SEXUAL DIMORPHISM OF MANDIBULAR CANINE TEETH IN A PONDICHERRY POPULATION: A RADIOMORPHOMETRIC STUDY

INTRODUCTION:

"Sexual dimorphism refers to those differences in size, stature and appearance between male and female that can be applied to dental identification because no two mouths are alike." **KEISU,1990**
Gender of an unknown person may be assessed by measuring the mesiodistal width of mandibular canine teeth as they exhibit sexual dimorphism. The canine teeth are likely to survive air disasters and hurricanes; so they are considered as 'key teeth' for personal identification. (DANBERG)

AIMS AND OBJECTIVES:

To record the mesiodistal width of mandibular canine teeth clinically, on plaster models and on intraoral periapical radiographs.
To compare and assess the reliability of each method.

MATERIALS AND METHODS:

Study design: Our study was a single centre, prospective study.
Sample size: 100 patients belonging to Pondicherry population were randomly selected.
Inclusion criteria: Individuals with normal & healthy teeth.
Exclusion criteria: Caries & periodontal disease, partially erupted, impacted on either side, ectopically erupted, spaced, crowded, rotated and attrited canine teeth.
METHOD: The mesiodistal width of the mandibular canine teeth were measured at the contact point clinically, on plaster models and on intraoral periapical radiographs. Then, sexual dimorphism was calculated using **Gran and Lewis formula: $\{(Xm/Xf) -1\}*100$**
(Xm - mean canine width of males, Xf - mean canine width of females.)

CLINICAL METHOD

PLASTER METHOD

RADIOGRAPHIC METHOD

RESULTS:

Observation	MALE		FEMALE		P Value	$\{(Xm/Xf) - 1\}$ *100
	Mean	SD	Mean	SD		
Clinical Left	7.560	.45580	7.110	.40771	< 0.01	6.32
Clinical Right	7.534	.50734	7.076	.43168	< 0.01	6.47
Plaster Left	7.508	.38695	7.100	.41845	< 0.01	5.74
Plaster Right	7.428	.46381	7.009	.38355	< 0.01	5.97
Radiograph Left	7.434	.38893	7.020	.31623	< 0.01	5.89
Radiograph Right	7.402	.43542	7.006	.34783	< 0.01	5.65
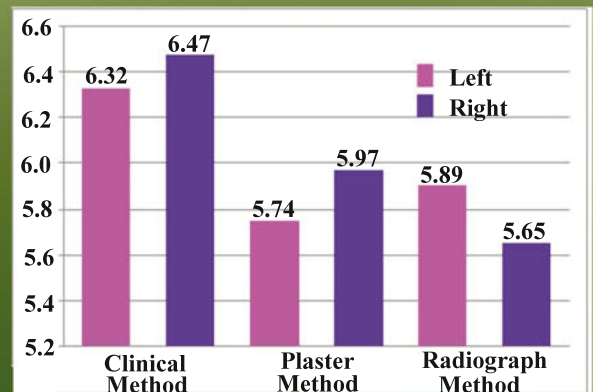
Across the groups (male Vs female) means were compared using unpaired t- test and was found to be statistically significant irrespective of the method used. The cut off to differentiate between males & females was obtained using ROC Curve. In our study, comparing the three methods, statistically there was no significant difference amongst the three methods. There existed inter operator reliability in all the three methods as the t-value was not significant (p> 0.05).

DISCUSSION:

Hashim H A et al, Al- Rifaiy et al, Saudi Arabia - No statistical difference between left & right canines; Kaushal et al, North India - canine width >7mm is male ; Nair et al, South India - canine width >7mm is male ; Nagesh et al, South India - canine width >7mm is male. Our study, is in accordance to the above mentioned studies wherein,there existed significant difference between canine width of males & females. The mandibular canine width **greater than 7.3 mm** suggested the probability of sex of the person being male with a sensitivity of 70 % & specificity of 76% and there was no statistical significance between left & right canines.

On comparing the three methods, the clinical method was inexpensive and less time consuming making it a better method while the plaster method showed mild discrepancy when there was porosity in the plaster model or air bubble incorporated during impression procedure; elongation and overlapping were disadvantages of the radiographic method.

CONCLUSION:

From the present study, we conclude that the canine teeth width **greater than 7.3 mm** is suggestive of male and this helps in determining the gender of an unknown individual and it may be used as an important tool in forensic odontology and in medico-legal cases.

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