



## MOUTH CORNER AND CANINE. A TOPOGRAPHICAL RELATIONSHIP

Stevan Igić<sup>1</sup>, Aleksandar Igić<sup>1</sup>, Anthony D. Steas<sup>2</sup>, Paul D. Garefis<sup>2</sup>

<sup>1</sup> Department of Prosthetic Dentistry, Medical Faculty, University of Niš, Yugoslavia

<sup>2</sup> Department of Prosthetic Dentistry, School of Dentistry, University of Thessaloniki, Greece

**Summary.** The corner of the mouth is near to the maxillary canine. In order to establish this anatomical point as a landmark for the set-up of the artificial maxillary canine, in complete dentures construction, we fulfilled 4000 topographical determinations of the connection place of lips in relation to the distal limit of maxillary canine. It was concluded that the distal contact surface of maxillary canine overlap with the corner of the mouth in 50% of cases.

**Key words:** Tooth size, mouth corner, canine, premolar

### Introduction

Complete Dentures must satisfy both, function and aesthetics. According to Albino<sup>1</sup>, 42% of patients confess that aesthetics is the main reason for their decision to obtain treatment. Certainly the dimensional determination of maxillary anterior teeth, is an important factor for both, function and aesthetics.

There are several methods (2-22) for the determination of width or set-up of anterior teeth based on knowledge of the relation of teeth and surrounding structures.

The purpose of this paper is to study if the corner of the mouth represents a reliable landmark for this work. More precisely if the corner of the mouth represents the place where the distal limit of the upper canine should be.

In order to investigate the value of this method, an experimental study of the position of Contact Point of the canine and upper premolar (CP), in relation to the Position of the Lips Connection Place (LCP), was performed.

### Material and Methods

Examination included 2000 individuals, 1000 female and 1000 male, two registrations for every person - separately for left and separately for right side (Fig.1)

The registration of the relation between CP and LCP was done with the application of disposition that was composed from a cephalostat, a video camera, a computer, a synchronizer and an analogue monitor (Fig. 2).

That disposition was necessary to have two pictures

simultaneously on the same screen of an analogue monitor. The first picture, coming from the video camera, is the picture of the patient. The second, generated by the computer, represents a X, Z axis system, serving for the topographical registration of CP in relation to LCP.



Fig. 1.

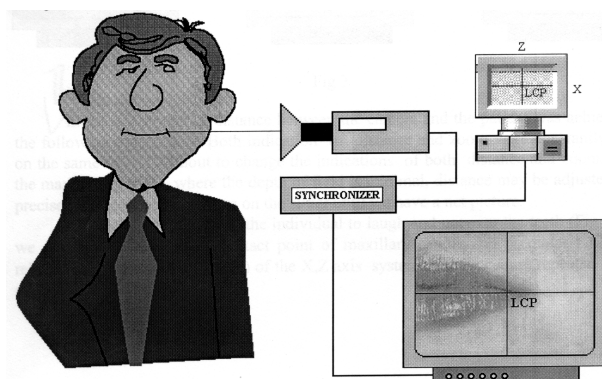


Fig. 2.

To know the distance from the intersection of the axis (zero point), the system was gauged with the aide of a ruler (scale) which was located at identical distance to that used in the registration.

The synchronizer combines (mixes) the two pictures which are simultaneously displayed on the screen of the analogue monitor as one picture

The camera is fixed on a fine focus adjuster (slider) which is mounted on a tripod so that it may slide horizontally, perpendicular to the frontal plane of a cephalostat, and so approach to the patient, or retire

The individual and the camera are oriented so that the camera stands on the level of lips, perpendicular to the measured object. The individual's head, supported by the cephalostat, is oriented in a way that (rotate until) the **LCP**, on the monitor screen, coincides with zero point (intersection of X, Z axis system), and the meeting line of lips goes parallel along with the X axis (Fig. 3). The whole procedure is performed in central occlusion.



Fig. 3.

The exact adjustment of distance between the camera and the patient was achieved in the following optical way. Both indication of distance and zoom were constantly fixed on the same value. Without to change the indications of both distance and zoom, using the maximal aperture, where the depth of field is minimal, distance may be adjusted very precisely by moving the camera on the slider until we have a net picture.

At this moment we ask the individual to laugh and uncover the teeth (Fig. 4) and we register the position of contact point of maxillary canine and premolar (**CP**) in relation to the zero point (**LCP**) of the X,Z axis system. The procedure is repeated for the other side of the face.

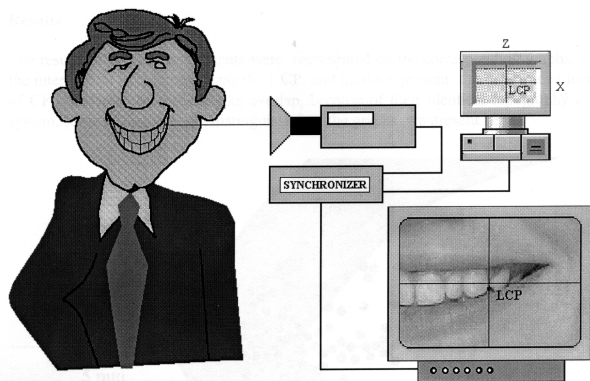


Fig. 4.

As the contact point is not a mathematical point but a contact surface, which usually looks like as vertical line in the snapshot (Fig 5); **the midpoint of that**

**contact line was considered as contact point (CP).**

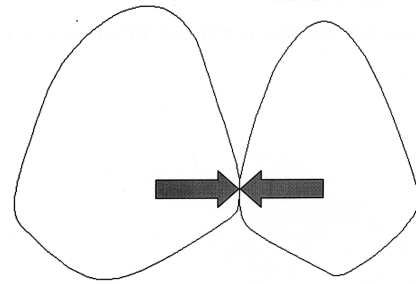
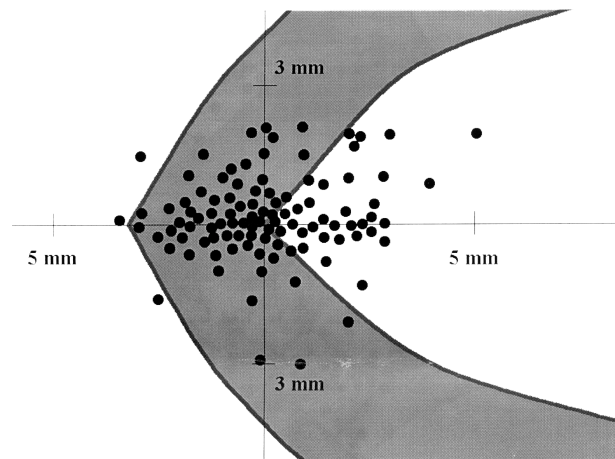


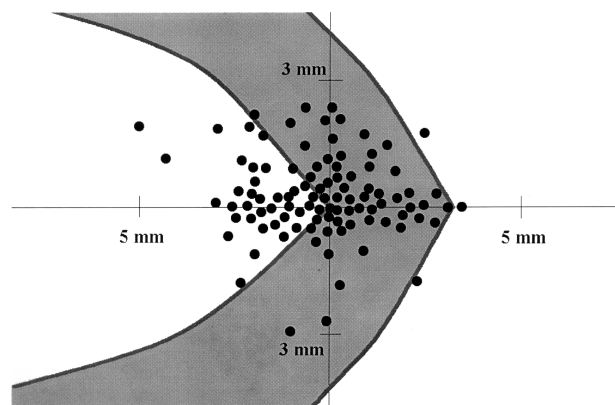
Fig. 5.

### Results

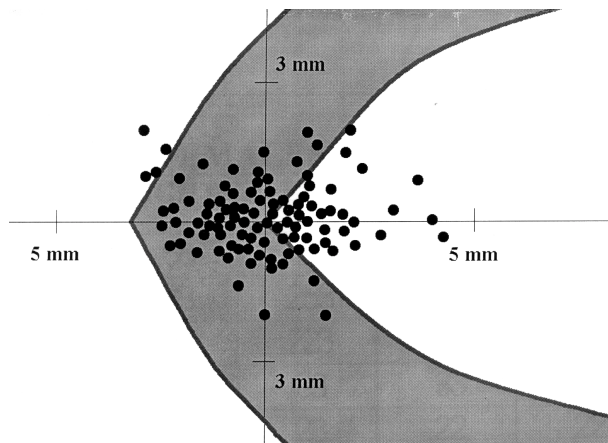
The results of these measurements were represented on the corresponding graphs, where the intersection of axis represents the **LCP**, and marks represent the determined location of **CP** registered. As some marks overlap, because of their identical topography in X,Z system, some of them are not distinguished on the graphs we present here.



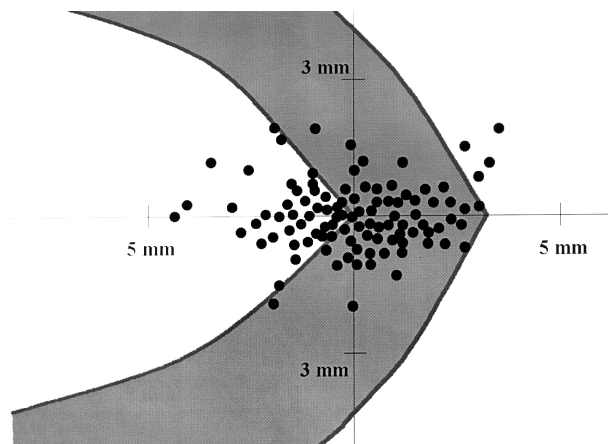
Graph 1. Corellation of **CP** and **LCP** at right side, from a casual population of 100 women.



Graph 2. Corellation of **CP** and **LCP** at left side, from a casual population of 100 women.



Graph 3. Correlation of CP and LCP at right side, from a casual population of 100 men.



Graph 4. Correlation of CP and LCP at left side, from a casual population of 100 men.

Studying the correlation between LCP (zero point = intersection of x, z axis) and CP (marks), it is observed that there is not an absolute overlapping, although the maximal concentration of CP (marks) is near the LCP

## References

1. Albino JE, Tedesco LA, Conny DJ: Patient perceptions of dental facial esthetics: Shared concerns in orthodontics and prosthodontics. *J Prosthet Dent* 1984, 52: 9-13
2. Bojanov B. Protezirane na bezzbi celjosti. *Medicina i Fizkultura*. Sofija. 1964.
3. Branovački D. Tehnička izrada totalne proteze. *Zavod za izdavanje udžbenika SR Srbije*. Beograd. 1970.
4. Branovački D. *Zubna protetika. Totalna proteza*. Naučna knjiga. Beograd. 1970.
5. Branovački D. Sokolović B. *Totalna zubna proteza*. Gradina. Niš. 1980.
6. Brewer A. A. Selection of denture teeth for esthetics and function. *J Pros. Dent*. 1970, 23: 368-373
7. Hoffman W., Bomberg T. J. and Hatch R.A.: Interalar width as a guide in denture tooth selection. *J. Prosth. Dent*. 1986; 55: 219-221
8. Igić Lj. *Parcijalna mobilna zubna proteza - praktikum*. Prosveta. Niš. 1991.
9. Jerolimov V, Kraljević K. Antropometrijsko-estetski aspekt totalne proteze. *Dostignuća u stomatološkoj protetici 2*. Sveučilišna naklada Liber. Zagreb. 1985.
10. Jovanović D. *Totalna zubna proteza sa praktikumom*. Zavod za udžbenike i nastavna sredstva. Beograd. 1979.
11. Krajicek D.D.: Guides for natural facial appearance as related to complete denture construction. *J. Prosth. Dent*. 1969; 21: 654-662
12. Lee H.J.: *Dental Esthetics*. John Wright and Sons, Bristol. 1962, pp. 8-11, 28-45, 56.
13. Marić D. Kosovčević M. *Stomatološka protetika - Parcijalna proteza*. Naučna knjiga. Beograd. 1986.
14. Mavroskoufis F. and Ritchie G.M.: Nasal width and incisive papilla as guides for the selection and arrangement of maxillary anterior teeth. *J. Prosth. Dent*. 1981.
15. Penhall B.: Aesthetic considerations in full denture prosthodontics. *Austr. Dent. J*. 1978; 23: 314-318.
16. Ricard C.: *Complete Denture Esthetics*. *J. Prosth. Dent*. 1958.

(zero point = intersection of x,z axis).

Table 1. The topographical distribution of the 4000 CP registered.

Horizontal distance LCP - CP in mm	Females		Males	
	Right	Left	Right	Left
1	468	458	492	502
2	263	253	308	298
3	217	223	145	115
4	38	38	33	63
5	14	28	22	22

In men, as in women, the contact point of the maxillary canine and the premolar is not in complete correlation with the corner of the mouth., and it does not give a reliable information about the position of distal limit of anterior teeth for the 100% of population, but for the 50% the CP is near the LCP, so we can use it as a landmarkpoint. For the 70 % of the population the CP is above the landmark, an area with a width of 2 mm.

## Discussion

We chose this method for our investigation for two reasons:

1. To avoid the use of X rays.
2. To avoid the mechanical dislocation of LCP in order to discover the CP.

The lip itself is easily movable and in clinical examination dislocation of LCP happens and faulty results are obtained. So if you want to use the corner of the mouth as a reference point to determine the position of the canine do it through the abscissa, using a needle for register the LCP on the wax. Do not forget to take in consideration the values of table 1.

17. Shan S.M. and Joshi M.R.: An assessment of Asymmetry in the normal craniofacial complex. Angle Othod.1978; 48: 141-148.
18. Scandrett F. Kerber P. Umrigar Z. A clinical evaluation of techniques to determine the combined width of the maxillary anterior teeth and the maxillary central incisor. J Pros. Dent. 1982, 48: 15-22,
19. Tjan A.H.L., Miller G.D. and The J.G.P.: Some esthetic factors in a smile. J. Prosth. Dent. 1984; 51: 24-28.
20. Watt D.M.: Tooth positions on complete dentures. J. Dent.1978; 6: 147-160.
21. Young A.H.: Selecting the anterior tooth model. J. Prosth. Dent. 1954; 4: 748-760.
22. Young A.H.: Denture esthetics. J. Prosth. Dent. 1956: 6: 748-755.

## TOPOGRAFSKI MEĐUODNOS. UGAO USTA I OČNJAK

*Stevan Igić<sup>1</sup>, Aleksandar Igić<sup>1</sup>, Anthony D. Steas<sup>2</sup>, Paul D. Garefis<sup>2</sup>*

<sup>1</sup> *Klinika za protetiku, Medicinski fakultet, Univerzitet u Nišu, Jugoslavija*

<sup>2</sup> *Klinika za protetiku, Stomatološki fakultet, Univerzitet u Solunu, Grčka*

*Kratak sadržaj: Ugao usta je blizu maksilarnog očnjaka. Da bi se ustanovila anatomska tačka kao vodič za postavljanje veštačkih očnjaka u konstrukciju totalne proteze izvršeno je 4000 topografskih određivanja mesta spoja usana u odnosu na distalnu granicu maksilarnog očnjaka. Zaključeno je da se distalna kontakna površina maksilarnog očnjaka poklapa sa uglom usta u 50% slučajeva.*

*Ključne reči: Veličina zuba, ugao usta, očnjak, predkutnjak*

Received: June 12, 1997