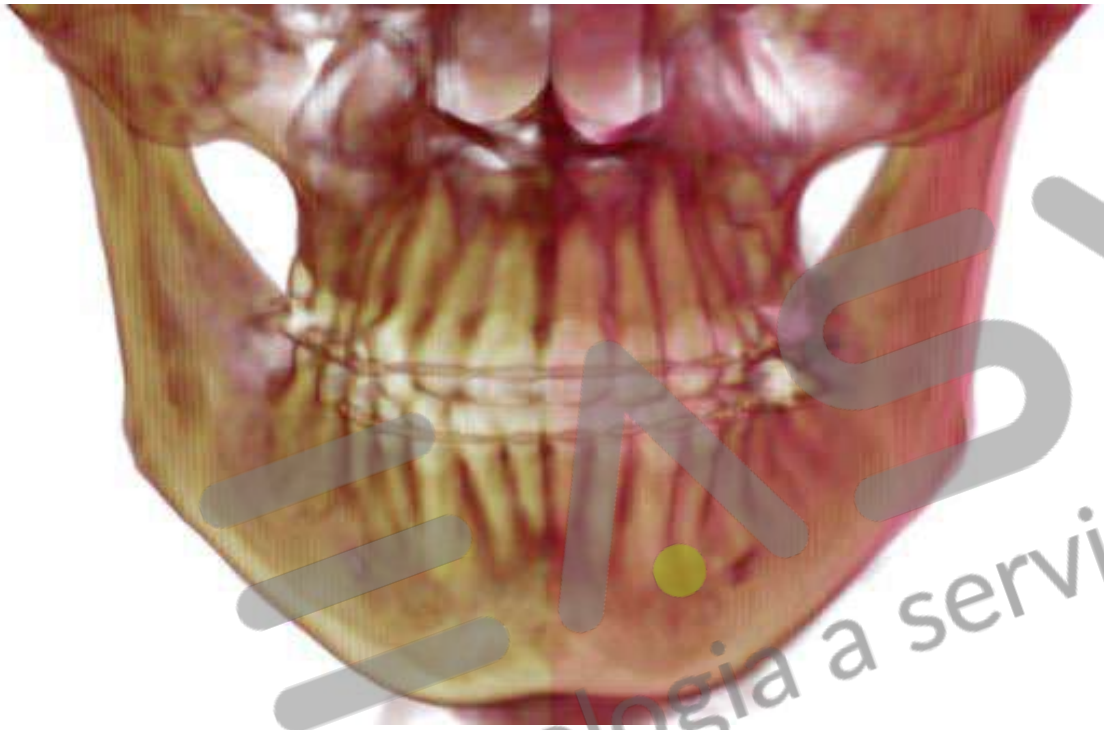
MORPHOLOGICAL ASY[illegible]



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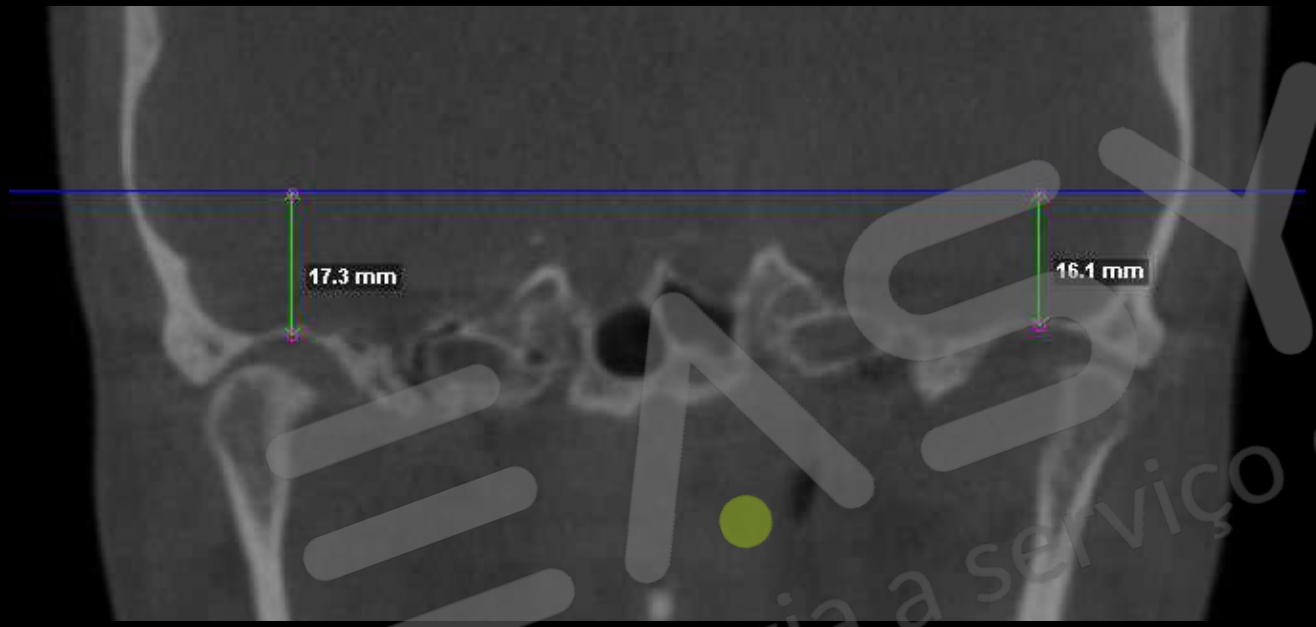
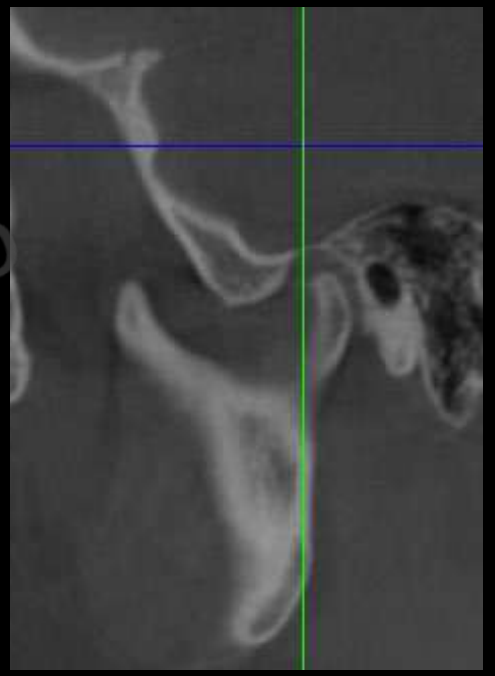
Objective: To evaluate if the patient has a morphological difference of the mandibular body or chin region between the right and left side that may be give the patient an asymmetrical appearance. It's important to remember that sometimes the patient has not a size difference between the right and left sides (previous slide) but may has a morphological difference.

ARTICULAR FOSSA COMPENSATION ANALYSIS





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Measures the right and left articular fossa in relation to the true axial plane.
Interpretation: To evaluate one of the regions where compensations of mandibular asymmetries are often present.
Observe if the patient has a size difference between the right and left side of the mandible and doesn't have mandibular deviation.
One of the areas where asymmetry may be compensated is at the height of the articular fossa.

FRONTAL ANGULATION OF THE MANDIBULAR RAMUS

FRONTAL/ ANTERIOR VIEW

POSTERIOR VIEW

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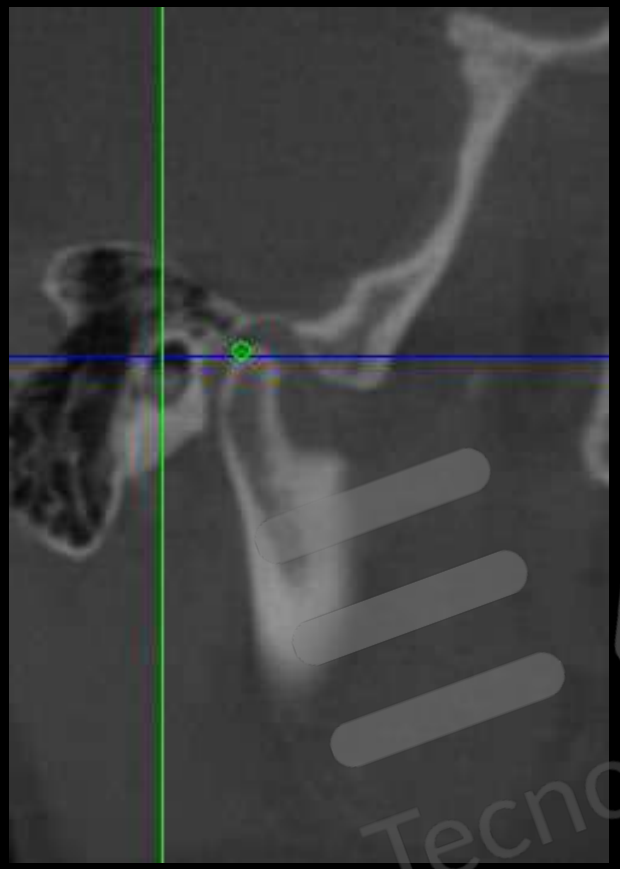
Measures:

- Frontal Angle of the Right and Left Mandibular Ramus.
- Distance in mm from the condyle and the Gonion to the Median Sagittal Plane.

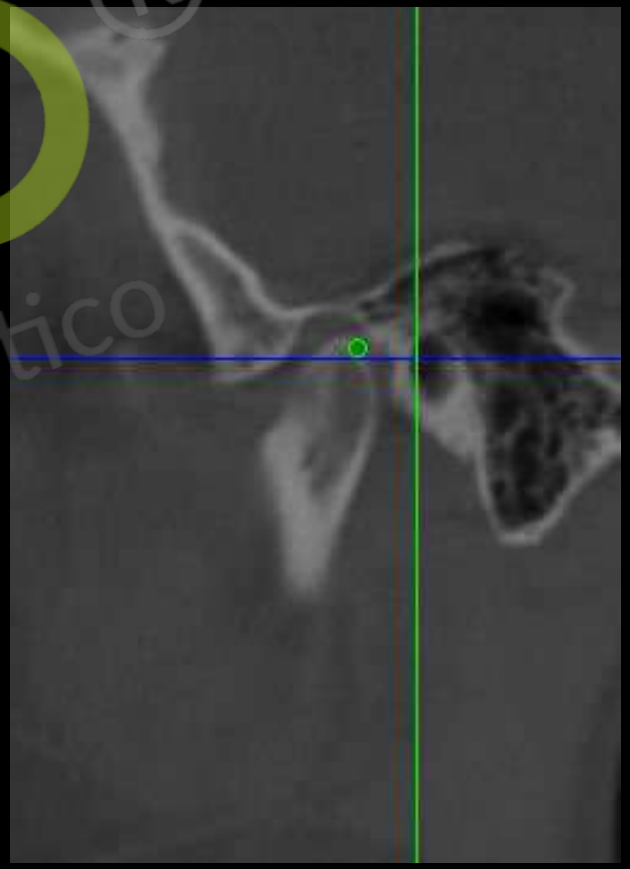
Interpretation: Both measurements allow us to observe differences in mandibular ramus angulation (torque) between the right and left sides. Differences between the sides can be showing another area of compensation of mandibular asymmetry (compensated asymmetry). *It is also important to note if there is a difference in the height of the gonial angles.

MORPHOLOGICAL AXIAL ANALYSIS

Right



Left



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MEASURE: Distance in mm from the Condylion to the coronal plane.
Interpretation: Indicates differences in the anteroposterior position of the condyle and/or fossa, often being another of the compensatory regions of mandibular asymmetries.

TEMPOROMANDIBULAR JOINT ANALYSIS

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SAGITTAL ANALYSIS – TEMPOROMANDIBULAR JOINT

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CORONAL ANALYSIS – TEMPOROMANDIBULAR JOINT

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TEMPOROMANDIBULAR JOINT ANALYSIS

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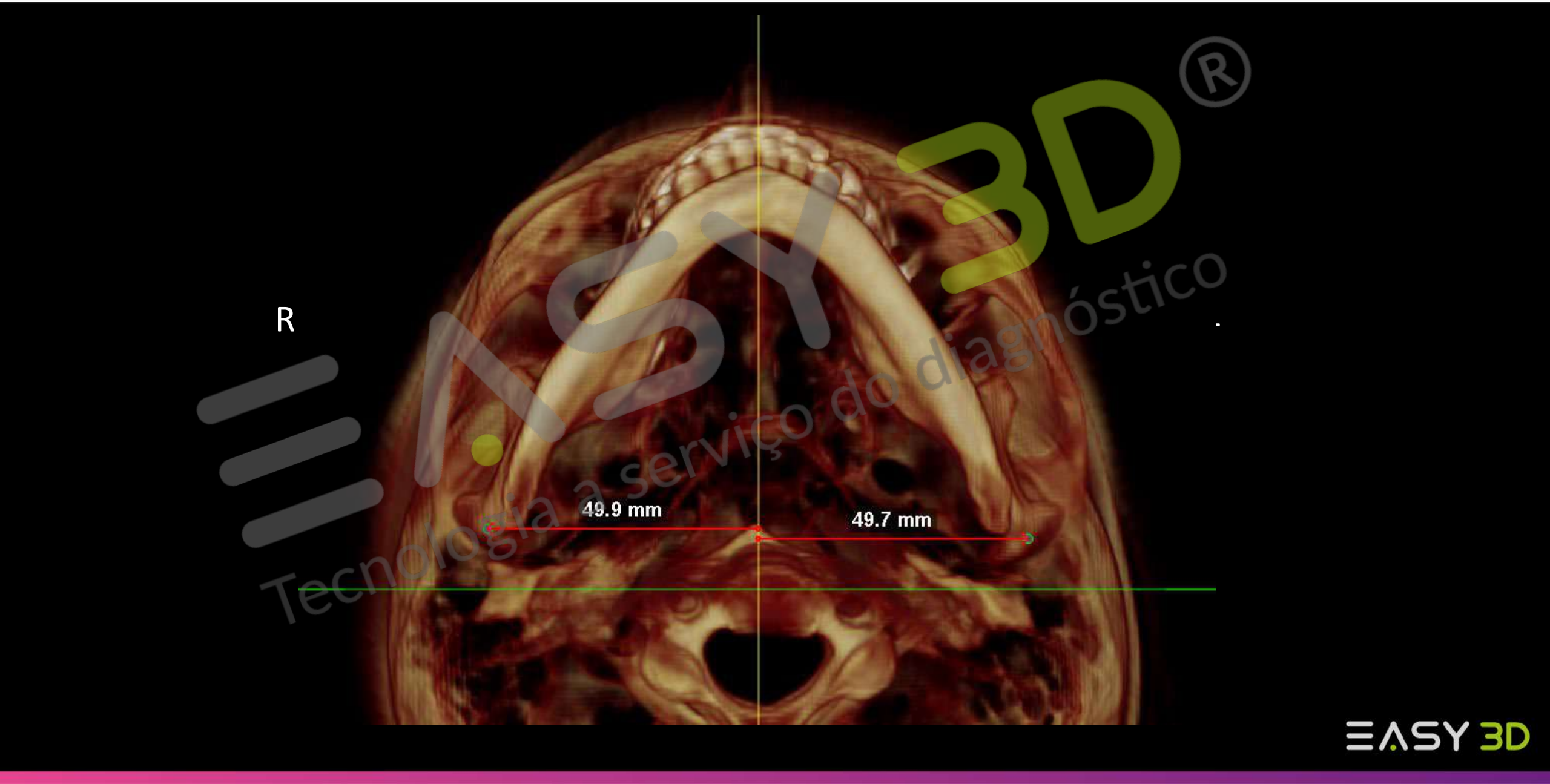
EVALUATION OF CONDYLAR AXIAL SYMMETRY



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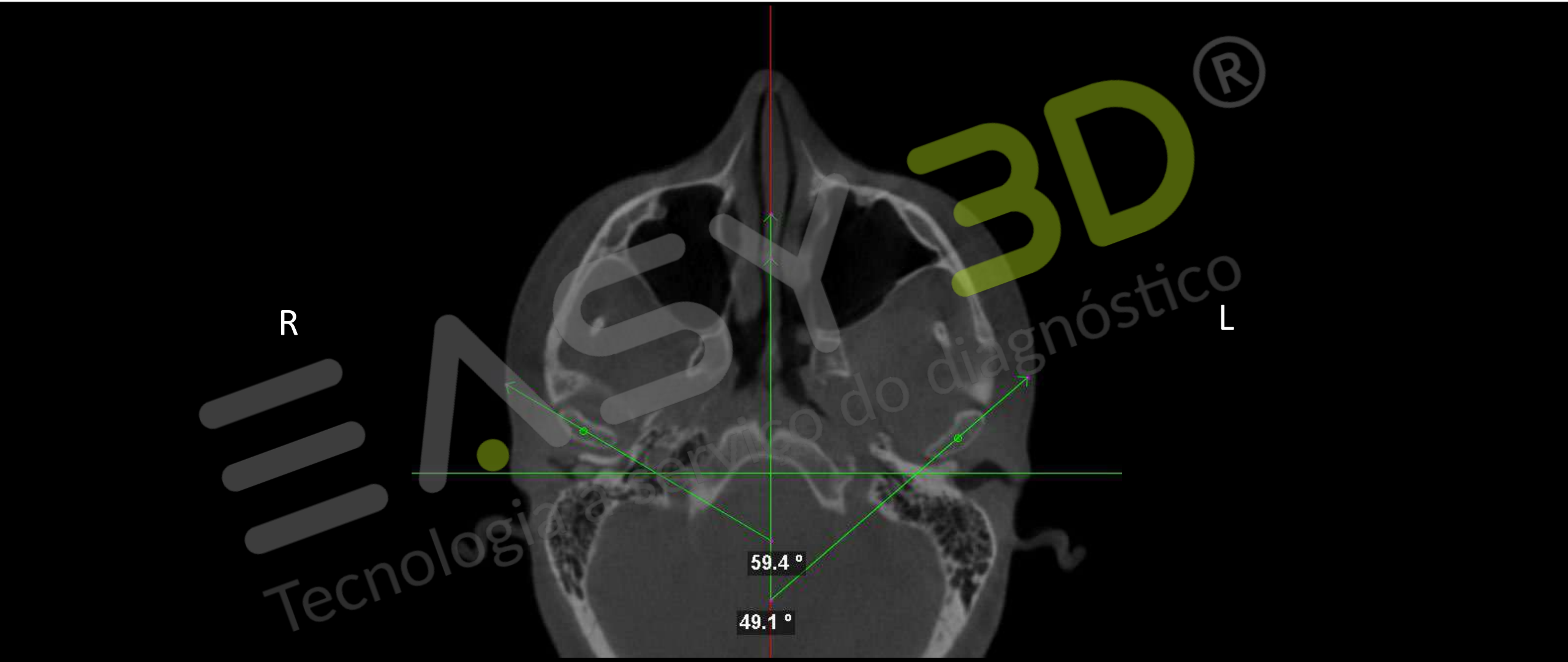
AXIAL CONDYLAR ANGLE



Angle formed by the long axis of the condyle in axial view at the level of the central point of the condyle with the median sagittal plane. The literature has shown that very closed (acute < 60°) or very horizontal (> 80°) angles were observed more frequently in patients with disk displacement and condylar degenerative changes.

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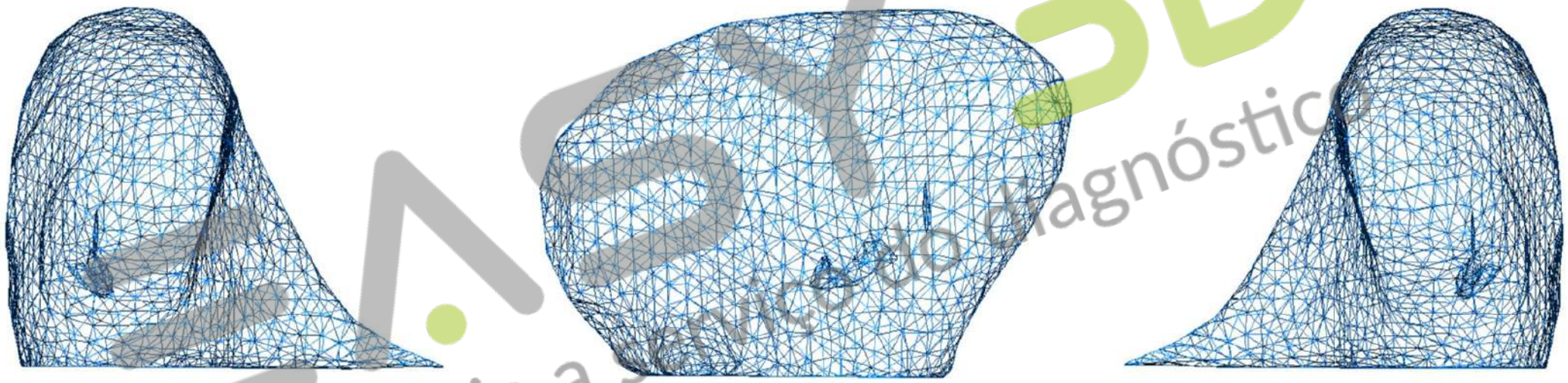
RIGHT CONDYLAR VOLUME

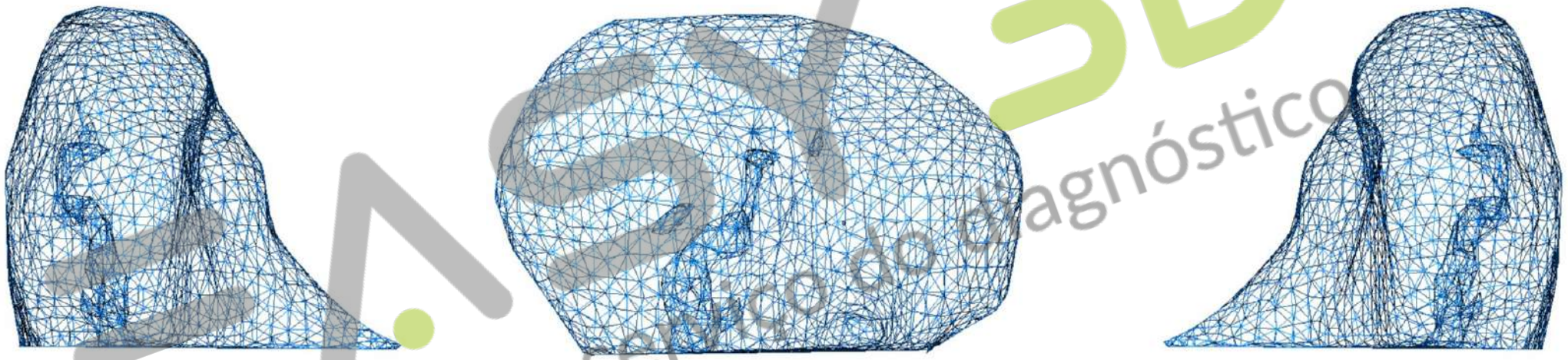


mm³

Tecnologia a servizio della diagnostica

Méndez-Manjón I, Haas OL Jr, Guijarro-Martínez R, Belle de Oliveira R, Valls-Ontañón A, Hernández-Alfaro F. Semi-Automated Three-Dimensional Condylar Reconstruction. J Craniofac Surg. 2019 Nov-Dec;30(8):2555-2559.

LEFT CONDYLAR VOLUME



mm³

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Tecnologia a servicio del diagnóstico

Méndez-Manjón I, Haas OL Jr, Guijarro-Martínez R, Belle de Oliveira R, Valls-Ontañón A, Hernández-Alfaro F. Semi-Automated Three-Dimensional Condylar Reconstruction. J Craniofac Surg. 2019 Nov-Dec;30(8):2555-2559.

MAXILLO-MANDIBULAR RELATIONSHIP

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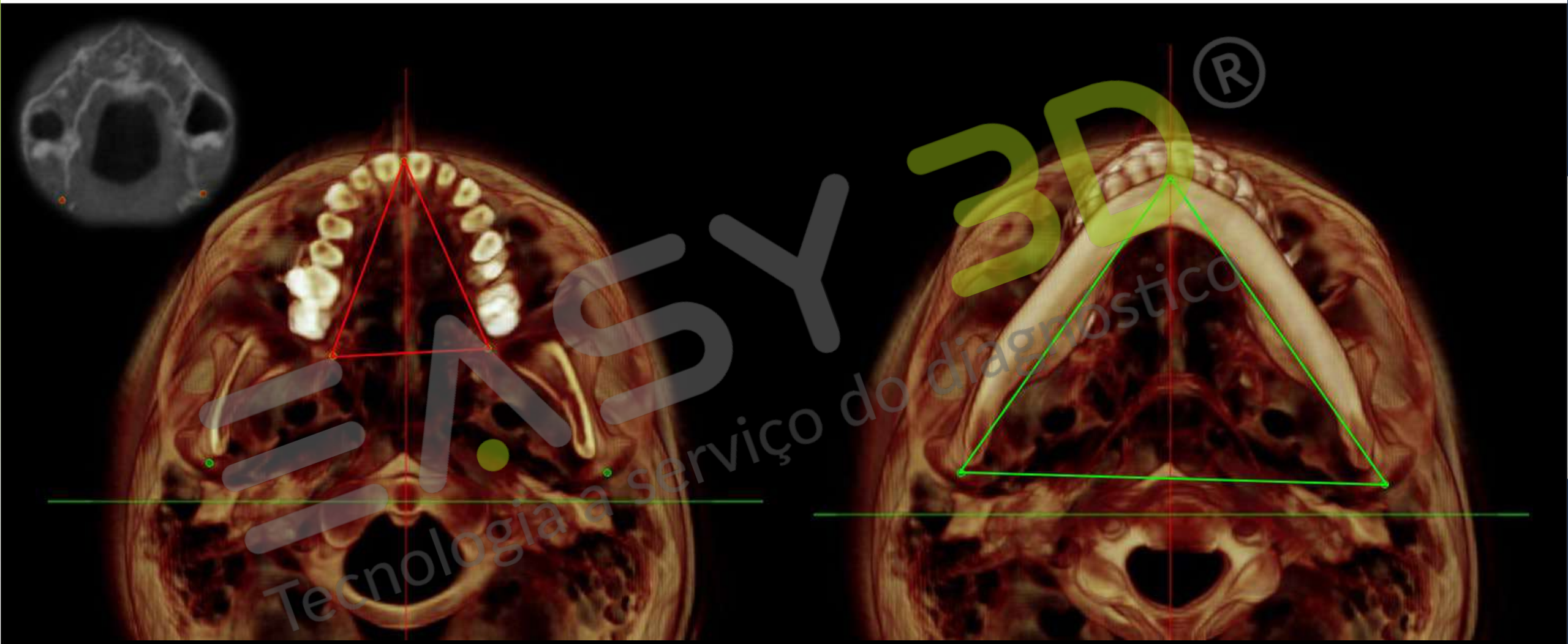
EVALUATION OF SKELETAL SYMMETRY TRIANGLES



Point A Triangle

Point B Triangle

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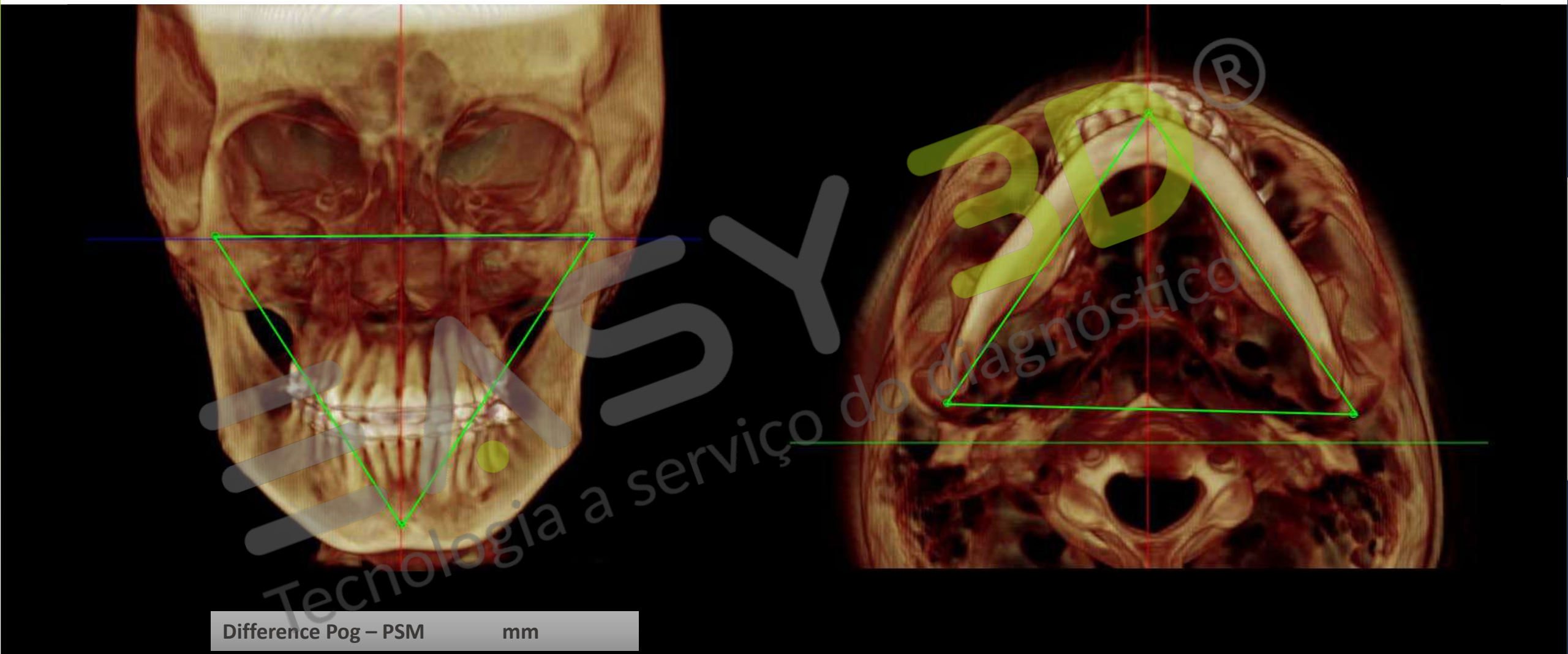
EVALUATION OF SKELETAL SYMMETRY TRIANGLES



On this slide we observe the degree of deviation of Pog with respect to PSM. It is important to observe if on slide 12 there is a difference between both sides and now no deviation is observed (<3.5 mm), we are in the presence of a compensated asymmetry.

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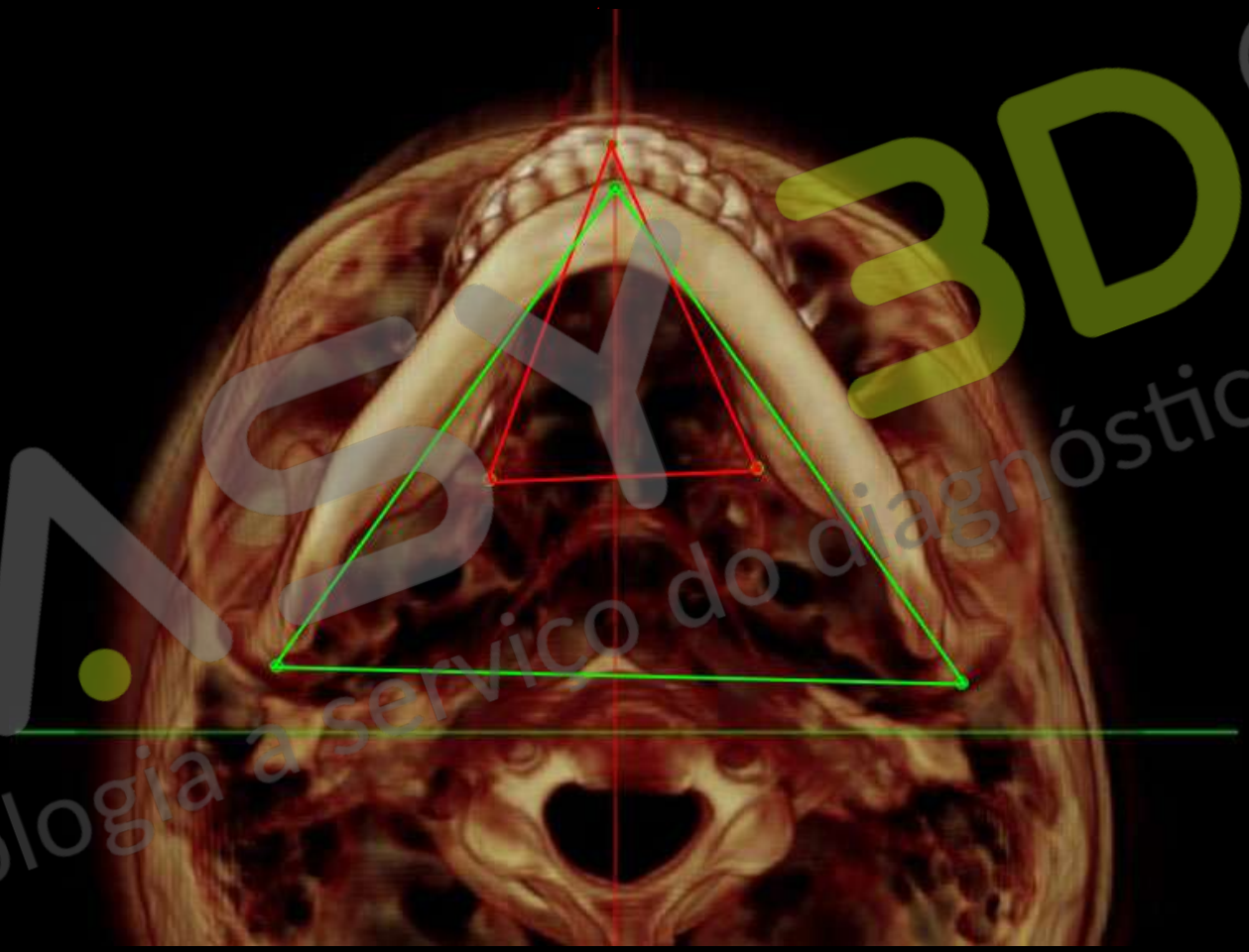
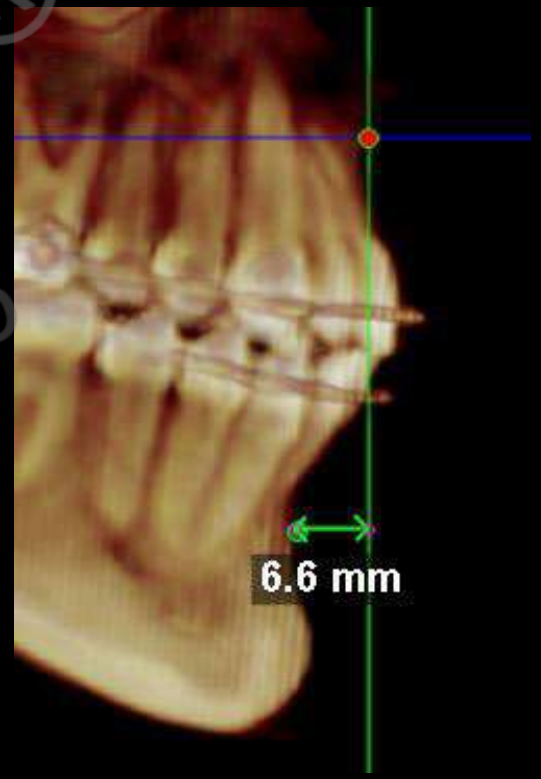
EVALUATION OF SKELETAL SYMMETRY TRIANGLES

SKELETAL CLASS	CLINICAL STANDARD
Class I	0,52 - 5,5 mm
Class II	> 5,5 mm
Class III	< 0,52 mm





Linear difference – B-A mm

**Ertty E, Méndez-Manjón I, Haas OL Jr, Hernández-Alfaro F, Meloti F. Definition of New Three-Dimensional Cephalometric Analysis of Maxillomandibular Sagittal Relationship for Orthodontics and Orthognathic Surgery: Normative Data Based on 700 CBCT Scans. J Craniofac Surg. 2023 Jun 1;34(4):1291-1295.*

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SAGITTAL EVALUATION

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ANALYSIS OF SAGITTAL PLANES

Right Side

Left Side

CLINICAL STANDARDS

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Measurements: Upper Incisor Angulation, mandibular plane angle, and right and left IMPA.

INTERINCISAL ANGLE

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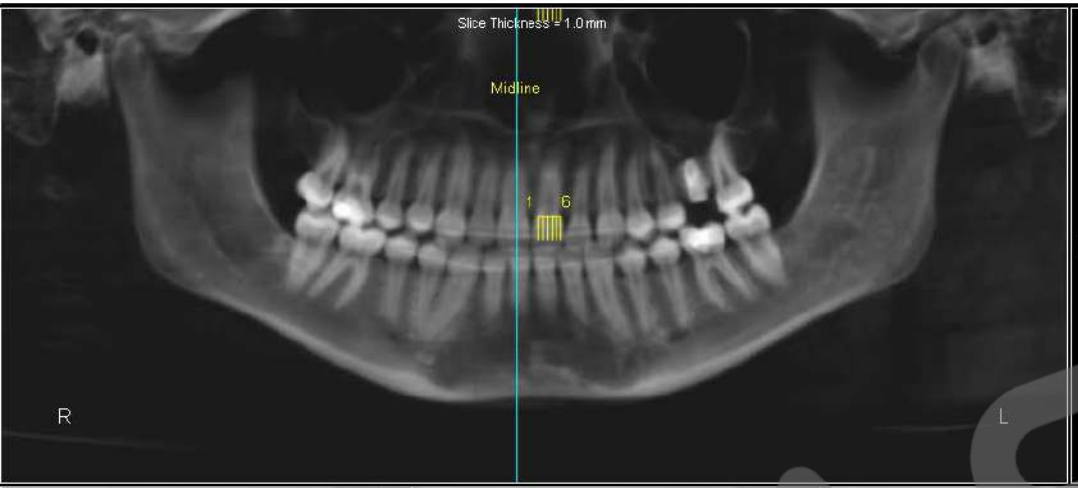
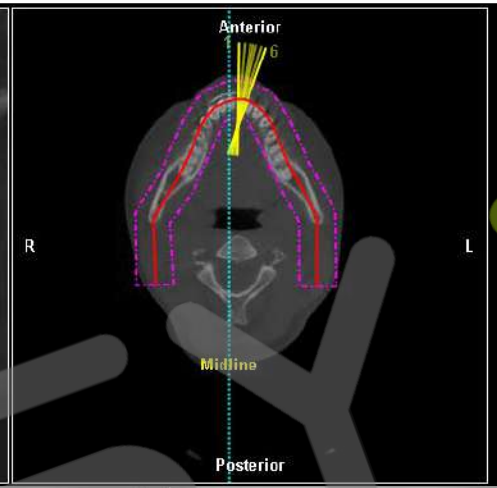
EVALUATION OF INCISIVE POSITIONING - RIGHT

EVALUATION OF INCISIVE POSITIONING - LEFT





OVERJET 21-31	mm
OVERBITE 21-31	mm

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SNA / SNB / ANB

CLINICAL STANDARDS

Linear Difference – B-A mm

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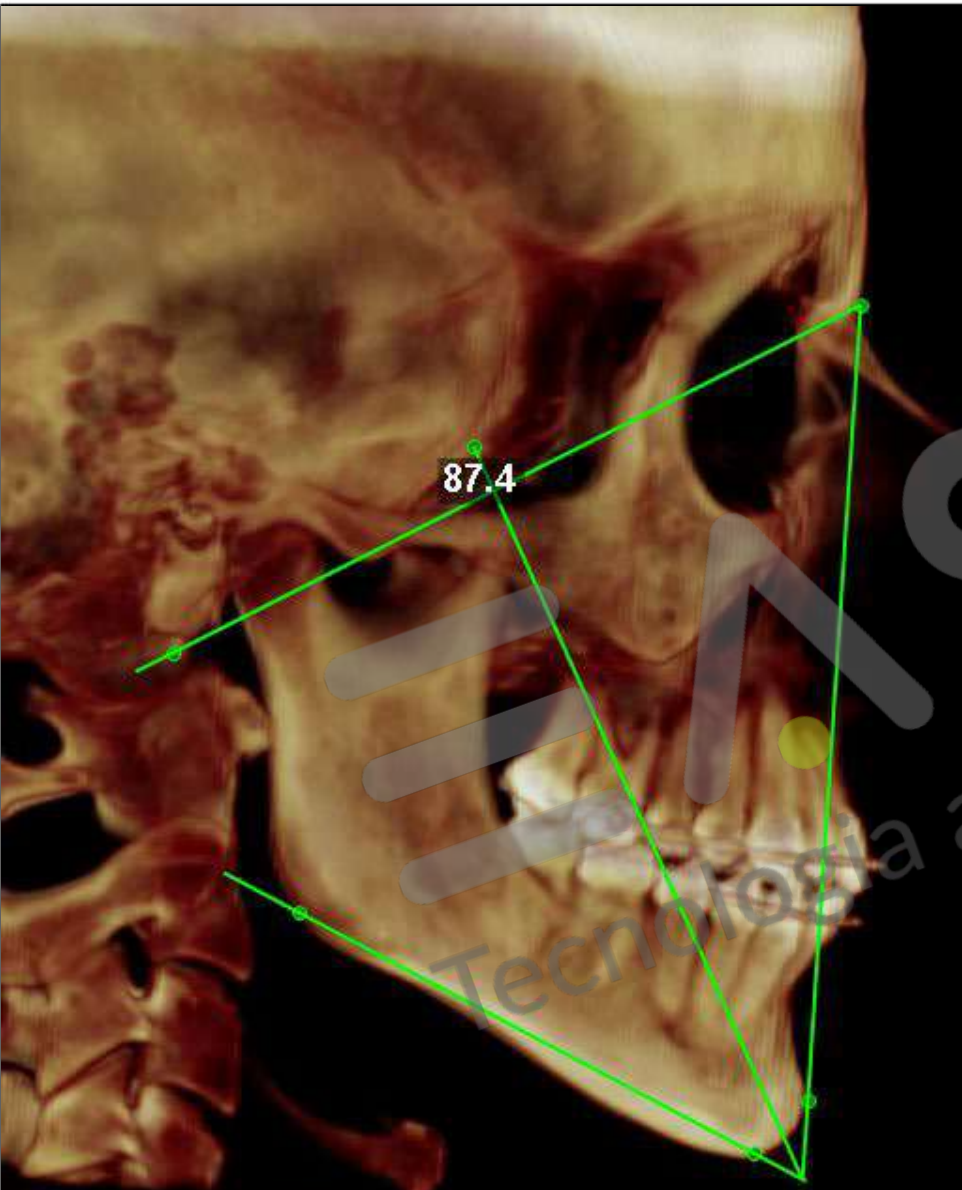
RICKETTS FACIAL AXIS



CLINICAL STANDARDS

VERTICAL SKELETAL PATTERN	CLINICAL STANDARD
mesofacial	90° (±3,5°)
. brachyfacial * - Chin Protrusion. Horizontal Growth Pattern	> 93,5°
dolichofacial * - chin retropositioning. Vertical Growth Pattern	< 86,5°

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LOWER FACIAL HEIGHT / TOTAL FACE HEIGHT

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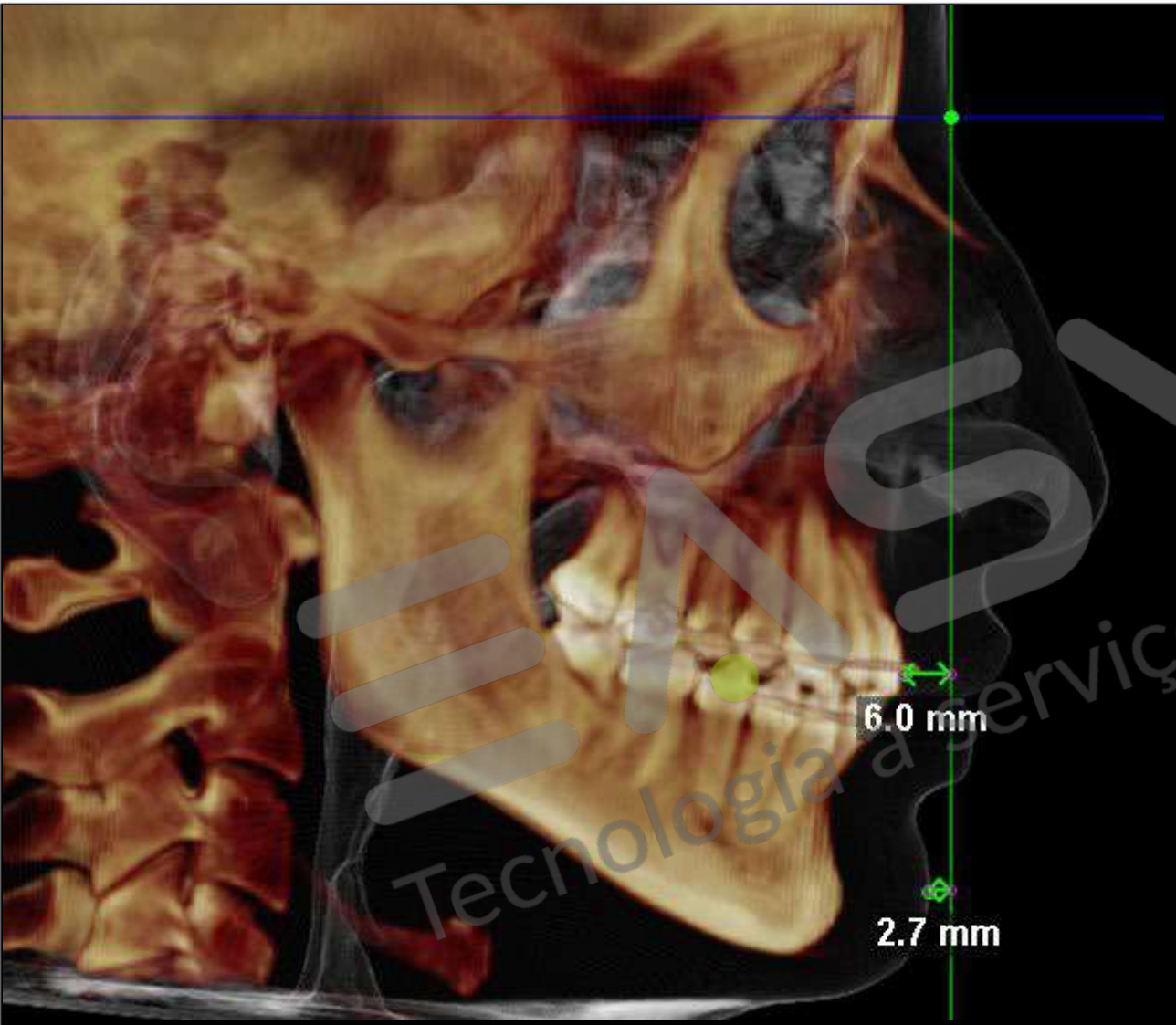
ANTEROPOSTERIOR EVALUATION IN THE SAGITTAL PLANE



STP: True Vertical through the Soft Nasio. The incisor with adequate torque should be touching or ahead of the line. Soft Tissue Pg* must be at or in front of the BL line.

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*Hernández-Alfaro F, Valls-Ontañón A. Aesthetic Considerations in Orthofacial Surgery. Oral Maxillofac Surg Clin North Am. 2023 Feb;35(1):1-10.
* Hernandez-Alfaro F. Upper incisor to Soft Tissue Plane (UI-STP): a new reference for diagnosis and planning in dentofacial deformities. Med Oral Patol Oral Cir Bucal. 2010 Sep 1;15(5):e779-81.

OCCLUSAL PLANE EVALUATION

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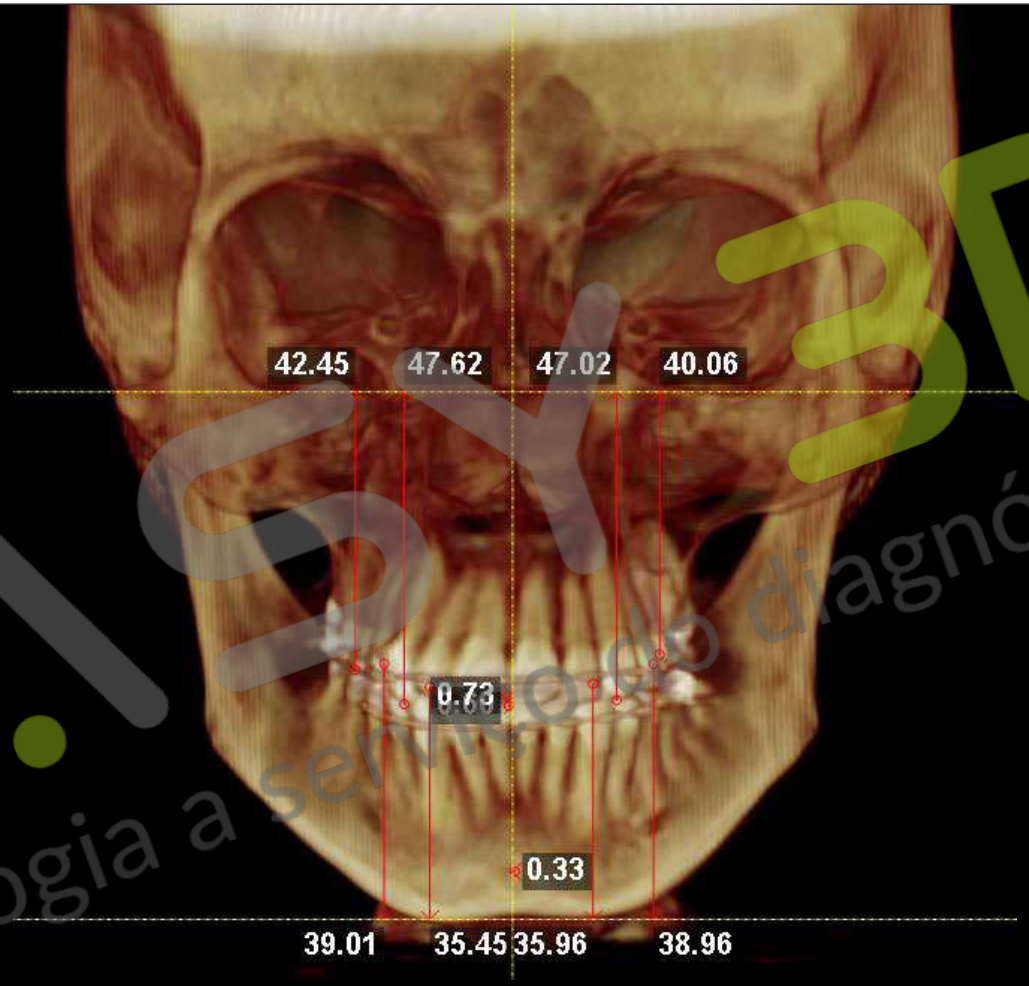
FRONTAL EVALUATION OF OCCLUSAL PLANE



Midsagittal Plane

Measurements taken from the cusp tip of the canine, 1st and 2nd molar to the axial plane with the purpose of studying the degree of inclination of the occlusal plane (canting).

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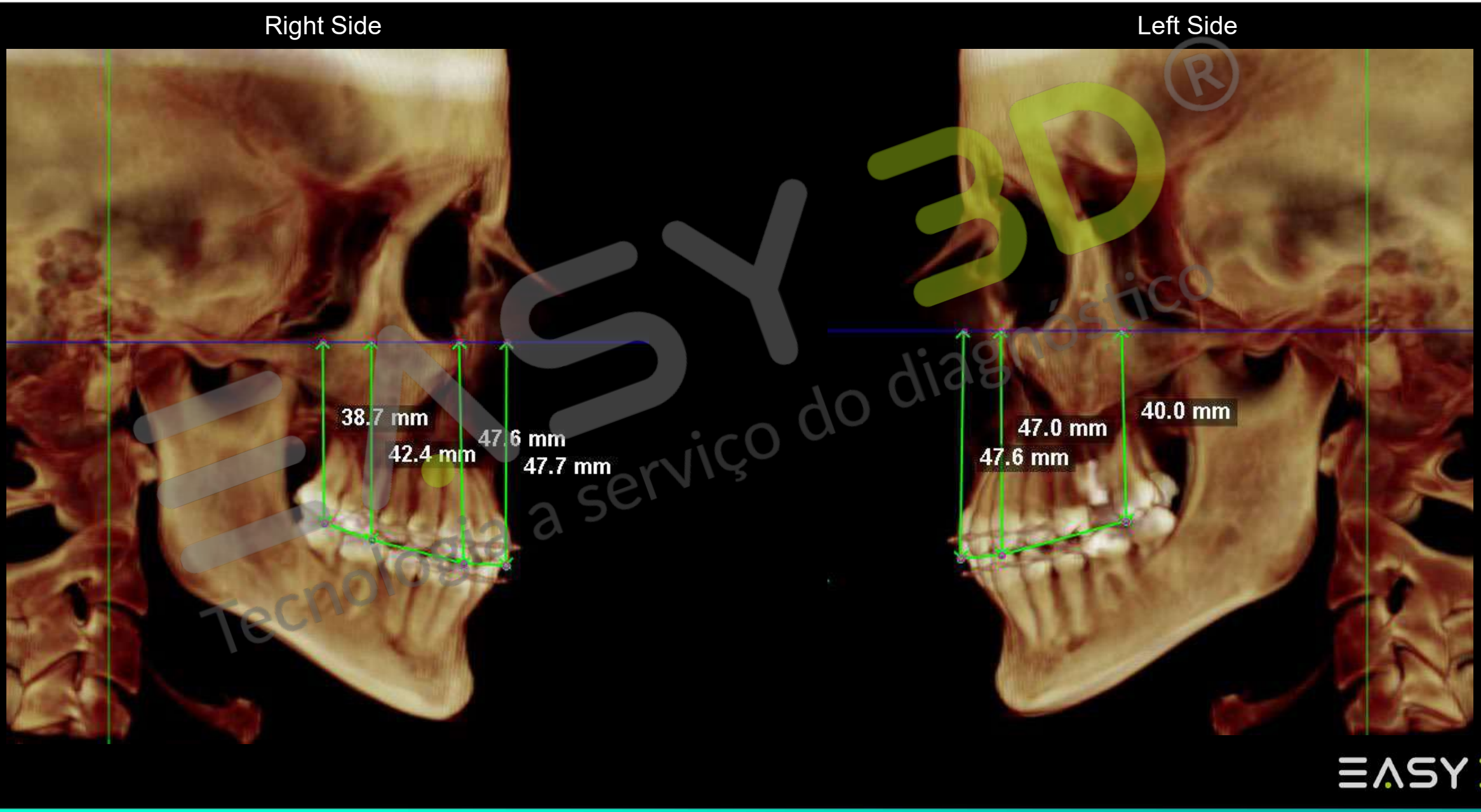
INDIVIDUALIZED ANALYSIS OF OCLUSSAL PLANE



CAMPER PLANE / OCCLUSAL PLANE

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TRANSVERSAL AND SYMMETRY

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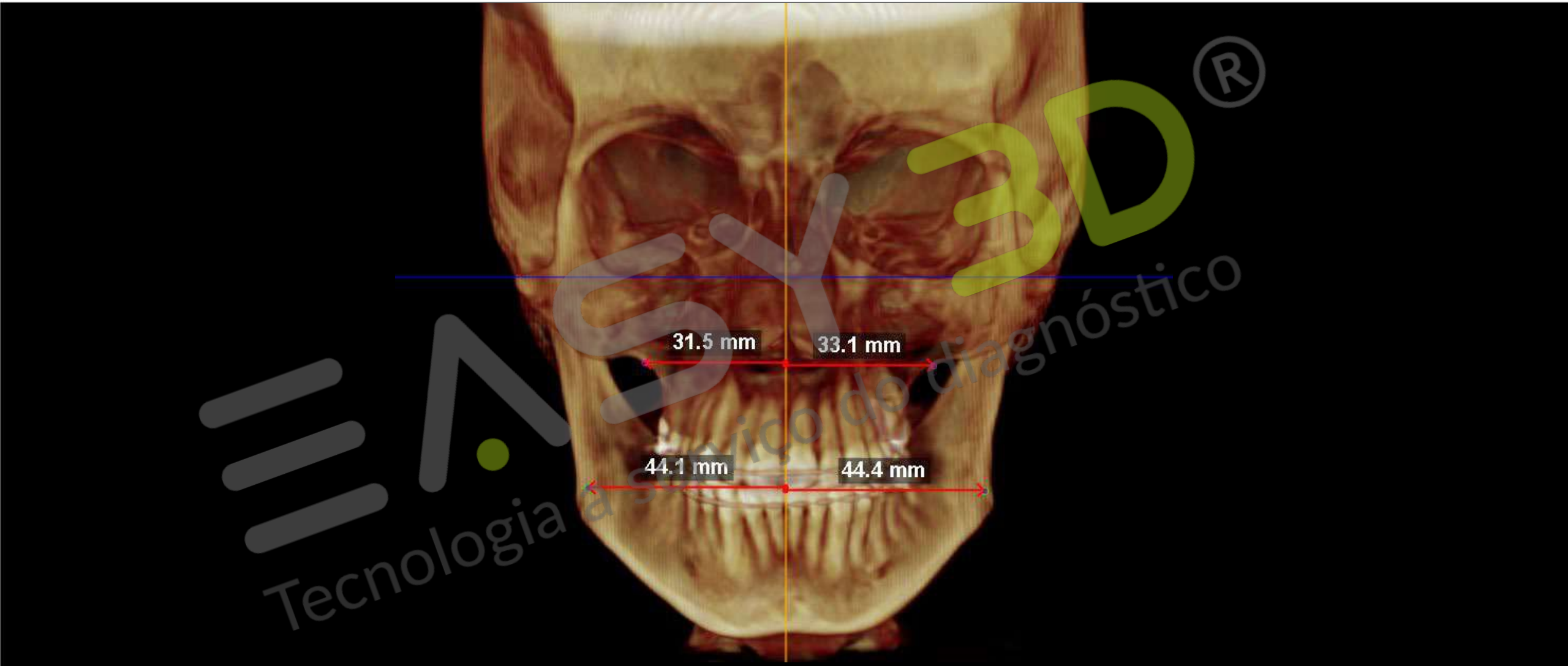
SYMMETRY EVALUATION



This measurementis taken from the alveolar zygomatic ridge to the MidSagittal Plane and from the Gonion* to the MidSagittal Plane to assess the degree of symmetry between both sides

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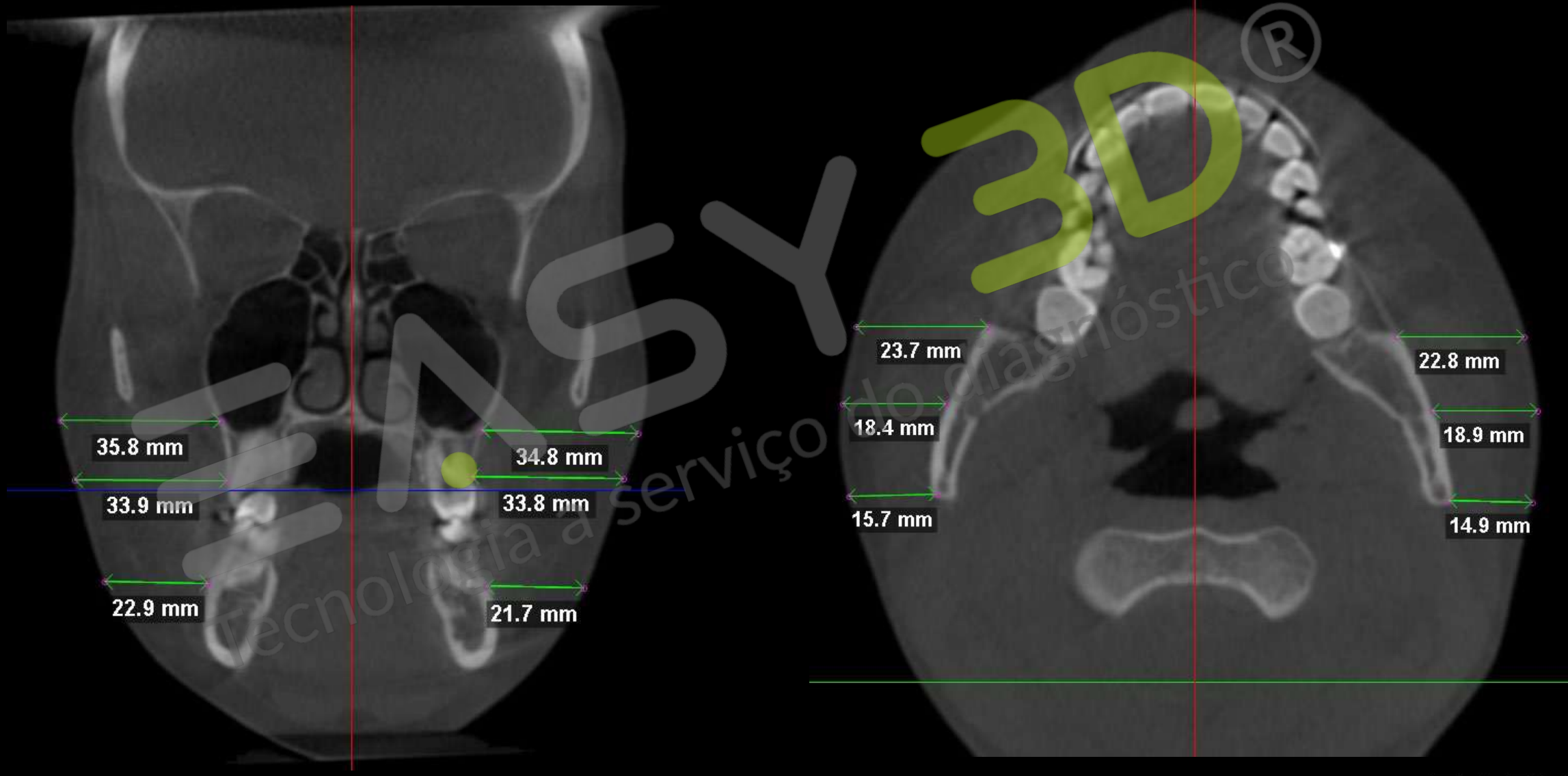
EVALUATION OF SOFT TISSUE SYMMETRY



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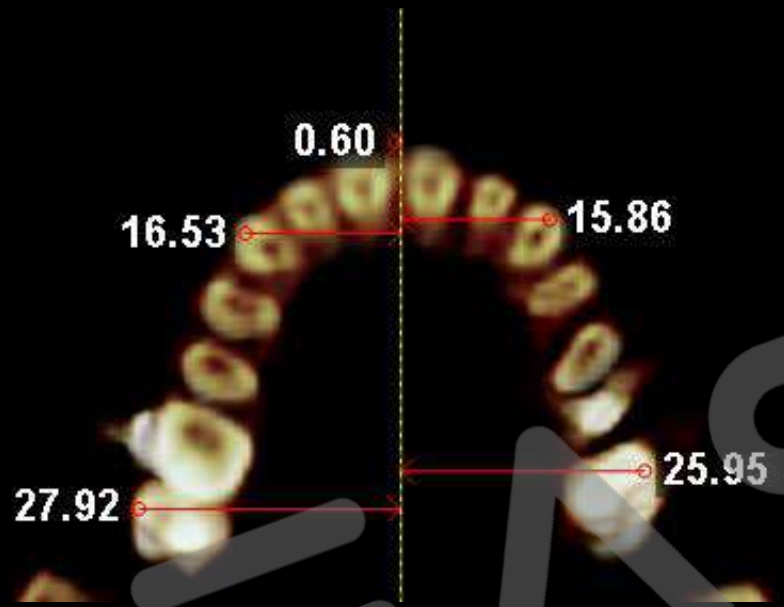
AXIAL TRANSVERSAL SYMMETRY



Superior Arch

Superior Midline Deviation	mm
Transverse Difference of Canines 13/23	mm
Transverse Difference of Molars 16/26	mm
Transverse Difference of Molars 17/27	mm

Inferior Arch

Inferior Midline Deviation	mm
Transverse Difference of Canines 33/43	mm
Transverse Difference of Molars 36/46	mm
Transverse Difference of Molars 37 /47	mm

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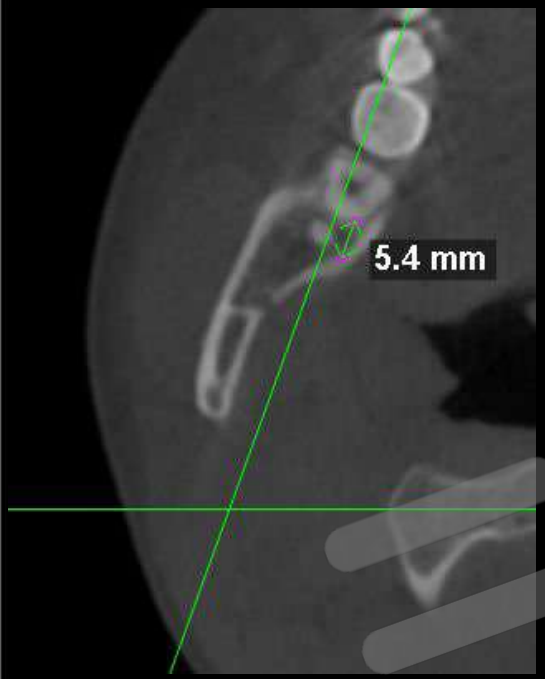
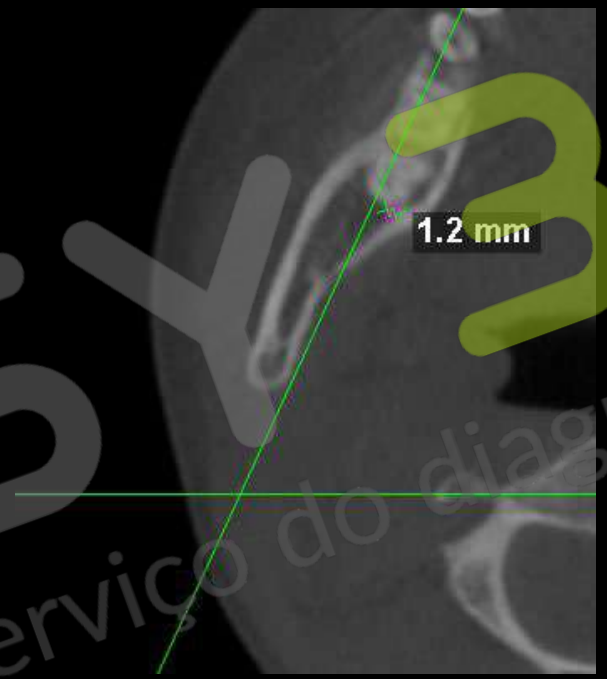
EVALUATION OF THE AMOUNT OF DISTALIZATION POSSIBLE IN THE MANDIBLE

4º QUADRANT - RIGHT SIDE



Furca level

2 mm



4 mm

6 mm

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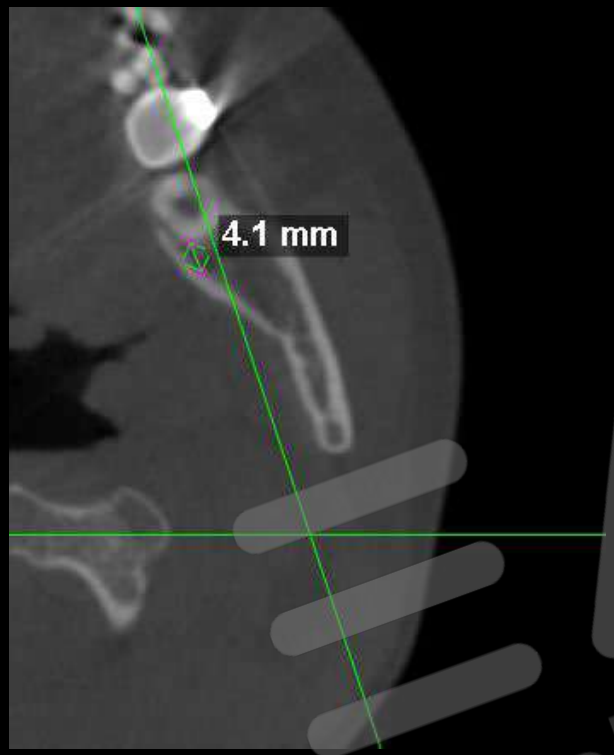
Measurement: shortest linear distances from the most lingual point of the distal root of the second molar to the inner border of the lingual cortex.
Interpretation: The distalization of the inferior molars is limited by the proximity of the distal root of the second molar to the lingual cortex and not by the distance from the crown of the second molar to the anterior border of the mandibular ramus.

Choi YT, Kim YJ, Yang KS, Lee DY. Bone availability for mandibular molar distalization in adults with mandibular prognathism. Angle Orthod. 2018 Jan;88(1):52-57.

EVALUATION OF THE AMOUNT OF DISTALIZATION POSSIBLE IN THE MANDIBLE

3º QUADRANT - LEFT SIDE



Furca level

2 mm

4 mm

6 mm

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INTRINSIC SYMMETRY EVALUATION OF THE MANDIBLE

Midline deviation to the Symphysis Plane	mm
Canines Difference	mm
Molars Difference	mm

Detour to the Right (+)
Detour to the Left (-)

Specific evaluation for cases of uncompensated asymmetry

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TRANSVERSAL DISCREPANCY EVALUATION

CLINICAL STANDARDS

Skeletal Discrepancy

Skeletal Difference	mm

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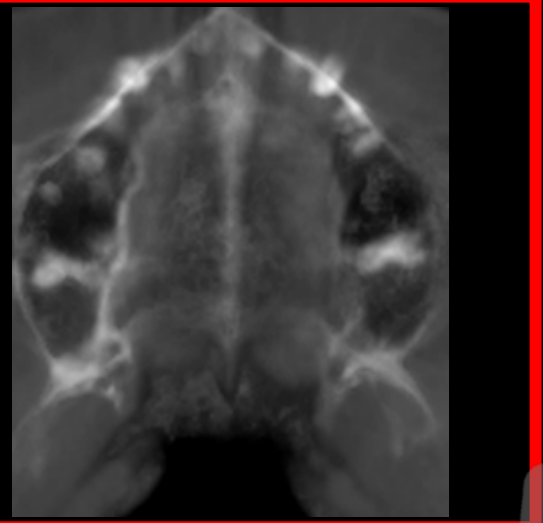
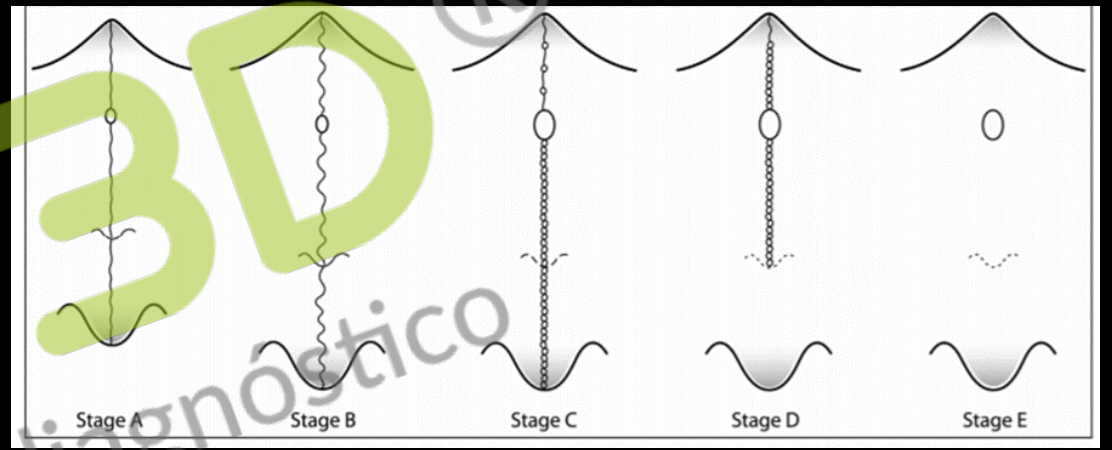
ASSESSMENT OF MATURATION DEGREE OF THE MIDPALATAL SUTURE



Coronal Section 1 Upper Molar

Coronal Section 1 Upper Premolar

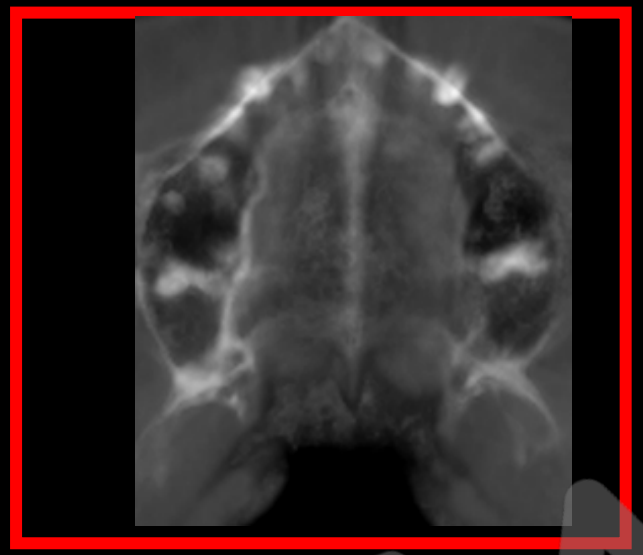


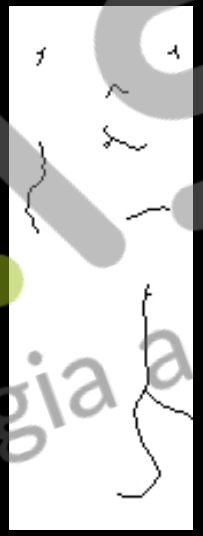
No fusioned	Initial ossification áreas ”	Ossification Level Palatine bone	Ossification Level Palatine + Maxillary bone

Tecnologia a serviço do diagnóstico

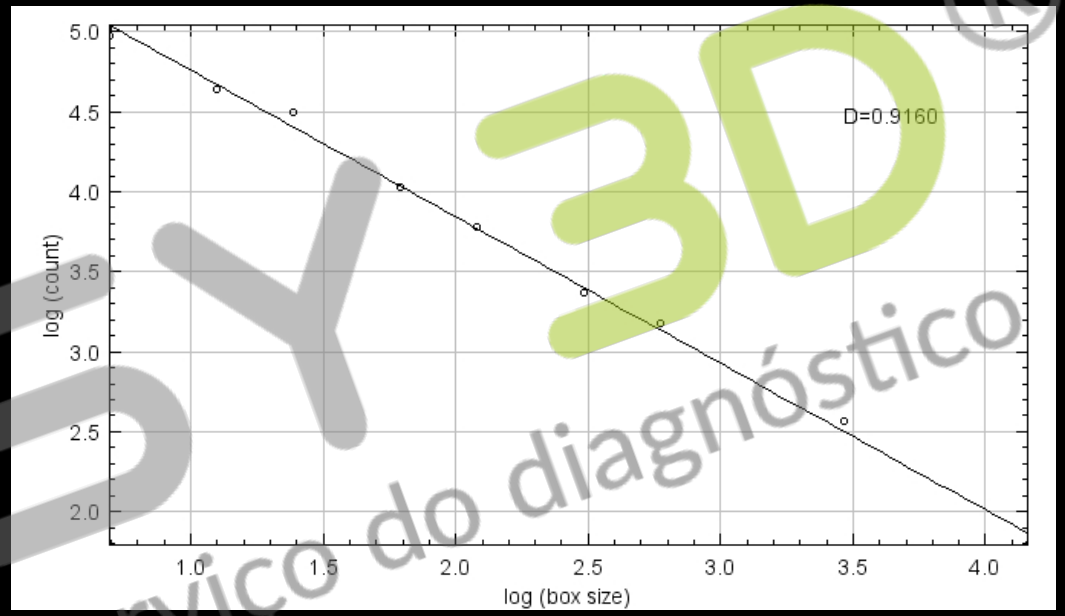
Angelieri F, Cevidanes LH, Franchi L, Gonçalves JR, Benavides E, McNamara JA Jr. Midpalatal suture maturation: classification method for individual assessment before rapid maxillary expansion. Am J Orthod Dentofacial Orthop. 2013 Nov;144(5):759-69.

ASSESSMENT OF MATURATION DEGREE OF THE MIDPALATAL SUTURE





FRACTAL ANALYSIS OF THE MIDPALATAL SUTURE



D=

D> 1.0235 Stages A,B,C

D< 1.0235 Stages D,E

70% test sensitivity

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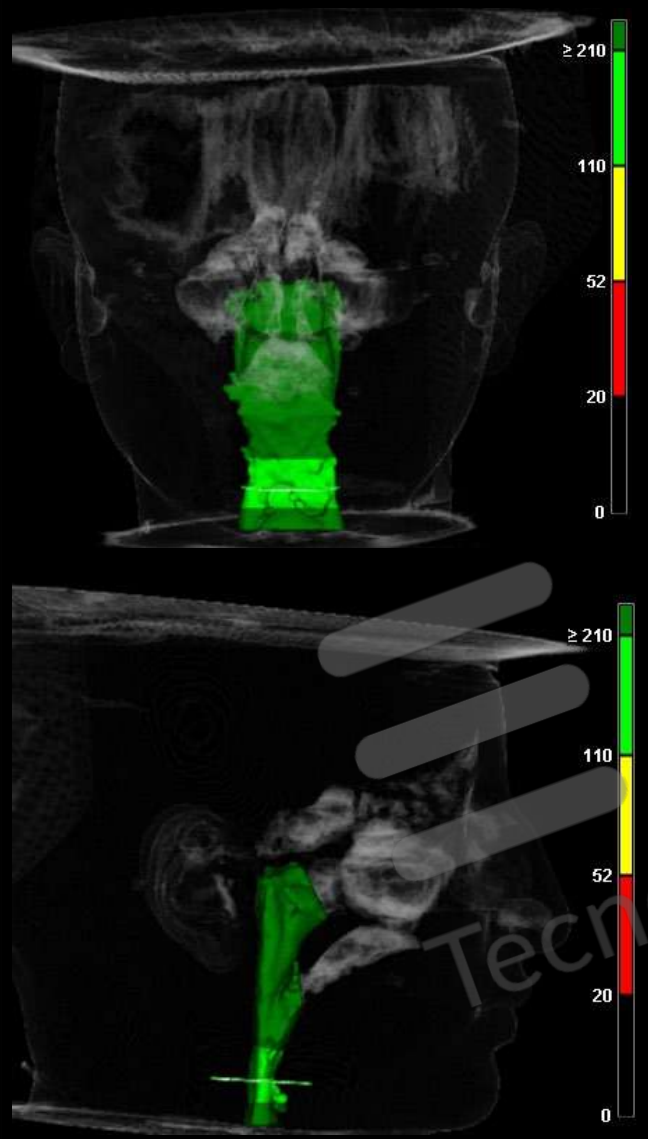
Tecnologia a serviço do diagnóstico

AIRWAY EVALUATION

Tecnologia a serviço do diagnóstico

AIRWAY ANALYSIS



Relationship of Minimum Axial Area and SAOS* Risk.

SEVERE SAOS risk: < 52 mm^2

MODERATE SAOS risk: 52 – 110 mm^2

Mild SAOS risk: >110 mm^2

Naso, Oro, and hypopharyngeal Volume	**0 mm^3**
Minimal axial area	0 mm^2

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Tecnología al servicio del diagnóstico

***Important:** Definitive diagnosis requires clinical evaluation and complementary tests. Measurements for adult patients.

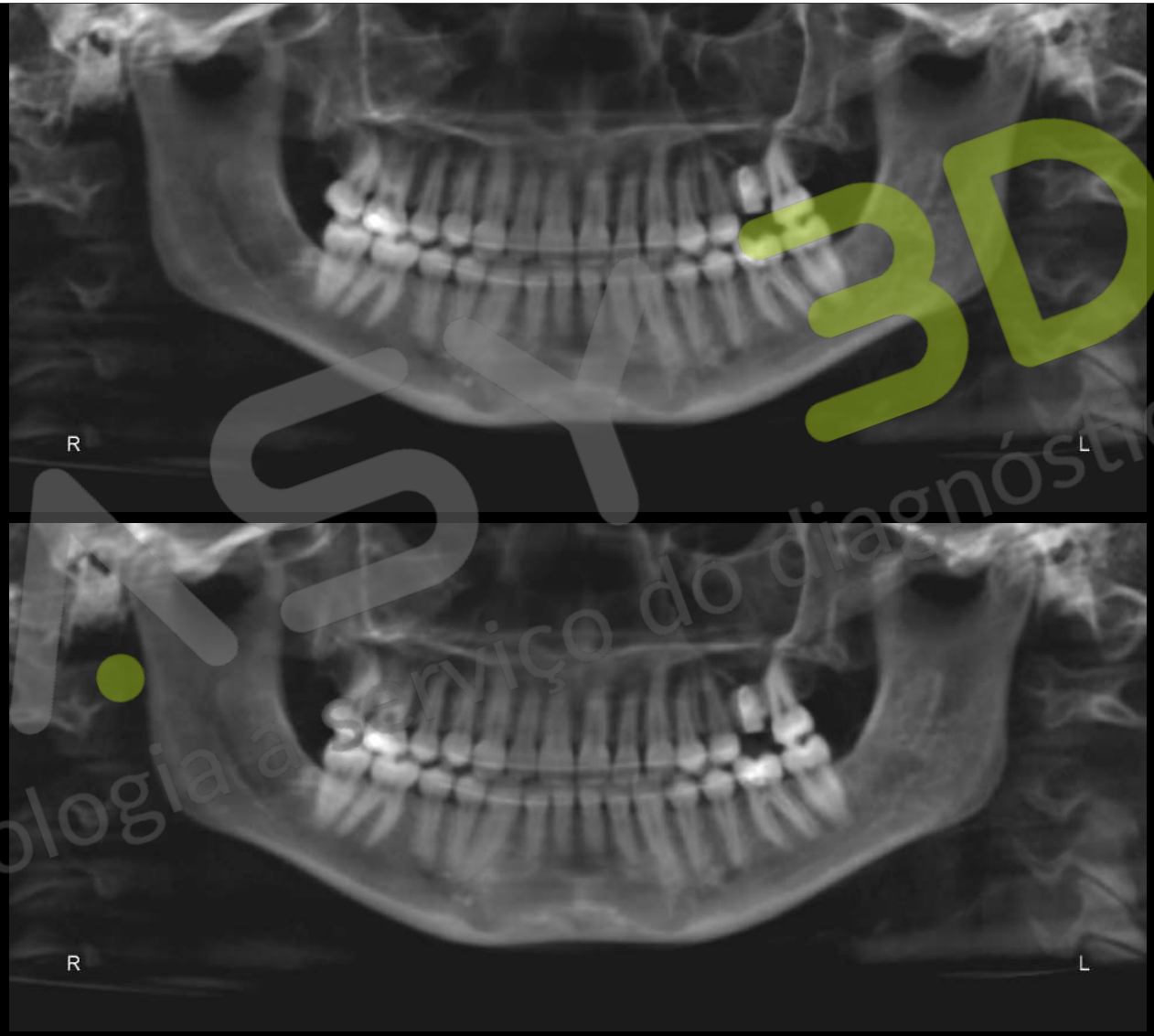
RADIOGRAPHIC ANALYSIS

Tecnologia a serviço do diagnóstico

PANORAMIC EVALUATION

Superior

Inferior



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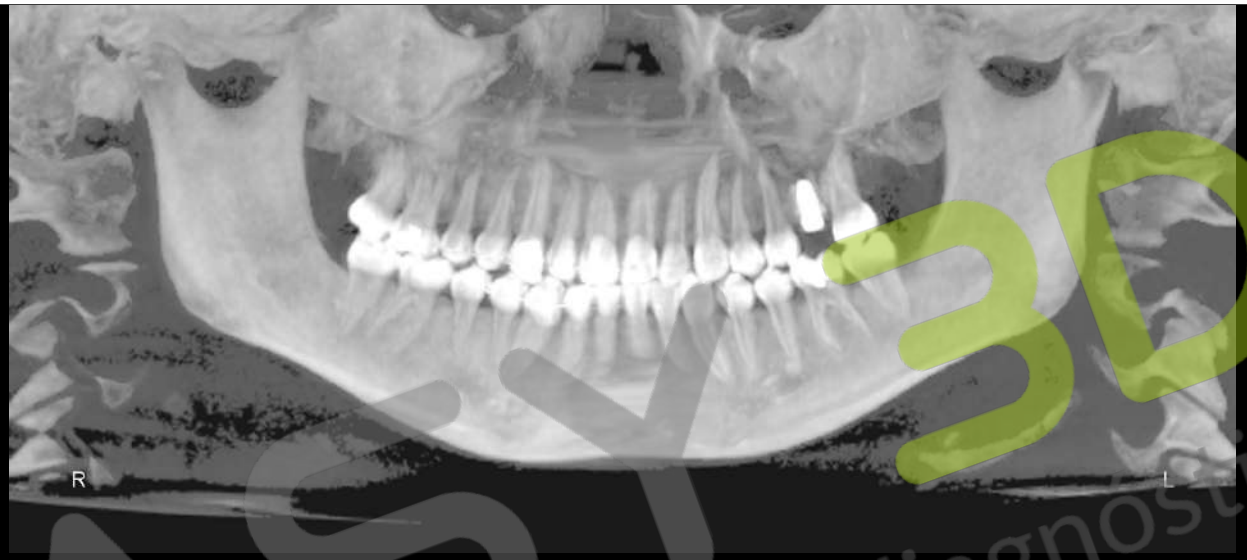
PANORAMIC ASSESSMENT IN MIP

Superior



Inferior

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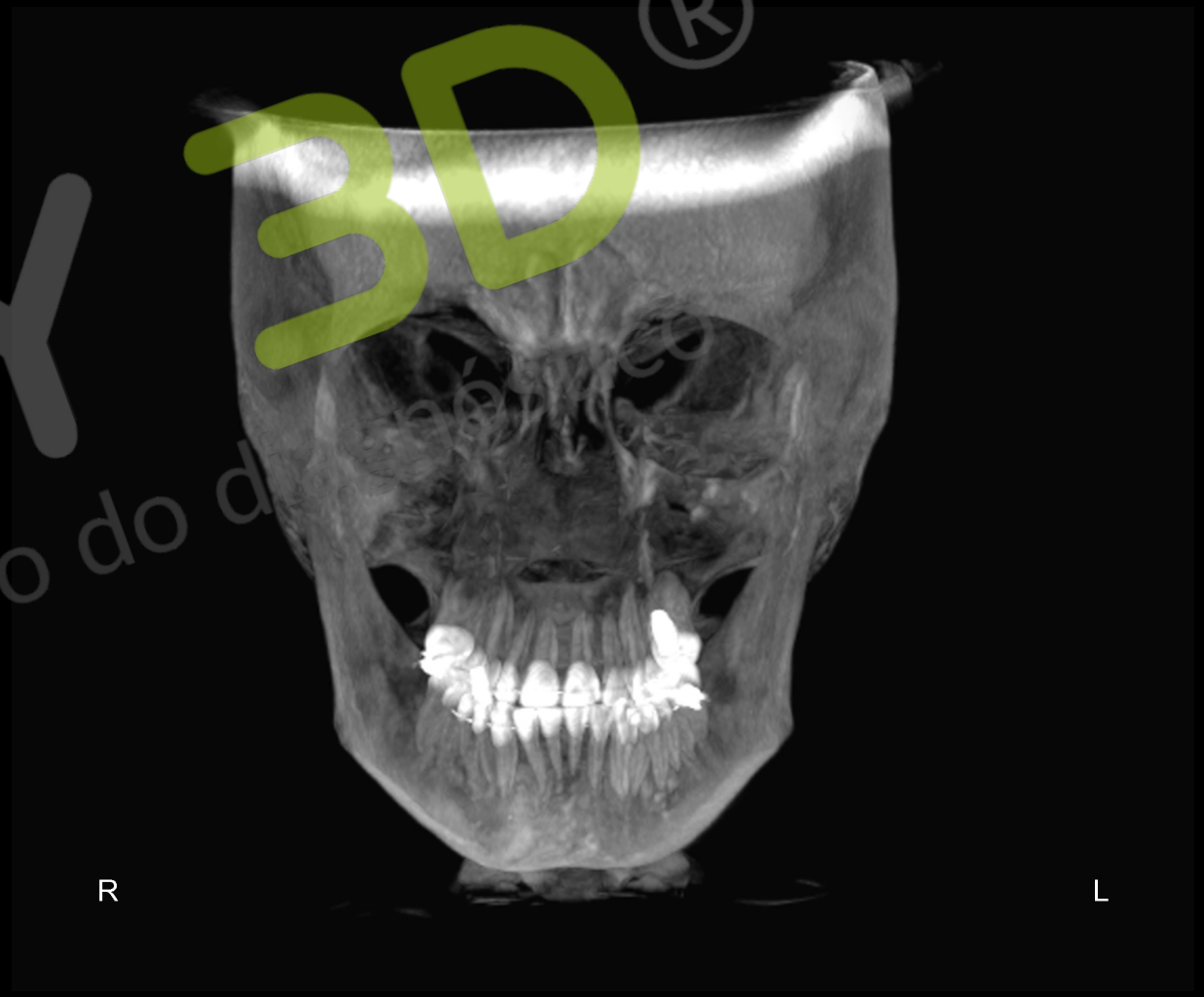
EASY 3D

FRONTAL TELERADIOGRAPHY



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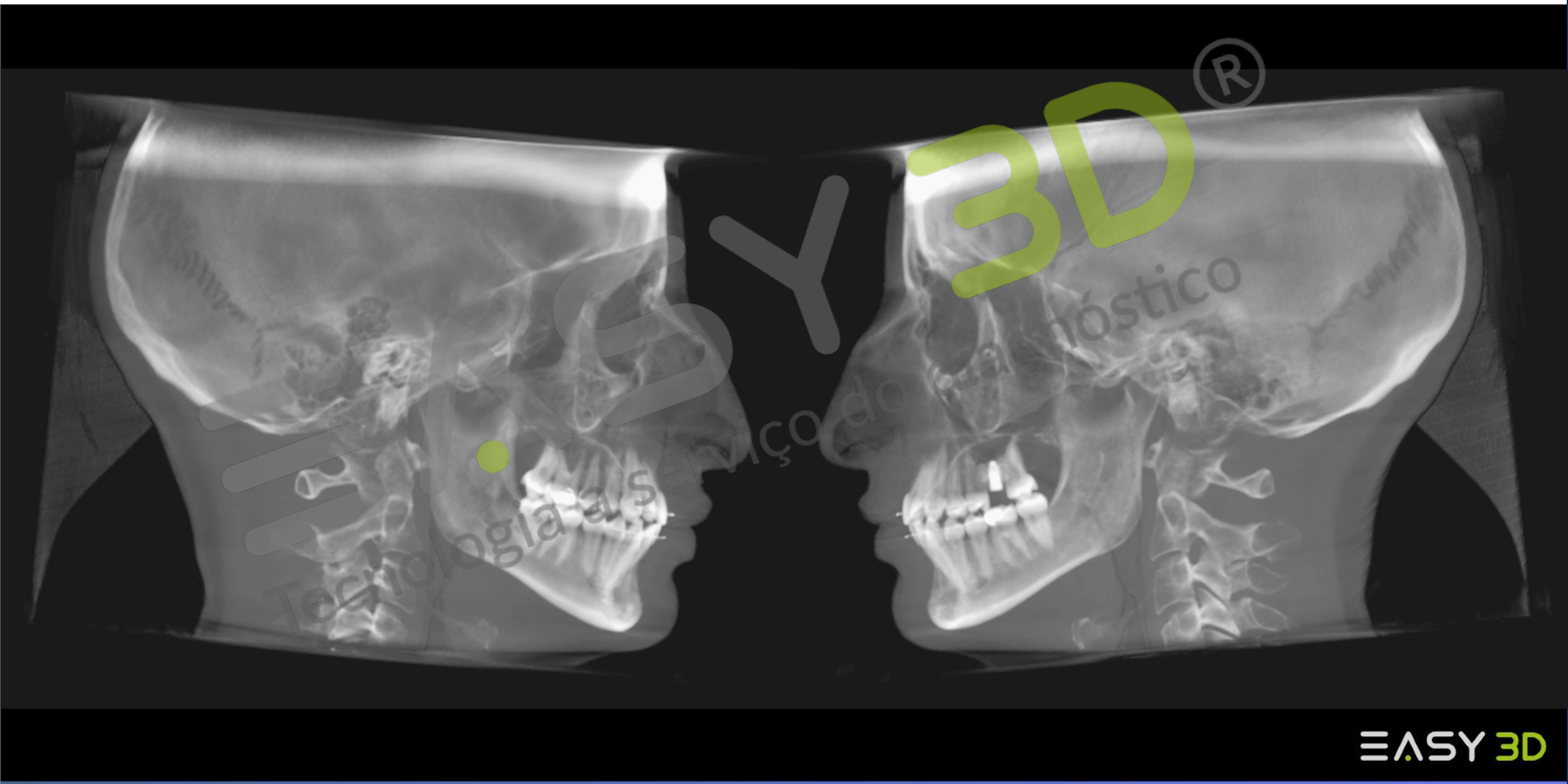
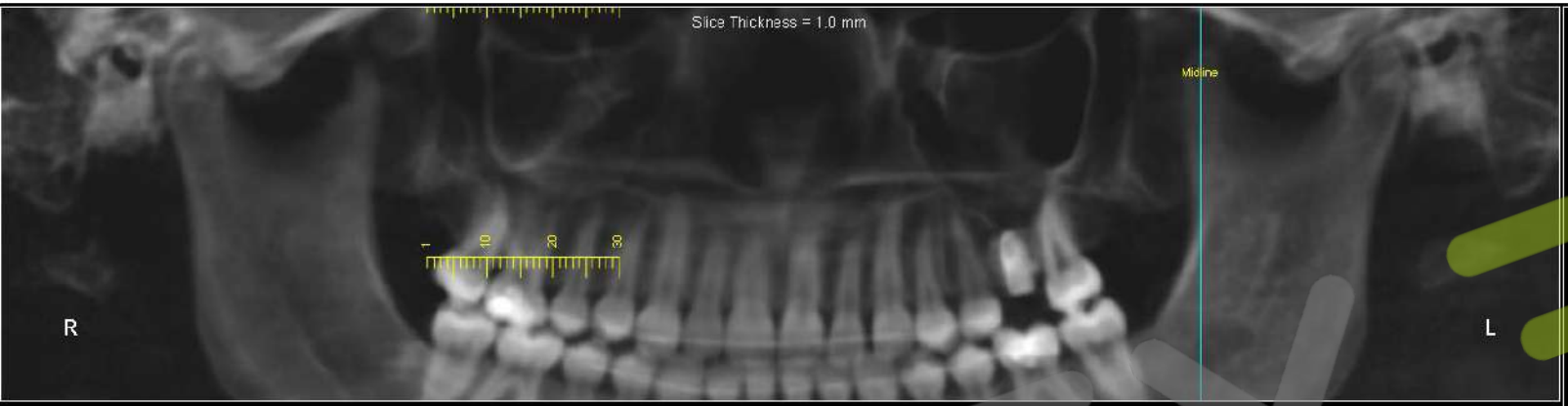
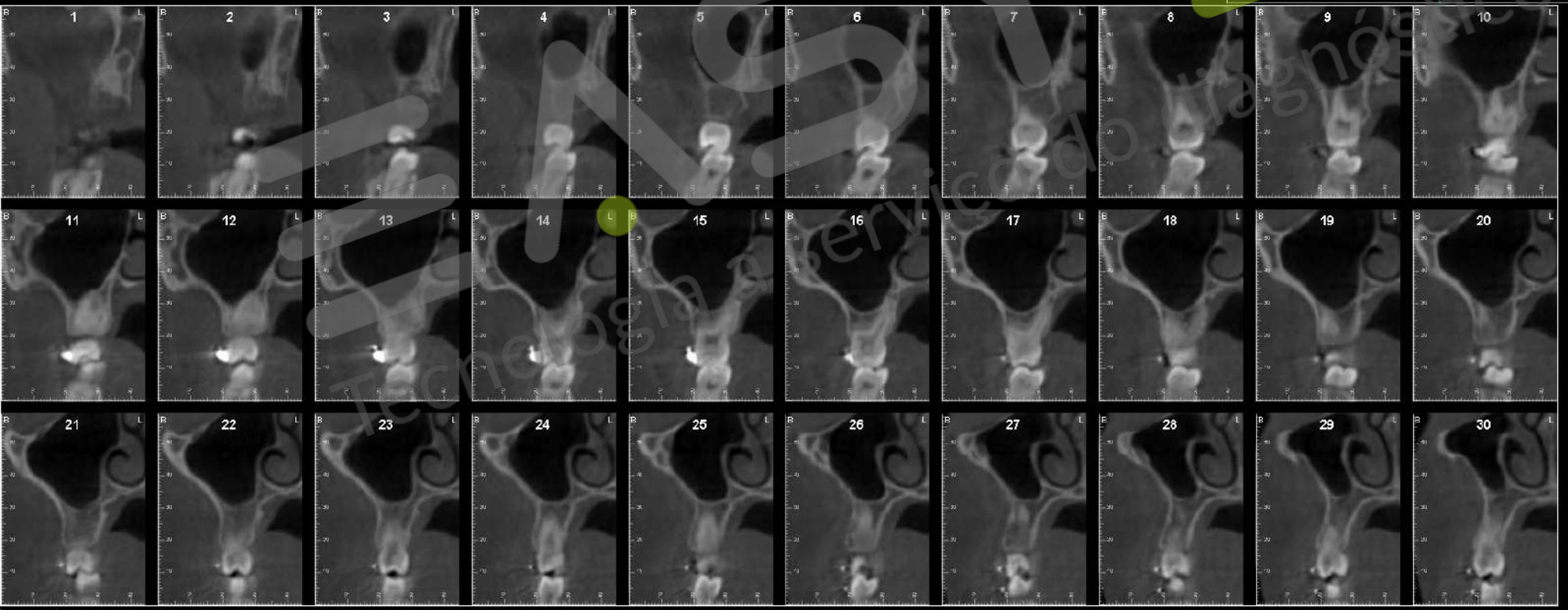
Tecnologia a serviço do d
EASY 3D

LATERAL TELERADIOGRAPHY



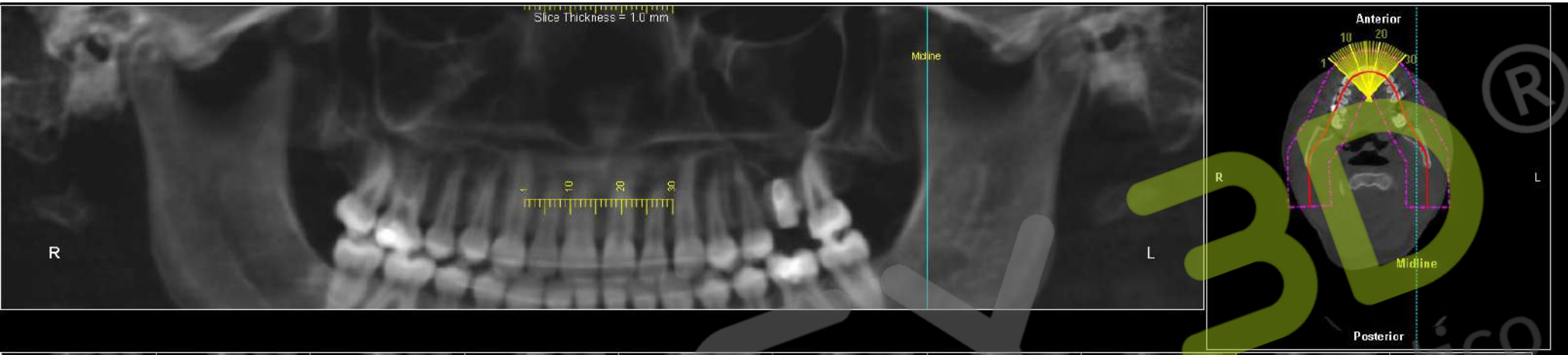
SAGITTAL SECTIONS FOR SEXTANTS- 1 SEXTANT

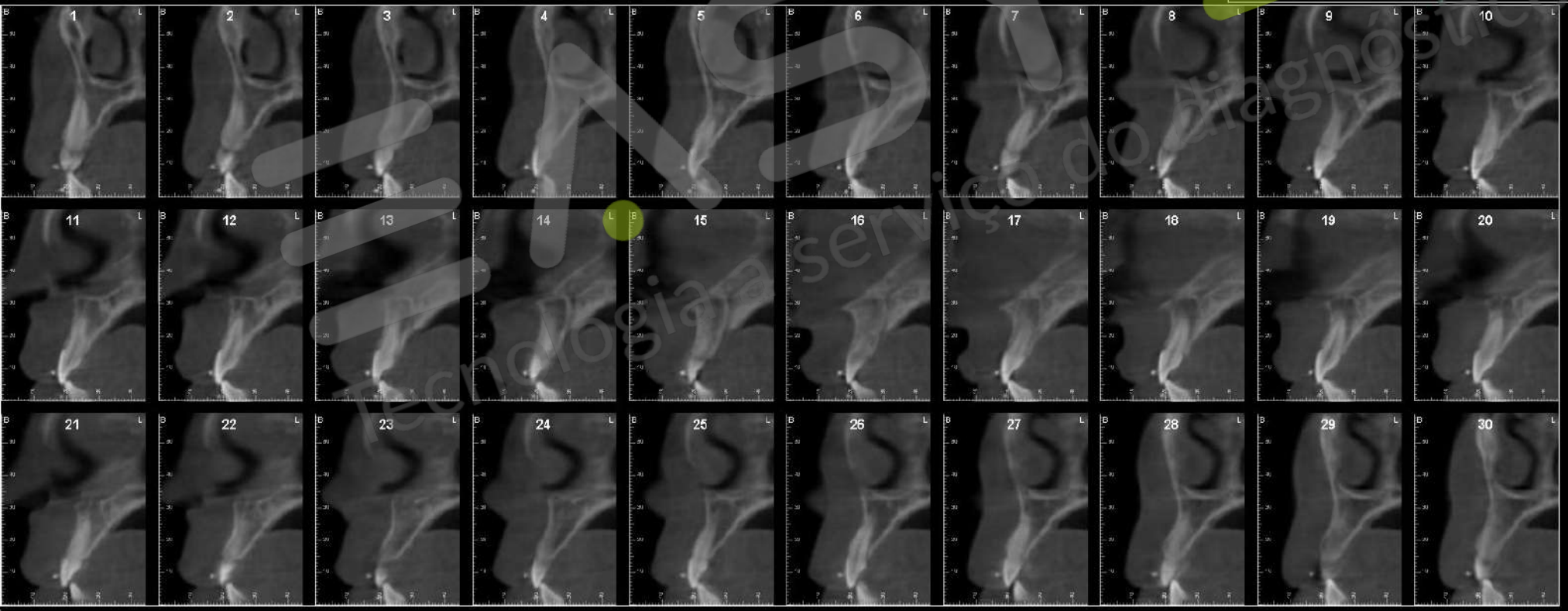




Tecnologia a serviço do diagnóstico

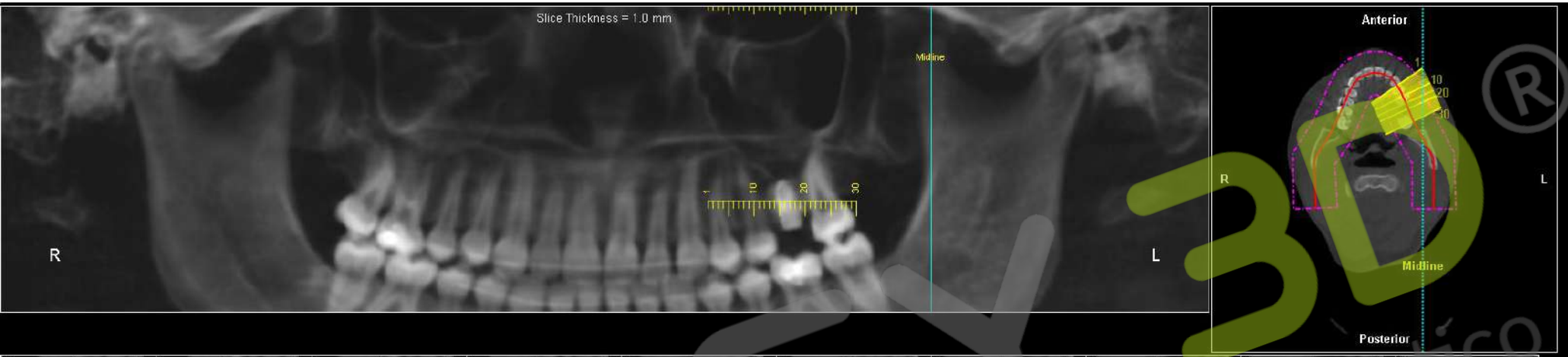
SAGITTAL SECTIONS FOR SEXTANTS- - 2 SEXTANT

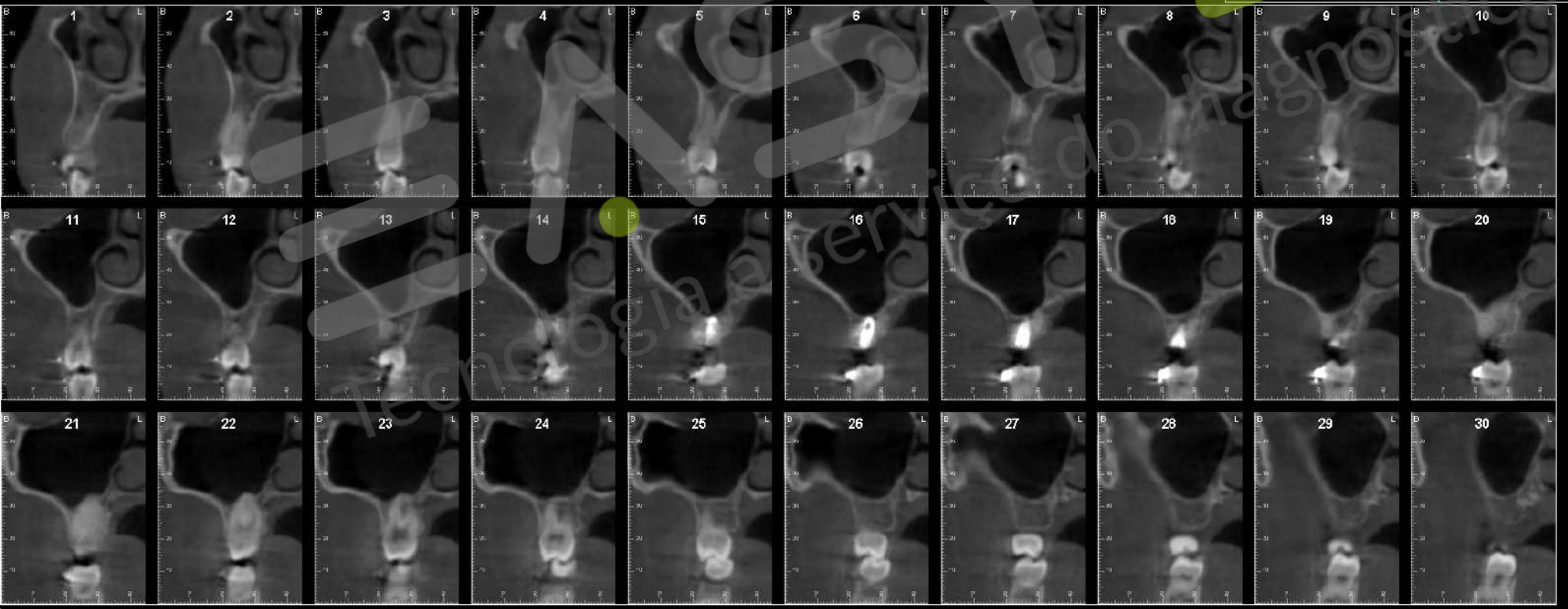




Tecnologia a serviço do diagnóstico

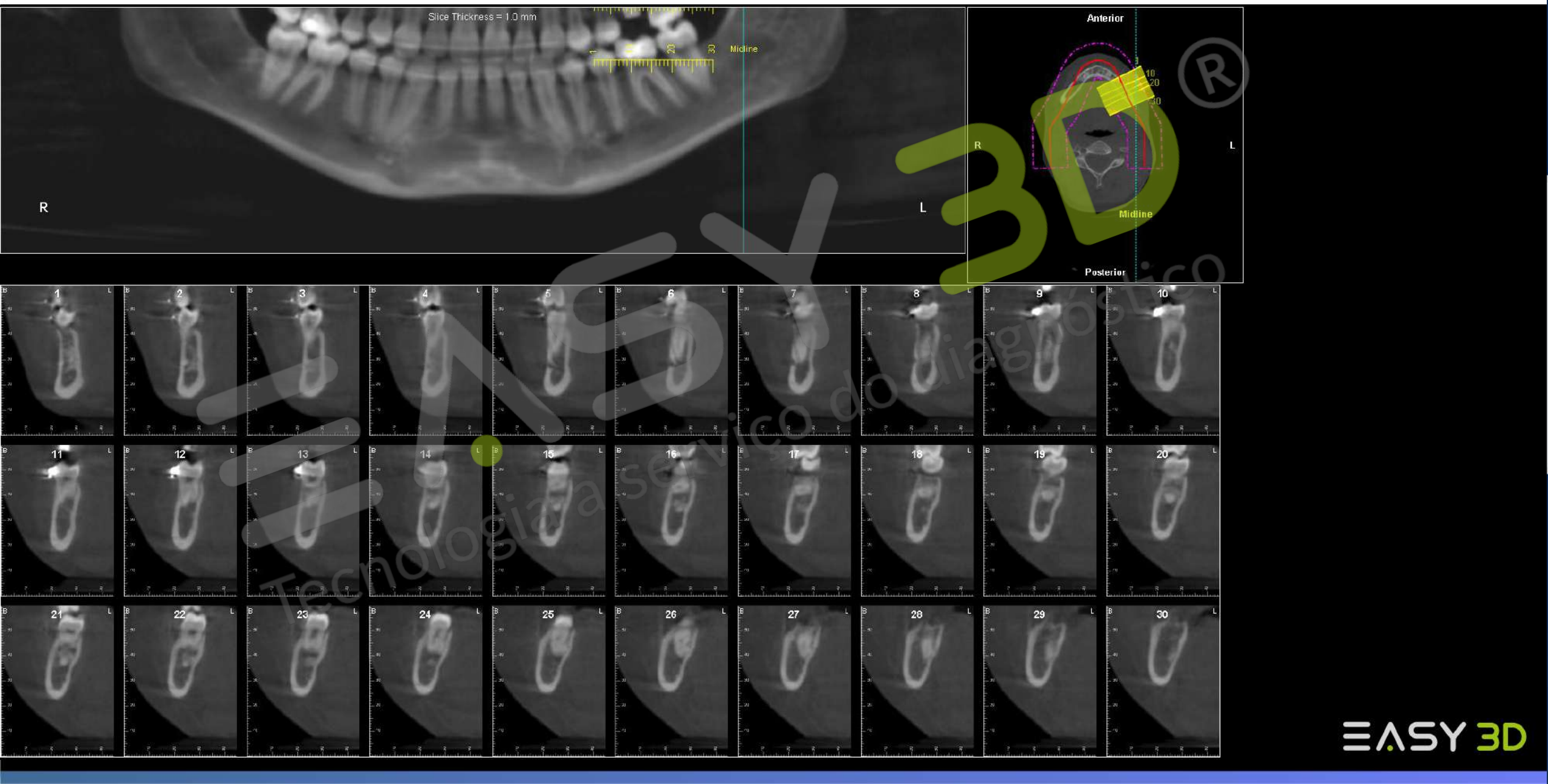
SAGITTAL SECTIONS FOR SEXTANTS- - 3 SEXTANT





Tecnologia a servizio della diagnostica

SAGITTAL SECTIONS FOR SEXTANTS - 4 SEXTANT



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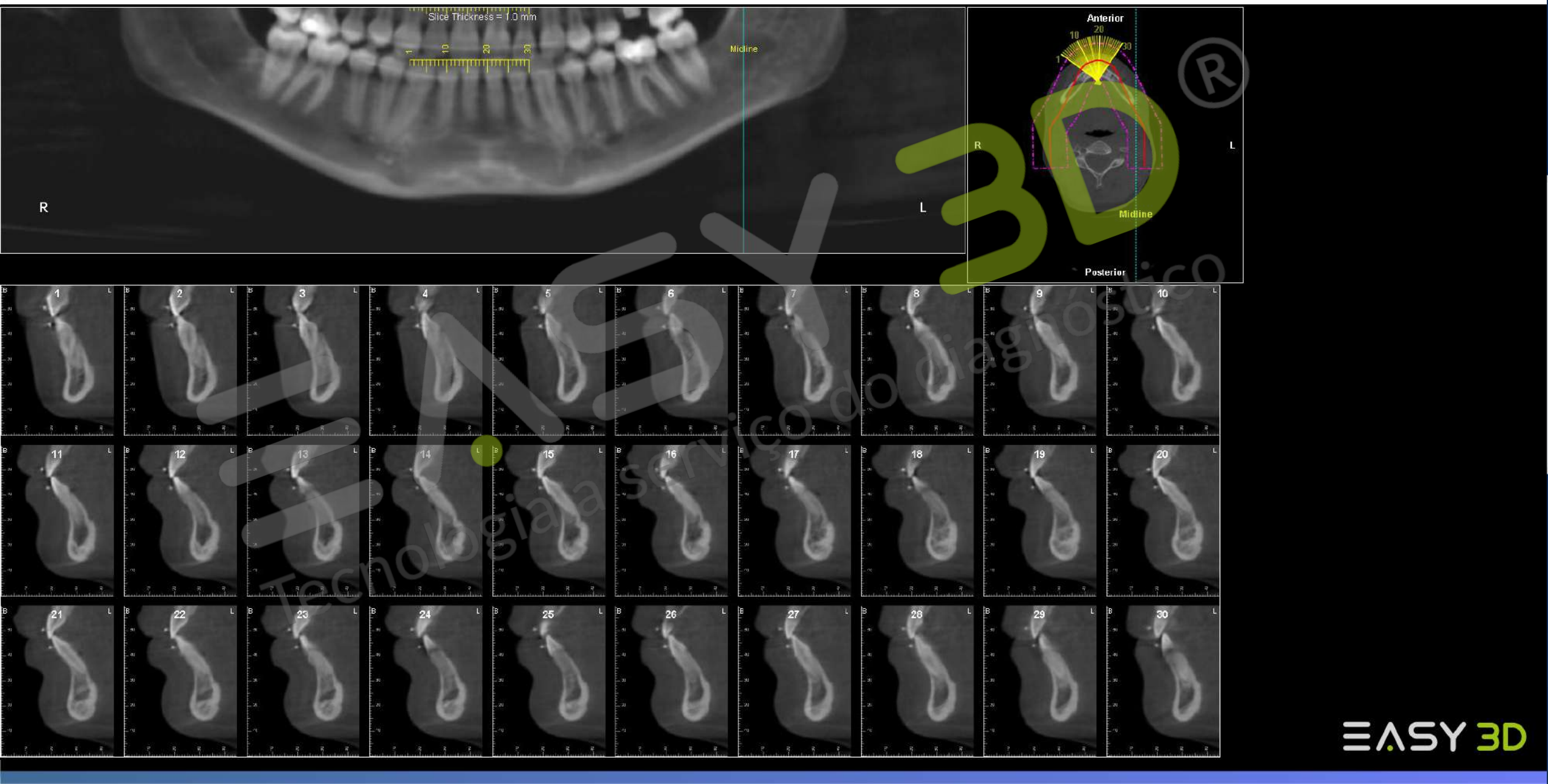
SAGITTAL SECTIONS FOR SEXTANTS - 5 SEXTANT



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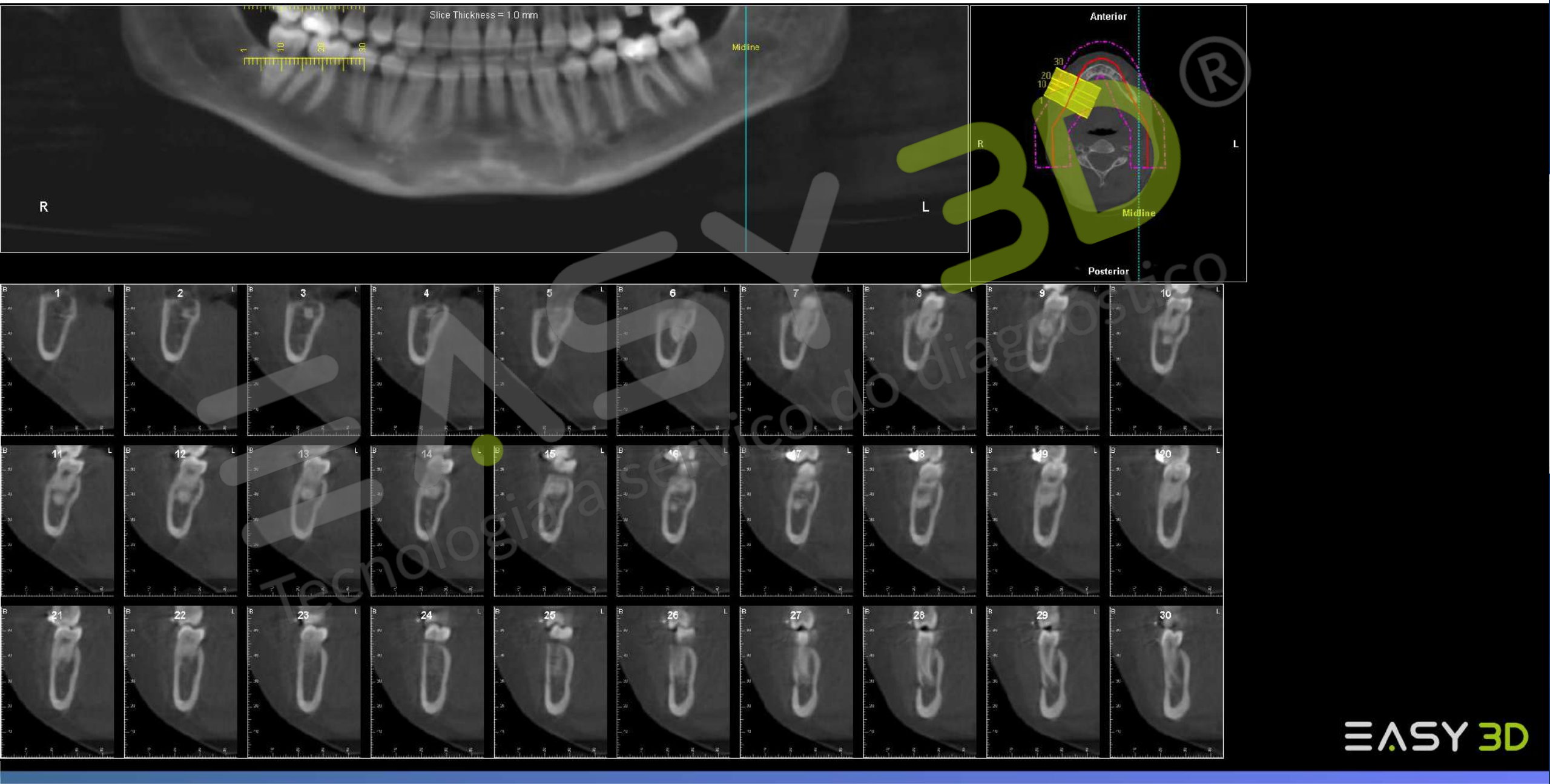
Tecnologia a serviço do diagnóstico

SAGITTAL SECTIONS FOR SEXTANTS - 6 SEXTANT



CLINICAL STANDARDS

Avaliação	Referidos	Norma Clínica	Diagnóstico
Sagittal Skeletal Relationship - Point A - B	Slide 28	0,52-5,5mm	Class I
		> 5,5mm	Class II
		< 0,55mm	Class III
°Occlusal Plane /PHF	Slide 30	8 -10° (H:11°, M: 9°)	> Clockwise inclination
			< Counterclockwise inclination
IMPA	Slide 30	90 (± 3mm)	> Vestibularized Incisor
			< Lingualized Incisor
°Mandibular plane / PHF		Mixed Denture: 25°	>Vertical Growth Tendency
			<Horizontal Growth Tendency;
		Permanent Denture:	>Vertical Growth Tendency
		Man 21,3° (±3,9°)	
		Woman 22,7° (±4,3°)	<Horizontal Growth Tendency
Superior Incisor Angle/ PHF		120° – 110°	130°-120° Superior Protrusion
			110°- 80° Superior Retrusion
Interincisal Angle	Slide 31	130° (±6°)	>Retroinclination
			<Proinclination
Overjet	Slide 32	2,5mm (±2,5mm)	>Accentuated Overjet (Class II)
			<Decreased Overjet (Class III) Cross Bite
Overbite	Slide 33	2,5mm (±2,5mm)	< Open Bite
			> Overbite/ Deep bite
SNA	Slide 34	82° (±2)	> Protruded Maxilla
			< Retruded Maxilla

Tecnologia a serviço do diagnóstico

CLINICAL STANDARDS

Evaluation	Referred to	Normality	Diagnosis
SNB	Slide 34	80° (±2)	> Protruded Mandible
			<Retruded Mandible
ANB		3° (±2)	>Maxilla in front of the Mandible (Skeletal Class II)
			<Mandible in front of the Maxilla (Skeletal Class III)
Ricketts Facial Axis	Slide 35	90° (±3,5°)	>Chin Protrusion. Horizontal Growth Pattern
			< Retruded Menton. Vertical Growth Pattern
Lower Face Height (ENA-Me)	Slide 36	Men: 74,6mm (±5mm)	> Increased Vertical Dimension
		Women: 66,7mm(±4,1mm)	< Decreased Vertical Dimension
Total Facial Height (N-Me)		105 – 120mm	>Increased Vertical Growth
			<Vertical Growth Decreased
Andrews A/P Assessment. Incisor	Slide 37	0° (± 2)	>Anterior projection
			< Posterior Positioning
Evaluation of Transverse Discrepancy	Slide 49	Axial Angulation 1st Upper Right Molar	97,77° (± 2,7)
		Axial Angulation 1st Upper Left Molar	98,29° (± 2,56)
		Axial Angulation 1st Mandibular Molar Right	104,22° (± 2,67)
		Axial Angulation 1st Mandibular Molar Left	103,85° (± 2,47)
		Length S' Palate	27,73mm (± 2,08mm)
		Lingual 'S' Length	28,95mm (± 2,79mm)
		Maxillomandibular Differences S'	-1,22 (± 2,91mm)

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