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RADIOGRAPHIC EVALUATION OF GONIAL ANGLE (BY USING PANORAMIC AND LATERAL CEPHALOMETRIC RADIOGRAPHS)

Alia Tabour Thijeel
MSC.(Oral radiology)/ Assistant teacher
Technical Medical institute /Middle Technical university-Iraq
aliataboor65@gmail.com

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Abstract:

Background: The outside gonial Angle is a significant Angle in the orthodontic treatment and in the craniofacial complex . Because of superimposed pictures of the anatomical structure including gonial angle in lateral cephalometric so we used Panoramic radiograph to measure the gonial Angle ((left and right)) accurately without superimposed that present in cephalometric .

Material and method : an aggregate of 90 all encompassing and 90 cephalometric radiographs were acquired from 18-30 years and the gonial angle was measured in all encompassing and cephalomtric radiograph . We utilized Pearrson's relationship coeffcient and combined t - test to analyze the result.

Result : the consequence of the review showed that there was no measurably critical unique between the deliberate gonial Angle on all encompassing and cephalomtric radiographs and furthermore no distinction among right and left Angle.

Conclusion : the all-encompassing radiograph is a straightforward, low cost,accurate and obtainable technique which be able to utilized to assurance of left and right gonial Angle as same as with a lateral cephalometric technique but without superimposed of the angle which was present in lateral cephalometric radiograph .

Keywords: Gonial Angle , Radiography , Panoramic , Cephalometry

INTRODUCTION

Radiography is used as comprehensively as possible practicing orthodontics to give important data about teeth, tilt, progression periods, and encapsulated tissues [1,2] .

sidelong and anterio-posterior the expectations are utilized head measurement, but in this technique, measure in divided gonial angle is troublesome ,in light of the fact that parallel cephalometry Overlayed with different pictures, this disadvange is not encounted panoramicly images which is being utilized for jaw assessment [3] . Perhaps the main plot for deciding orthodontc or careful The treatment plan is angular, that normally removed from parallel cephalometric radiograph [3] , a few investigations expressed there is an extraordinary An individual variety in gonial angle mutilation showed gonial angle differes according to age and various kinds of malocclusion [4,5] . Also, some some studies stated the right and left angles can be independent estimated by all encompassing radiography which is straightforward and repeatable radiographic technique. Fischer – Bramdies et al. expressed that in deciding the gonial angle, the sidelong cephalometric radiography is liked [6] . Anyway Larheim and Svanaes showed that horizontal cephalograms didn't allow dependable enrollment of the gonial angle and superimposed pictures evented challenges in estimation of the singular points, where as the gonial angle Rated of a panoramic movie was approx compatible with that measured on a dry lower jaw [7]. Since the gonial angle can be resolved more effectively in an orthopantomogram than in a sidelong cephalogram, we chose to think about the a curacy of gonial angle measures acquired of the two kinds .

OBJECTIVES

Purpose of the study involve the use of panoramic radiograph in evaluation or estimating the gonial angle

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and contrast this estimation and sidelong cephalomateric radiograph.

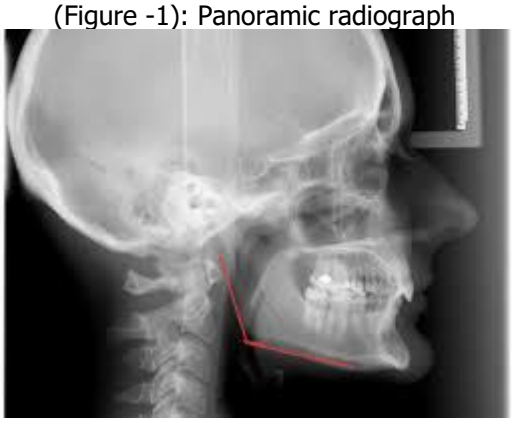
MATERIALS AND METHODS

An aggregate of 90 all encompassing and 90 cephalometric radiographs (50 females and 40 males) were obtained . They have matured from 18-30 years ,every one of the chose patients had been dealt with with the orthodontic and selected from healthy center for prosthetic and orthodontic treatment / Bab Al-Moadam

The rules for determination of patient radiographs were as observe: every one of the radiographs must be taken by a similar device and in normal head position , the radiographs must be of great and sharpness and every one of the patients had Cl. I point order.

In sidelong cephalograms , lower jaw and ramus planes were drawn and in light of these plane ,and gonial not entirely settled. In all encompassing radiographs , the gonial not entirely set in stone from two digressions which was extracted from the sub-par boundaries from the lower jaw and back lines Lokma and Ramos the two sides (the gonial point in the convergence from a ramal plane (Ar-Go) and the level of the lower jaw (Go-Gn) were estimated by utilizing AutoCAD .(Figure 1,2)

(Figure -1): Panoramic radiograph



(Figure -2): Lateral cephalometric radiograph

The information were investigated by Via SPSS 17 for Windows version (SPSS Inc , Chicago ,IL,USA ; variant 15.0 for windows) using Pearrson's relationship coefficient and combined sample t - test .

THE RESULT

Table 1 and 2 Show the understanding amidst two techniques (left and right panoramic and cephalometric radiographs) To measure gonial angle Correlation coefficient via Pearson (Figures 1 and 2 are graphs of Tables 1,2). Figures 3 and 4 show the understanding between the two techniques of measuring angular angles using Pearson's relationship coefficient and Bland-Altman plots (i.e. left-right panorama and cephalometric radiographs).

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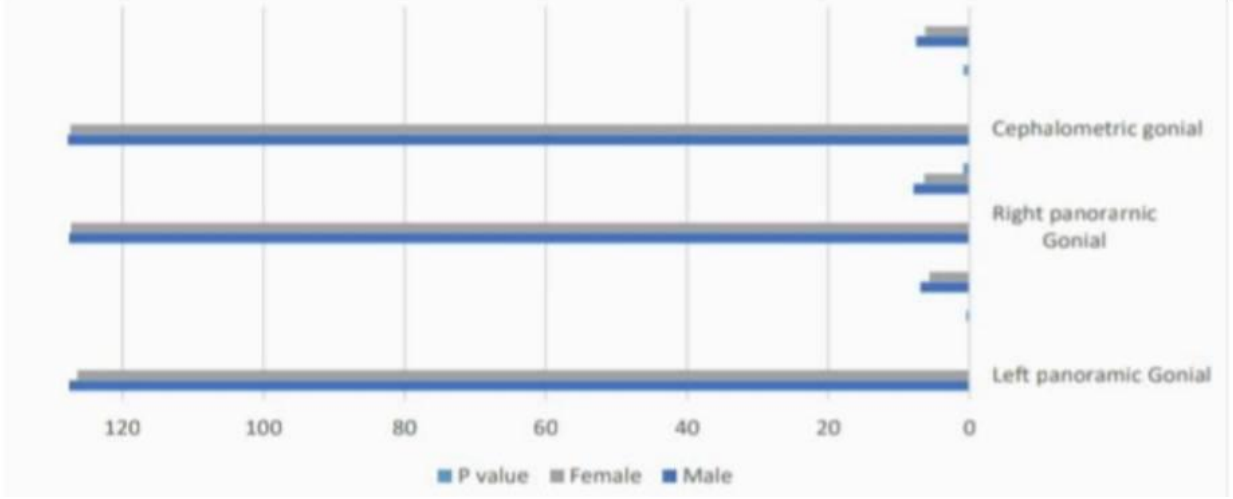
Table(1) : Mean and standard deviation angular angles in panorama and cephalometric radiographs (grades) by gender.

Gender	Left panoramic Gonial angle		Right panoramic Gonial angle		Cephalometric gonial angle	
	mean	SD	Mean	SD	Mean	SD
Male	127.54	6.95	127.53	7.91	127.72	7.55
Female	126.4	5.68	127.27	6.40	127.38	6.29
P value	0.441		0.875		0.832	

Figer (1)



Figer(1): Mean and standard deviation angular angles in panorama and cephalometric radiographs (grades) by gender

Table (2) : Connection among's both ways All encompassing and Cephalomtric Radiograph for estimation of the gonial angle.

Variables	Pearson's correlation coefficient	P value
Left and right Panoramic gonial angles	0.82	0.01
Left Panoramic and cephalometric gonial angles	0.918	0.01
Right Panoramic and cephalometric gonial angles	0.863	0.01

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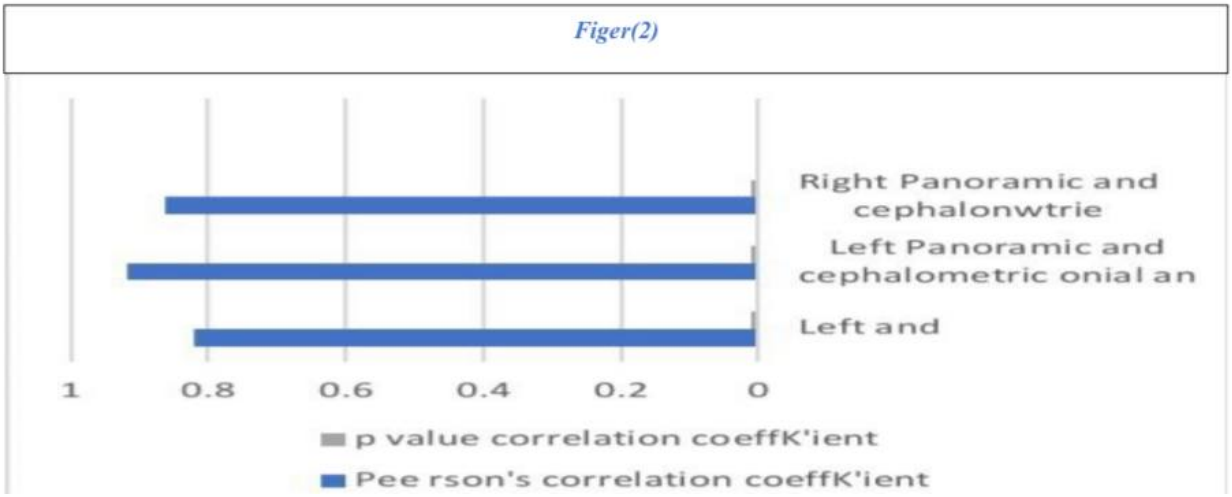

Figer(2): Mean and standard deviation of the Gonial angle in Panoramic and Cephalometric radiographs (grades) in various g.

table 3 , review the mean gonial angle estimated by the 2 strategies.

Table (3): Mean and standard deviation of Gonial angle on Panoramic and Cephalometric radiographs (grades)

Variables	Mean	SD
OPG L[a]	126.77	6.10
OPG R	127.36	6088
OPG	127.07	6.10
Cephalometry	127.5	6.67

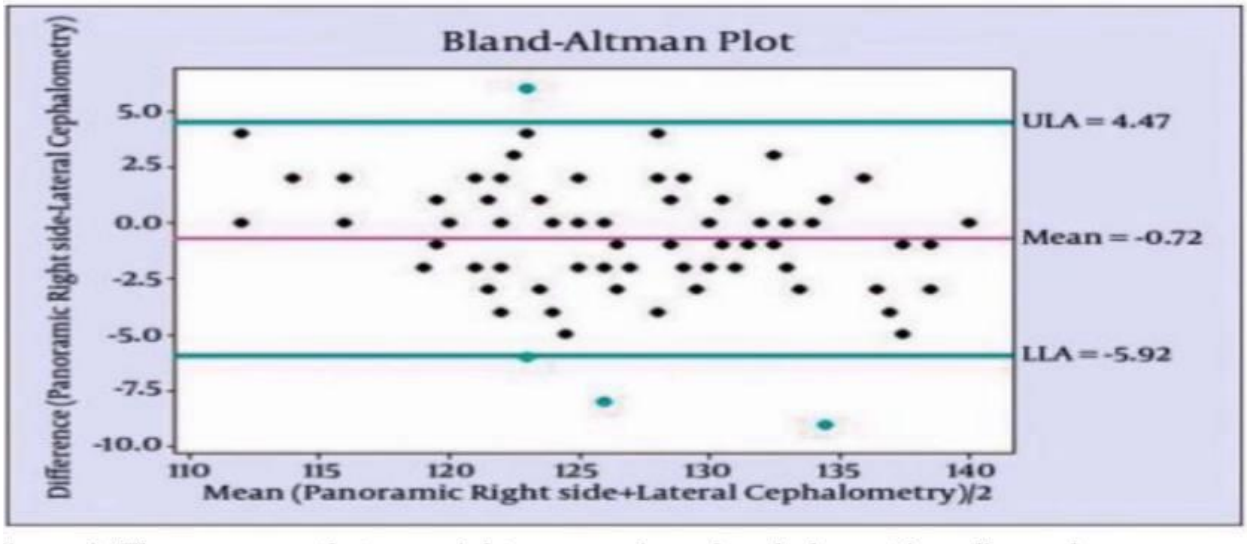

Figure 3. The understanding amidst right all encompassing and cephalo-metric radiographs

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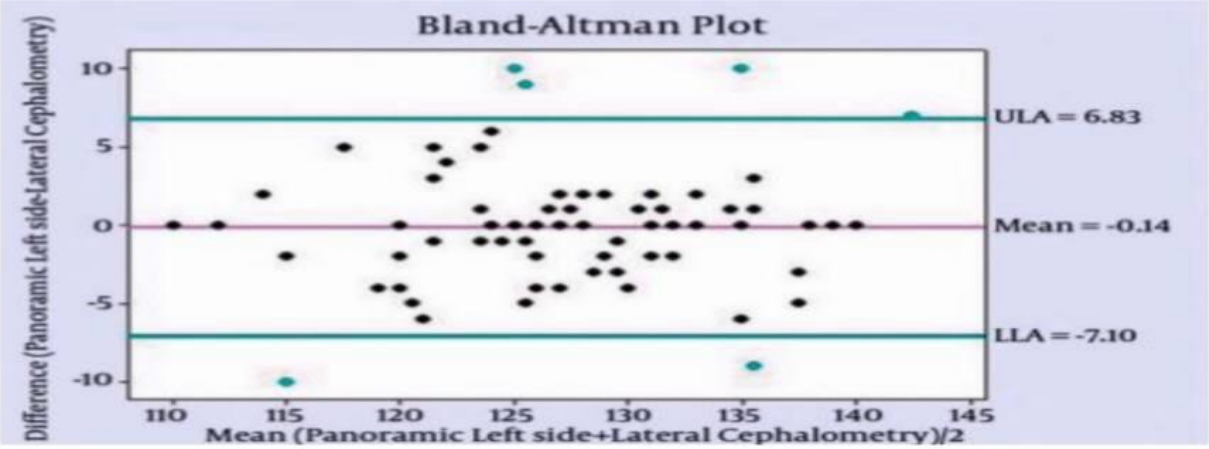
Figure 4. The arrangement amidst right all encompassing and cephalomet-ric radiographs



DISCUSSION

Evaluate the mean and standard deviation of the gonial point on all encompassing and Radiographs of the head show up point wasn't essentially unique amidst the two sexual orientations.

The mean worth of gonial angle of topics in current concentrate in OPG It was a head measurement 127.07 ± 6.10 and 127.5 ±6.67degree , separately in contrast with a review performed by Up DeGrave et al [8] in which these point were 127.3±6.5 and 122.4±606 grades separately , that might be because of hereditary distinction in development example's . Matilla [3] announced that the exactness of the estimation of the gonial point on all encompassing radiograph is like Measure. Different creators noticed no distinction amidst the right and left gonial angle [8,10,11] , While angular measurements affected by head position and common panorama deformities may affect angular measurements, we standardize panoramas by increasing head position accuracy by biting lights and gnawing grooves in the right plane Technology .

In our review , he was not there huge distinction amidst the mean gonial angle in various orientation age bunches from the two unique sorts of radiographs, which was in concurrence for the aftereffect of Altonen [12] ***. Raustlia et al*** [10], asserted that orientation irrelevantly affected the size of the gonial angle. a few past investigations have detailed a distinction in gonial angle between the two orientation [11, 13,17] .

Gungar et al [14] distinguish at left angles amidst the two directions [9,14] . ***Larheim*** and ***Suanaes*** [7] , likewise expressed that both all encompassing and cephalogrms were exact in deciding the gonial angle no significant difference was observed amidst the right and the left sides in all encompassing radiography. ***Nohadani et al*** [15] thought about longitudinal Vertical facial and alveolar utilizing all encompassing radiograph with estimations on sidelong cephalometric radiographs, They detailed that all encompassing dental x-rays are also not valuable for assessing vertical face boundary change over time, As previously emphasized angular measurement In panoramic photos it is greater reliability than portrait measurements because it is not affected by image distortion, particularly in back and horizontal parts of the lower jaw. So rakish contortion in all encompassing pictures is inside the adequate reach furthermore, they could be utilized for clinical estimations assuming the pictures are arranged Accurately and without errors mistakes. [16]

CONCLUSION

Panoramic radiograph as to be utilized to decide the gonial angle as precisely as a parallel cephalogram where there is no critical contrast in the gonial angle values as in estimated on cephalogram and OPG . In addition to, OPG structures n extra device for simpler and more exact assurance the left and right angles of the patient without impedance because of very forced pictures of physical design in a parallel cephalogram for assurance of the gonial angle an , OPG and be a better choice than the main chart.

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