

Table I
Oropharyngeal airway boundaries

Boundaries	Technical limits
Anterior	Plane, perpendicular to FH, passing through PNS
Posterior	Plane, perpendicular to FH passing through the superior posterior boundary of the odontoid process of C2
Upper	Plane, parallel to FH passing through PNS
Lower	plane parallel to FH at the level of the tip of epiglottis
Lateral	Plane, perpendicular to FH through the lateral walls of medial pterygoid plates

FH: Frankfort horizontal

PNS: posterior nasal spine

C2: second cervical vertebra

Table II
Descriptive statistics of the 2D and 3D measurements.

Variables	N	Min.	Max.	Mean	SD
Age group 1 (<20 years)					
3D					
Oropharyngeal volume (mm ³)	30	5762.9	30887.5	15108.9	6089.7
MCSA (mm ²)	30	86.90	586.33	209.66	125.97
Sagittal dimension of MCSA (mm)	30	2.20	18.80	9.59	3.99
Vertical location of MCSA (mm)	30	3.70	49.00	29.98	11.40
2D					
Vertical location of MSLD (mm)	30	1.72	53.09	27.92	13.23
Sagittal dimension of MSLD (mm)	30	4.25	16.29	8.59	3.11

Age group 2 (20-40 years)					
3D					
Oropharyngeal volume (mm ³)	30	6713.1	26491.5	15782.0	5631.7
MCSA (mm ²)	30	48.70	364.40	181.49	86.39
Sagittal dimension of MCSA (mm)	30	4.20	15.50	8.60	3.26
Vertical location of MCSA (mm)	30	23.6	74.40	34.94	11.54
2D					
Vertical location of MSLD (mm)	30	16.86	56.67	32.83	11.27
Sagittal dimension of MSLD (mm)	30	2.58	11.16	6.59	2.33
Age group 3 (>40 years)					
3D					
Oropharyngeal Volume (mm ³)	31	6006.2	101916.0	19430.2	17154.7
MCSA (mm ²)	31	54.60	503.70	175.54	107.81
Sagittal dimension of MCSA (mm)	31	3.10	14.20	7.37	3.12
Vertical location of MCSA (mm)	31	6.9	62.20	36.37	11.13
2D					
Vertical location of MSLD (mm)	31	16.17	69.78	36.11	13.59
Sagittal dimension of MSLD (mm)	31	3.02	13.05	6.22	2.52

MCSA: minimum-cross sectional area

MSLD: minimum sagittal linear dimension

Table III

Bivariate associations between 2D and 3D variables

Bivariate correlations	Age group 1 (<20)		Age group 2 (20-40)		Age group 3 (>40)	
	Coefficient of correlation	p - value	Coefficient of correlation	p - value	Coefficient of correlation	p - value
Vertical locations of MSLD in 2D RLC (mm) and MCSA in CBCT scans	$r = 0.621$	< 0.001	$r_s = 0.411$	< 0.001	$r = 0.531$	0.002
MSLD in 2D RLC (mm) and the sagittal dimension of MCSA in CBCT scans (mm)	$r = 0.873$	< 0.001	$r = 0.727$	< 0.001	$r = 0.611$	< 0.001
MSLD in 2D RLC (mm) and airway volume (mm ³)	$r_s = 0.693$	< 0.001	$r = 0.491$	0.006	$r_s = 0.373$	0.039
MSLD in 2D RLC (mm) and MCSA (mm ²)	$r_s = 0.816$	< 0.001	$r = 0.706$	< 0.001	$r_s = 0.588$	< 0.001

RLC: reconstructed lateral cephalograms
MSLD: minimum sagittal linear dimension
MCSA: minimum-cross sectional area
r : Pearson coefficient of correlation
rs : Spearman coefficient of correlation