

DIMORPHISM OF MANDIBULAR AND MAXILLARY CANINE TEETH IN ESTABLISHING SEX IDENTITY

Mohammed Q. Al-Rifaiy, BDS, MSc*; M. Aleem Abdullah, BDS, MDS**
Igbal Ashraf, MD***; Nazeer Khan, PhD****

هدفت الدراسة لتقصي إدراجية الشكل للأنياب العلوية والسفلية الدائمة وعرض الأقواس النابية لتحديد الجنس. شملت الدراسة (٥٠٣) طفلاً من مدارس الرياض - المملكة العربية السعودية. ٢٥١ ذكراً و ٢٥٢ أنثى، بعمر يتراوح بين ١٥ - ١٨ سنة. تم قياس أكبر عرض أنسي وحشي بين نقاط تماس الأنياب والمسافة بين درى حدة أنياب القوسين وذلك باستعمال مقياس السحاكة بتقريب ٠.١ مم. تم استعمال تحليل التمييز متعدد القيم لتأسيس تحديد الجنس. تبين أن عرض الأنياب العلوية والسفلية، اليميني واليسرى متماثلاً في كلا الجنسين في الذكور والإناث معدل قيمة عرض الأنياب العلوية والسفلية، اليمنى واليسرى كان أقل في الإناث منه في الذكور، لكن إحصائياً، ليس لهذا الاختلاف أية دلالة. معدل قيمة عرض القوس النابية كان أقل في الإناث منه في الذكور بدلالة إحصائية (٠.٠٥) و (٠.٠٠١) على التوالي. أظهر تحليل التمييز متعدد القيم لعرض الأنياب والأقواس النابية العلوية والسفلية بأن نسبة صحة تصنيف الجنس كانت ٥٧.٥٥% و ٦٥.٤٨% على التوالي.

Abstract

The purpose of this study was to investigate whether dimorphism of permanent mandibular and maxillary canine teeth as well as intercanine distance play a role in establishing sex identity. Five hundred three school students from Riyadh, Saudi Arabia comprising of 251 males and 252 females, with age ranging from 15 to 18 years were selected. The greatest mesiodistal width of the canine teeth and the distance between the tips of canines of both arches were measured using vernier caliper with 0.1mm resolution. The procedure of multivariate discriminant analysis was used for establishing the sex identity. The width of the mandibular and maxillary right and left canine teeth were almost bilaterally symmetrical in females and males. The mean values for left and right mandibular and maxillary canine widths were less for females than for males and the differences were not statistically significant. The mean value for mandibular and maxillary intercanine distances for females were less than for males and the differences were statistically significant, ($P < 0.05$ and $P < 0.0001$, respectively). The multivariate discriminant analysis using the canine width and intercanine distance of the mandible and maxilla showed that the rate of correct classification of sex was 55.07% and 65.48%, respectively.

Introduction

To establish the sex of a victim is an essential stage in identification. In major air, train and hurricane disasters where postcranial bones are fragmented, measurement of mesiodistal width of the mandibular and maxillary canine teeth and intercanine distance provides evidence of sex identification due to dimorphism.^{1,2}

Bosset and Marks³ and Krogh⁴ stated that the study of the permanent mandibular and maxillary canine teeth offers certain advantages. These advantages emanate from the fact that they are the least frequently extracted teeth and being less affected by periodontal disease. Canine teeth have also been reported to survive in air and hurricane disasters⁵

Rao et al⁸ studied mesiodistal width and intercanine distance of 384 females and 382 males of South Indian population with an age-group of 15-21 years. The mesiodistal width was measured using a vernier caliper with a resolution of 0.1mm. The greatest mesiodistal width was measured between the contact points and they reported that the mesiodistal width of mandibular canine was significantly greater in males than in females. They concluded that 84.3% males and 87.5% females could be discriminated correctly with respect to sex.

A study of Anderson and Thompson¹ consisted of measuring the mesiodistal width of mandibular canines, lateral incisors and intercanine distance of 83 males and 88 females of a Toronto population, aged 14-17 years. Their study showed that mandibular canine width and intercanine distance was greater in males than in females and permitted 74.3% correct classification of sex.

Garn et al² studied the magnitude of sexual dimorphism by measuring the mesiodistal width of the canine teeth of an Ohio caucasian population and concluded that the magnitude of canine tooth sexual dimorphism varied among different ethnic groups. Furthermore, they stated that "the mandibular

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* Lecturer, Department of Prosthetic Dental Sciences, College of Dentistry, King Saudi University.

** Assistant Professor, Department of Prosthetic Dental Sciences, College of Dentistry, King Saud University.

*** Associate Professor of Forensic Medicine, King Saudi University.

**** Biostatistician, Research Center, College of Dentistry, King Saudi University, P.O.Box 60169, Riyadh 11545, Saudi Arabia.

Address reprint requests to : Dr. M.Q. Al-Rifaiy.