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Mental Foramen and Bigonial Distance For Sex Detection by Cone Beam CT

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ABSTRACT

Aim: to assess the accuracy of CBCT sex determination in a population sample from Egypt by utilizing the mental foramen and bigonial distance. **Subjects and methods:** The mandibles of 500 people were analyzed in this study; 250 of those people were male and 250 were female. Ages 18 to 60 were represented among the participants. Through the use of a mouse-driven method, the dimensions were measured in millimeters. The tests examined the Superior Mental Foramen (SMeF) on the right side of the brain and the Inferior Mental Foramen on the left side. These mental foramina are recognized by different names. (SMeF): the measurement was taken at the midpoint of the lower border, halfway between the superior end of the mental foramen and the point of greatest curvature of the jaw. Conversely, the inferior end of the mental foramen to the midpoint of the lower border distance was used to quantify the maximum curvature of the mandible (IMeF). The length between the gonion on the right and left side was called the bigonial distance. We coded, tabulated, and statistically analyzed the data that we received using IBM SPSS statistics (Statistical Package for Social Sciences) software version 28.0, IBM Corp., Chicago, USA, 2021. **Results:** Every single assessment revealed a statistically significant disparity between the sexes ($p<0.05$). With a diagnostic accuracy of 100%, bigonial distance revealed the highest degree of dimorphism. **Conclusion:** The current research confirms the usefulness of CBCT pictures for sexual dimorphism in anthropometric analysis and forensic medicine, as well as for providing useful information on mandibular measurements.

KEYWORDS

Mental foramen, bigonial distance, sex, CBCT.

INTRODUCTION

Forensic anthropology and medicolegal investigations rely heavily on the capacity to discern sex, as it is fundamental for identification. Identifying a person's sex is the first purpose of identification, which is followed by determining their age, stature, and ethnicity which are sex dependent. [1]

Using a complete skeleton, gender analysis and estimate can define morphologic traits for gender determination with an accuracy of 90% to 100%.2 The pelvis is the most reliable indicator of gender, although the

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skull is second best.3. In the event that a whole dry skull cannot be located, as would happen in a mass catastrophe, the gender of the deceased may be ascertained by examining the mandible, the biggest, stiffest, and most dimorphic bone in the skull.[4]

Typically, morphological and metric analyses are employed to ascertain the sex. The metric parameters are derived from measurements of bone fragments, which are precise and reproducible. [5]

Nowadays, dentofacial radiography is a standard practice in many types of medical, dental, and hospital practices.[6] Because it is difficult to locate a meaningful measurement point when bony components overlap, traditional two-dimensional (2D) analysis may introduce bias. Some have proposed using 3D methods, such as 3D cone beam computed tomography (CBCT), to address this problem.7Accurate localization and description of bone structures are now within reach, made possible by CBCT's ability to generate high-quality, distortion-free 3D photos utilizing specialist CBCT software at a low radiation dosage. 8 In order to determine gender in an Egyptian population sample, this study will use cone beam computed tomography (CBCT) measurements of the mental foramen and bigonial distance.

MATERIALS AND METHODS

This study is a retrospective analysis of CBCT radiographs taken from the database of the outpatient clinic of the oral and maxillofacial radiology department at Minia University. The subjects included 500 male and female upper-class Egyptians whose ages ranged from 18 to 60. The patients had CBCT imaging done for various reasons, such as dental implant surgery or orthodontic treatment.

Inclusion Criteria

1. Images showing angle of mandible.
2. Images with high quality.
3. Upper Egyptian people.

Exclusion Criteria:

1. Mandible fractures.
2. Bone tumors.
3. Systemic diseases affect bone metabolism.
4. Growth disorders.
5. Missing teeth

Scanning method:

We used the patient's height on the office floor and the Frankfort-Horizontal plane to get them into the optimal position for the CBCT scan. The data for each instance came from the SCANORA® 3Dx CBCT dental machine, with the following settings: scan duration 18–34 s, effective exposure time 2.4–6 s, focal point 0.5 mm, kV 60–90, mA 4-10).

Digital Imaging and Communications in Medicine (DICOM) format was used to store the patients' CBCT scans. The OnDemand application was used to reformat the axial, sagittal, coronal, and reconstructed CBCT 3D images. In order to process the scans, a bright LCD computer screen and suitable ambient lighting were utilized. The patients' genders and dates of birth were documented.

We used a mouse-driven method to measure in millimeters by dragging and dropping lines on the CBCT image based on our selections.

From a coronal slice, two measurements were collected for the mental foramen (Figure 1). [9]

- The view should depict the mental foramen at its widest opening for the sake of consistency.
- Make sure the sagittal plane is perpendicular to the mandible's long axis in the axial view.

It was set to maximize the coronal view window.

Using the lens, we zoomed in until the side ruler measured 1 cm.

To take measurements, a ruler was employed.

The SMF measures the distance from the apex of the mental foramen to the midpoint of the mandible's bottom border when it is curled at its most acute angle.

The measurement begins at the base of the inferior mental foramen (IMeF) and extends to the midpoint of the lower border of the mandible, where it is most curved.

Bigonial distance was measured from frontal reconstructed CBCT 3D image Figure 2). [7]

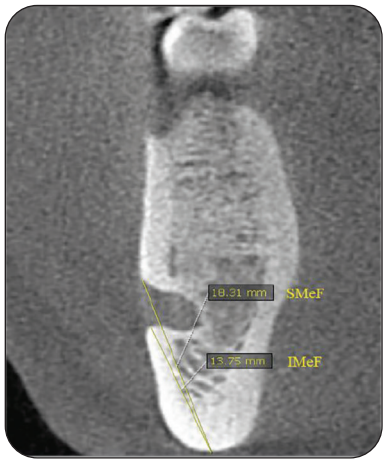

Fig. (1) SMeF & IMeF measurements on the coronal cut of a CBCT radiograph

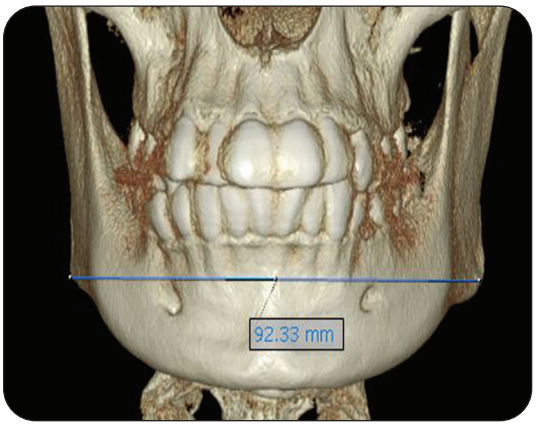

Fig. (1) Forontal reconstructed CBCT 3D image showing linear measurement of bigonial distance

Statistical analysis

We coded, tabulated, and statistically analyzed the data that we received using IBM SPSS statistics (Statistical Package for Social Sciences) software version 28.0, IBM Corp., Chicago, USA, 2021. Qualitative data was shown as mean±SD (standard deviation) and ranged from minimum to maximum after being tested for normality using the Shapiro-Wilk test. Two sets of data were compared using paired t-tests and independent t-tests. It was deemed significant if the p-value was below 0.050; otherwise, it was deemed non-significant.

Here are the diagnostic features that were calculated:

The formula for sensitivity is sensitivities divided by total positive golden tests, multiplied by 100.

* The specificity is equal to 100 times the ratio of the true negative test to the total negative golden.

- The formula for diagnostic accuracy is (multiplying the sum of the true positive and negative tests divided by the total number of cases)x 100.

The predictive positive value is 100 times the ratio of the number of tests that found a positive result to the total number of positive tests.

The sum of the true negative test and the total negative test divided by 100 is the predictive negative value.

RESULTS

In this study, 500 mandibles were examined, with a combined age range of 18-60 years (mean age 34.4±7.2 for men and 34.3±7.7 for females).

When comparing boys and girls, the superior mental foramen was clearly different. The men showed no statistically significant difference between the two sides, but the ladies' right side was noticeably higher than the left (Table 1). In comparison to females, men had a greater mean superior mental foramen on both sides (Figure 3).

Table (1) *Comparison between males and females' groups regarding right and left superior mental foramen*

Parameters	Measures	Males (N=250)	Females (N=250)	^p-value
Right Superior Mental Foramen (mm)	Mean±SD	18.6±2.3	16.5±1.7	0.001*
	Range	11.6–21.5	13.4–19.5	
Left Superior Mental Foramen (mm)	Mean±SD	18.6±2.3	16.4±1.6	<0.001*
	Range	11.7–21.5	13.4–19.8	
Right vs. left	#p-value	0.817	<0.001*	

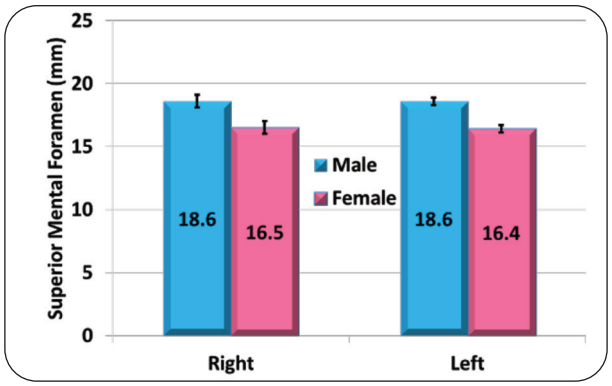

Fig. (3) Comparison between males and females groups regarding superior mental foramen.

The inferior mental foramen was significantly different in men and women. In females, the right side was noticeably higher than the left, but in men, the left side was noticeably higher (Table 2). According to Figure 4, males had a greater mean of inferior mental foramen of both sides compared to girls.

Table (2) *Comparison between males and females' groups regarding right and left inferior mental foramen.*

Parameters	Measures	Males (N=250)	Females (N=250)	^p-value
Right Inferior Mental Foramen (mm)	**Mean±SD**	14.5±1.8	13.4±1.5	**<0.001***
	Range	9.7–16.8	10.4–16.8	
Left Inferior Mental Foramen (mm)	**Mean±SD**	14.6±1.9	13.2±1.6	**<0.001***
	Range	9.2–16.9	10.2–17.3	
Right vs. left	**#p-value**	**0.014***	**<0.001***	

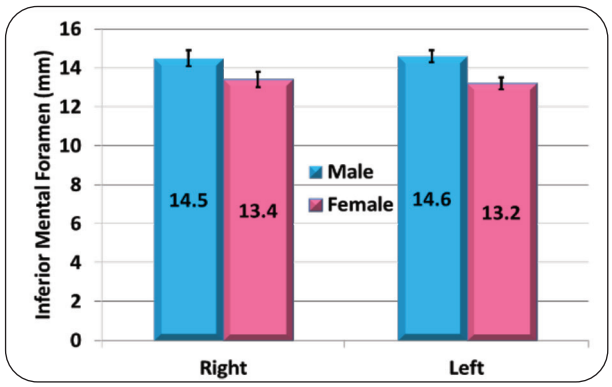

Fig. (4) Comparison between males and femalesgroups regarding Inferior mental foramen.

According to Table 3, there was a notable disparity in the gonion¬gonion distance between the sexes. In comparison to females, men had a greater mean gonion_gonion distance (Figure 5).

Table (3) *Comparison between males and females' groups regarding distance from right gonion to left gonion (gonion-gonion distance)*

Parameters	Measures	Males (N=250)	Females (N=250)	^p-value
Gonion - Gonion Distance (mm)	Mean±SD	101.4±6.2	90.4±3.4	<0.001*

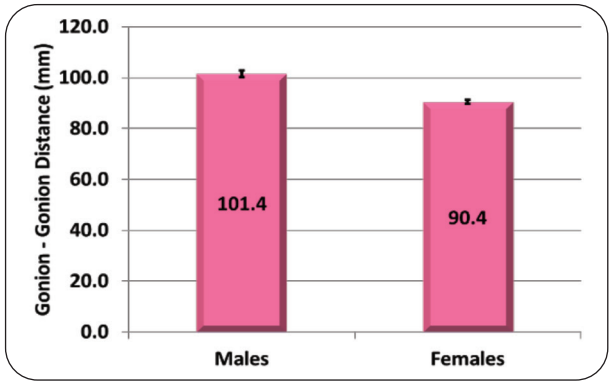

Fig. (5) Comparison between males and females groups regarding gonion - gonion Distance

According to Table 4, the diagnosis accuracy was 0.784 for the right superior mental foramen and 0.800 for the left (indicating strong statistical significance).

Table (4) *Diagnostic performance and characteristics of superior mental foramen in differentiating males from females.*

Parameters	AUC	SE	p-value	95% CI	Cut point	Sensitivity	Specificity	DA	PPV	NPV
Right Superior Mental Foramen	0.784	0.066	**<0.001***	0.743–0.825	≥18.1	68.0%	88.0%	78.0%	85.0%	73.3%
Left Superior Mental Foramen	0.800	0.065	**<0.001***	0.760–0.840	≥17.7	72.0%	84.0%	78.0%	81.8%	75.0%

The diagnostic accuracy for the right inferior mental foramen was statistically significant at 0.698 with an AUC of 0.735, but the diagnostic accuracy for the left superior mental foramen was good at 0.735 (Table 5).

Table (5) *Diagnostic performance and characteristics of inferior mental foramen in differentiating males from females*

Parameters	AUC	SE	p-value	95% CI	Cut point	Sensitivity	Specificity	DA	PPV	NPV
Right Inferior Mental Foramen	0.698	0.076	**<0.001***	0.651–0.744	≥14.7	56.0%	84.0%	70.0%	77.8%	65.6%
Left Inferior Mental Foramen	0.735	0.072	**<0.001***	0.691–0.780	≥14.4	60.0%	80.0%	70.0%	75.0%	66.7%

Table 6 shows that the gonion-gonion distance had a perfect diagnostic accuracy with an AUC of 1.000, which was statistically significant.

Table (6) *Diagnostic performance and characteristics of gonion-gonion distance in differentiating males from females.*

Parameters	AUC	SE	p-value	95% CI	Cut point	Sensitivity	Specificity	DA	PPV	NPV
Gonion - Gonion Distance	1.000	0.000	**<0.001***	1.000–1.000	≥93.9	100.0%	100.0%	100.0%	100.0%	100.0%

DISCUSSION

When people talk about how male and female bodies differ in terms of size and shape, they're referring to gender dimorphism.[10]

Fragments of human bones may be recovered in the aftermath of natural disasters, mass casualties, and similar events. The mandible, being the biggest and most durable bone in the face, may be the only part of a skull that can be found at these sites, which makes it useful for determining sex.[11]

A part of the mandible's sexual dimorphism is the fact that the two sexes experience distinct phases of development, as well as differing rates and lengths of growth. The ramus takes its form from the unique mammary stresses experienced by the sexes.[12]

When it comes to determining sex, metric skeletal analysis is usually more reliable than descriptive features. The reason behind this is that it is known for being objective, accurate, reproducible, and having a low degree of fluctuation across observers.[13]

Low radiation dose and shorter scanning time have made CBCT a favored imaging modality for the craniofacial region, leading to a large growth in its application over the past decade. Accurate linear readings were supplied by SCANORA 3D CBCT equipment. SO When utilized as objective data, CBCT images give dimensional values that are very close to 1:1.[14]

Keep in mind that other studies may have used different sample sizes, tools, inclusion criteria, locations, or points of reference, as well as different methods for analyzing the data. Factors like as differences in group ancestry, height, skeleton size, and tooth presence or absence can also contribute to variation. [15]

The mental foramen and mandibular basal bone maintain a constant vertical distance as we age. Perhaps the immobility of this segment is due to the high resistance to alveolar process resorption above the foramen.[16] The location of the mental foramen was used as a reference measure in this study because to its constancy throughout an individual's lifespan.

Males and females differed considerably with respect to the SMF, which measures the distance from the top of the mental foramen to the center of the bottom border of the mandible at its most bent point. Women had a greater SMF. This was in line with De Oliveira Gamba et al., 2017 for the Dutch population and Elsayed et al., 2021 for the Sohag population, using CBCT measurements and panoramic images, respectively. [17, 18]

Apaydin et al. (2018) also discovered high SMeF values, which they interpret as indicating significant sexual dimorphism in the male group.[19]

In a 2011 research, Angel et al. utilized CBCT to look at the mandibular canal and foramen locations in a group of Americans and found no significant differences between the sexes. This study goes against what they found.[20]

In contrast to Elsayed et al. (2021), who asserted a 96% and 100% accuracy rate for males and females, respectively, when predicting utilizing the right superior mental foramen, the present study only revealed 85% and 73.3%.Our results were lower at 81.8% and 75%, respectively, as compared to Elsayed et al., 2021, which showed an accuracy rate of 93% for females and 81.8% for males in left superior mental foramen prediction. Unfortunately, the present findings are lower than those of Sairam et al. (2016), who discovered that the SMeF was the most accurate linear assessment of the mandibular and mental foramina for sex prediction in digital panoramic radiographs (85% for males and 90% for females).[21]

Our study confirmed the findings of earlier research that the right and left superior mental foramina in males do not differ significantly when using panoramic imaging (Elsayed et al., 2021; Rani et al., 2019). The mental foramen in a population from southern India was examined using cone-beam computed tomography to measure sexual dimorphism (Subash et al., 2019). The results showed a statistically significant difference between the right and left sides, with greater values found on the right.[23]

This study's findings supported those of Subash et al., 2019 (who also discovered a notably different distribution of values between the two sides; Elsayed et al., 2021 came to the opposite conclusion). Additionally, the study discovered that compared to males, females had a greater right superior mental foramen.

A significantly bigger inferior mental foramen was observed in boys compared to females in this study. The measurement between the back of the jaw where the curve is most pronounced and the middle of the bottom border called the foramen.This is in line with what has been found by De Oliveira Gamba et al. (2017) and Elsayed et al. (2021). The findings presented supported the conclusion

of Rani et al. (2019) that the sizes of the right and left inferior mental foramina varied significantly between the sexes. Variations at the location of the mental foramen can be caused by changes in the craniofacial skeleton's growth and development, which can be influenced by sex hormones and local elements such as masticatory muscles and pressures. Because female jaw muscles are weaker and their mastication force is lower, the mandibular basal bone deposits less bone in women than in males.[24]

This study's findings contradicted those of Angel et al. (2011), who found no gender differences in inferior mental foramen.

Elsayed et al., 2021 reported an accuracy of 89% for men and 90% for females; however, the present investigation indicated that the right inferior mental foreman's prediction accuracy was lower for both sexes, at 77.8% for men and 65.6% for females. Left superior mental foramen prediction accuracy rates were 75% and 66.7%, respectively, in contrast to the data provided by Elsayed et al., 2021— accountability for males was 95% and accuracy for females was 83%.

The right inferior mental foramen was higher in the female participants than in the male participants. The CBCT research of a southern Indian village conducted by Subash et al., 2019 corroborated these findings.In contrast, the results demonstrated that men's left sides were elevated above their right sides. The results of this study contrast those of Elsayed et al. (2021) and Mahima et al. (2009), who found no statistical difference between the sexes.There is no statistically significant difference between the right and left sides of the mental foramen when panoramic radiographs are taken, according to Chandra et al. (2013). They speculated that changes in the population or variations in radiography may account for these contradictory results.[26]

A statistically significant difference between the sexes was demonstrated by the gonion-gonion distance, the most dimorphic parameter tested. Males had bigger mean values than females, and the measurement had a perfect score of 100%.Bigonial width was the most dimorphic measurement employed, with average accuracies ranging from 80% to 86%, according to studies done on South Africans by (Steyn and Iscan 1998). This aligns with the preceding findings.27 A previous research by Akhlaghi et al. (2014) on sub-adult Iranian samples indicated that if the mandible could only be recognized, the gender could be properly determined by symphysial height and mandibular bigonial breadth.Consistent with the results of Albalawi et al., 2019, which indicated a notable gender gap in gonion-gonion distance, the present study measured a mean value of 101.4±6.2 mm for males and 90.4±3.4 mm for females. These values were higher than those in Albalawi et al., 2019, which were 47.2±4.3 mm and 47.7±4.4 mm, respectively.

The current results demonstrate that bigonial breadth is dimorphic in sex determination, which contradicts the findings of Moustafa (2014), who used CT scans to analyze a Saudi population sample. Possible causes for this include comparing populations or using a different radiographic modality in a different setting.[28]

These values are 100% in contrast to the previous work by Lopez et al. (2017) that found an AUC of 0.778, sensitivity of 65.62, and specifity of 82.14% in connection to bigonial width. It could be due to the fact that, given Brazil's multiracial population, it is quite unlikely to choose mandibles from individuals who are exclusively white, brown, or black.[29]

CONCLUSION

- The results of this study show that CBCT pictures are useful for anthropometric analysis, forensics, and sexual dimorphism in relation to mandibular measurements.
- The values of mental foramen and bigonial distance were significantly higher in males than in females, indicating a gender difference.

- The most important factors in determining sex, as shown by this study, were bigonial distance.
- Most parameters were considerably greater on the right side compared to the left side, with the exception of the inferior mental foramen in males, which was significantly higher on the left side.
- There was no significant difference in the superior mental foramen when comparing the right and left sides in males.

RECOMMENDATION

Forensic database authentication could benefit from additional research with other Egyptian ethnic groups to determine baseline values and the reliability of these characteristics in sex determination.

REFERENCES

1. Okkesim A, Erhamza TS. Assessment of mandibular ramus for sex determination: Retrospective study. Journal of Oral Biology and Craniofacial Research. 2020 Oct 1;10(4):569-572.
2. Franklin D, O'Higgins P, Oxnard CE, Dadour I. Discriminant function sexing of the mandible of indigenous South Africans. Forensic Science International. 2008 Jul 18;179(1):84-e1.
3. Upadhyay RB, Upadhyay J, Agrawal P, Rao NN. Analysis of gonial angle in relation to age, gender, and dentition status by radiological and anthropometric methods. Journal of forensic dental sciences. 2012 Jan;4(1):29.
4. Dong H, Deng M, Wang W, Zhang J, Mu J, Zhu G. Sexual dimorphism of the mandible in a contemporary Chinese Han population. Forensic science international. 2015 Oct 1; 255:9-15.
5. Akhlaghi M, Khalighi Z, Vasigh S, Yousefinejad V. Sex determination using mandibular anthropometric parameters in subadult Iranian samples. Journal of forensic and legal medicine. 2014 Feb 1; 22:150-153.
6. Indira AP, Markande A, David MP. Mandibular ramus: An indicator for sex determination-A digital radiographic study. Journal of forensic dental sciences. 2012 Jul;4(2):58.
7. Albalawi AS, Alam MK, Vundavalli S, Ganji KK, Patil S. Mandible: An indicator for sex determination–A three-dimensional cone-beam computed tomography study. Contemporary clinical dentistry. 2019 Jan;10(1):69.
8. Yamamoto K, Ueno K, Seo K, Shinohara D. Development of dento-maxillofacial cone beam X-ray computed tomography system. Orthodontics & craniofacial research. 2003 Jan 1; 6:160-162.
9. Elmekkawy EA, Gaweesh YS, Fahmy RA, Safwat WM. Cone beam computed tomography (CBCT) in gender determination through mental foramen position in an Egyptian population sample (a retrospective study). Alexandria Dental Journal. 2020 Aug 1;45(2):19-23.
10. Astuti ER, Iskandar HB, Nasutianto H, Pramatika B, Saputra D, Putra RH. Radiomorphometric of the jaw for gender prediction: a digital panoramic study. Acta Medica Philippina. 2022 Mar 3;56(3):113-121.
11. Alias A, Ibrahim A, Bakar SN, Shafie MS, Das S, Abdullah N, et al. Anthropometric analysis of mandible: an important step for sex determination. La Clinica Terapeutica. 2018 Sep 10;169(5): e217-e223.
12. Koju S, Maharjan N, Rajak RR, Yadav DK, Bajracharya D, Ojha B. Assessment of sexual dimorphism in mandibular ramus: An orthopanoramic study. Kathmandu University Medical Journal. 2021 Sep 30;19(3):314-319.
13. Vidya S, Joseph IT, Girish KL, Prashanth T, Joy TE, Mnbsp SK. A retrospective comparative analysis of mandibular ramus and mental foramenin sex determination among the population of Kanyakumari district. RGUHS National Journal of Public Health. 2021;6(4):89-94.
14. Sanjana R, Poornima C, Mahesh Kumar TS, Balaji P, Mutreja D. Assessment of Accuracy and Reliability of Linear Measurements of CBCT-An in vitro study. Indian J Appl Radiol. 2017;4(1):119.
15. Sharan A, Madjar D. Maxillary sinus pneumatization following extractions: a radiographic study. International Journal of Oral & Maxillofacial Implants. 2008 Jan 1;23(1):48-56.
16. Güler AU, Sumer M, Sumer P, Biçer I. The evaluation of vertical heights of maxillary and mandibular bones and the location of anatomic landmarks in panoramic radiographs of edentulous patients for implant dentistry. Journal of oral rehabilitation. 2005 Oct;32(10):741-746.
17. de Oliveira Gamba T, Alves MC, Haiter-Neto F. Mandibular sexual dimorphism analysis in CBCT scans. Journal of forensic and legal medicine. 2016 Feb 1; 38:106-110.

18. Elsayed RM, Hilal MA, Mahmoud HM, Said AM. Determination of sex from various measurements of mandibular ramus and mental foramen relations using digital panoramic imaging in a sample of Sohag governorate population. The Egyptian Journal of Forensic Sciences and Applied Toxicology. 2021 Mar 1;21(1):95-113.

19. Apaydın B, Icoz D, Yasar F, Akgunlu F. Evaluation of mandibular anatomical formation for gender determination in Turkish population. Balkan Journal of Dental Medicine. 2018;22(3):133-137.

20. Angel JS, Mincer HH, Chaudhry J, Scarbecz M. Cone-beam Computed Tomography for analyzing variations in inferior alveolar canal location in adults in relation to age and sex. Journal of forensic sciences. 2011 Jan;56(1):216-219.

21. Sairam V, Geethamalika MV, Kumar PB, Naresh G, Raju GP. Determination of sexual dimorphism in humans by measurements of mandible on digital panoramic radiograph. Contemporary Clinical Dentistry. 2016 Oct;7(4):434.

22. Rani A, Kanjani V, Kanjani D, Annigeri RG. Morphometric assessment of mental foramen for gender prediction using panoramic radiographs in the West Bengal population-A retrospective digital study. Journal of Advanced Clinical and Research Insights. 2019 May 1;6(3):63-66.

23. Subash TS, Balaraj BM, Hema C. Determination of sex by cone-beam computed tomography analysis of mental foramen in South Indian Population. International Journal of Forensic Odontology. 2019 Jan 1;4(1):21.

24. Jayam R, Annigeri R, Rao B, Gadiputi S, Gadiputi D. Panoramic study of mandibular basal bone height. Journal of Orofacial Sciences. 2015 Jan 1;7(1):7.

25. Mahima VG, Patil K, Srikanth HS. Mental foramen for gender determination: A panoramic radiographic study. Medico-Legal Update. 2009;9(2):33-35.

26. Chandra A, Singh A, Badni M, Jaiswal R, Agnihotri A. Determination of sex by radiographic analysis of mental foramen in North Indian population. Journal of forensic dental sciences. 2013 Jan;5(1):52.

27. Steyn M, İşcan MY. Sexual dimorphism in the crania and mandibles of South African whites. Forensic science international. 1998 Nov 30;98(1-2):9-16.

28. Moustafa S. Sexual Dimorphism of Selected Mandibular Anthropometric Parameters in Saudi Population Sample: Application in Forensic Identification. Ain Shams Journal of Forensic Medicine and Clinical Toxicology. 2014 Jul 1;23(2):43-49.

29. Lopez TT, Michel-Crosato E, Benedicto ED, Paiva LA, Silva DC, Biazevic MG. Accuracy of mandibular measurements of sexual dimorphism using stabilizer equipment. Brazilian oral research. 2017 Jan 5; 31:1-11.

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الثقب الذقنيّ والمسافة بين الجمجمة والجنتين لتحديد الجنس باستخدام التصوير المقطعي المحوسب ذي الحزمة المخروطية

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الملخص :

الهدف: لتقييم دقة تحديد جنس الجنين باستخدام التصوير المقطعي المخروطي المخروطى في عينة سكانية من مصر باستخدام الثقبة الذهنية والمسافة الثنائية.

المواد والاساليب: تم تحليل الفك السفلي لـ 500 شخص في هذه الدراسة؛ كان 250 من هؤلاء الأشخاص من الذكور و250 من الإناث. ومثل المشاركون الذين تتراوح أعمارهم بين 18 و60 عامًا. ومن خلال استخدام طريقة تعتمد على الفأرة، تم قياس الأبعاد بالملليمتر. فحصت الاختبارات الثقب العقلي العلوي (SMEF) على الجانب الأيمن من الدماغ والثقب العقلي السفلي على الجانب الأيسر. يتم التعرف على هذه الثقوب العقلية بأسماء مختلفة. (SMEF): تم إجراء القياس عند نقطة منتصف الحد السفلي. في منتصف المسافة بين الطرف العلوي للثقب العقلي ونقطة أكبر انحناء في الفك. وعلى العكس من ذلك، تم استخدام الطرف السفلي للثقب العقلي إلى نقطة منتصف مسافة الحد السفلي لقياس أقصى انحناء للفك السفلي (IMEF). تم تسمية الطول.

النتائج: كشف كل تقييم عن تفاوت ذي دلالة إحصائية بين الجنسين ($P < 0.05$). وبدقة تشخيصية بلغت 100%، كشف التباعد بين الأضلاع عن أعلى درجة من ازدواجية الشكل.

الخلاصة: يؤكد البحث الحالي على فائدة صور الأشعة المقطعية المخروطية لتحديد ازدواجية الشكل الجنسي في التحليل الأنثروبومتري والطب الشرعي، بالإضافة إلى توفير معلومات مفيدة حول قياسات الفك السفلي..

الكلمات المفتاحية : لثقب الذهني، المسافة بين العظمتين العظميتين، الجنس، التصوير المقطعي المحوسب المخروطي