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Position and Dimensions of Mental Foramen in South Indian Dry Mandibles.

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Abstract:

To study the position and dimensions of mental foramen in South Indian dry mandibles.The mental foramen is a small foramen which is located in the antero-lateral aspect of the body of the mandible. It is situated midway between the upper and the lower border of the mandible and it transmits the mental nerve and the vessels. Mental foramen of mandible has been found to vary in its position, number and distance from the surrounding bony landmarks. This variation occurs with factors like ethnicity, age, sex and sides. Knowledge of this variation is important for localisation of the mental nerve during surgeries in this region. This study was undertaken to document the variations in location of mental foramen in dry mandibles of Indian origin.A knowledge in the position and dimensions of mental foramen helps the surgeons to operate their procedures better.

Key words:
Mental foramen,anterior margin,posterior margin,posterior border,base of mandible,symphysis menti.

INTRODUCTION:-

The mental foramen(MF) is located in the body of the mandible,midway between the base of the mandible,and the alveolar ridge or margins of the body.It transmits mental nerves and vessels.It may be round or oval in shape.It may unilateral or bilateral or sometimes absent.It's diameter is approximately 3-7mm.Any foramen addition to MF is known as accessory mental foramen(AMF).It is classified by Youse and Brooks.It is positioned entirely within the buccal cortical plate of bone.Many authors have reported for variations in the position of mental foramen in different ethnic groups[1,2] .And this may effect on the inter foramen distance that is needed for implant placement. So,the study of the incidence of the AMF is very important,because it will be helpful to localise the important-neurovascular bundle passing through the MF.

MATERIALS AND METHODS :

This study was done by measuring 25 mandibles and the detailed measurements regarding distance from symphysis menti to posterior border of the mandible , distance from symphysis menti to anterior margin of mental foramen , distance from posterior margin of mental foramen to posterior border of mandible , vertical diameter of mental foramen , distance from alveolar margin to base of mandible were measured using thread and ruler method and also using digital vernier calliper. These measurements were done by one of the authors . The SPSS software was used for the statistical analysis , to find out the maximum and minimum percentage of dimensions and position of the mental foramen . The detailed information of the measurements taken on the left(L) and right(R) side are tabulated below.

No. Of mandibles	Distance from symphysis menti to posterior border of the mandible (cms)	Distance from symphysis menti to anterior margin of mental foramen (cms)	Distance from posterior margin of mental foramen to posterior border of mandible (cms)	Vertical diameter of mental foramen (cms)	Distance From Alveolar Margin to Base of Mandible (cms)
1.	L-10.2 R-10.3	L-2.9 R-3.2	L-6.6 R-5.9	L- 1.57 R- 0.99	L- 3.7 R-3.6
2.	L-9 R- 9.1	L-2.4 R- 2.4	L- 6.4 R-5.9	L-1.08 R-1.07	L-2.6 R-2.2
3.	L-9.7 R-10.2	L- 3.2 R-3.3	L-6.5 R-6.7	L- 1.29 R-1.3	L-2.8 R-2.9
4.	L-9.5 R-9.4	L-2.6 R-2.7	L-6.2 R-6.3	L-1.31 R-1.30	L-3.0 R-2.4
5.	L-9.4 R-9.5	L-2.5 R-2.7	L-6.3 R-6.1	L-1.41 R-1.43	L-3.5 R-3.1
6.	L-9.1 R-9.3	L-2.4 R-2.9	L-6.1 R-5.9	L-1.22 R-1.41	L-3.4 R-2.9
7.	L-9.6 R-9.4	L-2.6 R-3.3	L-6.5 R-6.3	L-1.21 R-1.33	L-2.6 R-2.3
8.	L-10.1 R-9.8	L-3.1 R-2.8	L-6.4 R- 6.1	L-1.39 R-1.40	L-3.1 R-2.7
9.	L-9.7 R-9.2	L-2.9 R-3.2	L-6.0 R-5.8	L- 1.28 R-1.28	L-2.7 R-2.3
10.	L-10.4 R-10.1	L-2.6 R-2.3	L-6.2 R-6.7	L-1.68 R-1.75	L-3.4 R-3.0
11.	L-9.6 R-9.4	L-2.7 R-2.6	L-6.5 R-6.4	L-1.33 R-1.40	L-3.1 R-3.3
12.	L-10.1 R-9.8	L-2.6 R-2.5	L-6.9 R-6.8	L-1.37 R-1.58	L-2.9 R-3.1
13.	L-9.8 R-10.1	L-2.9 R-2.7	L-6.3 R-6.5	L-1.23 R-1.26	L-3.3 R-3.5
14.	L-9.1 R-9.3	L-2.6 R-2.3	L-6.4 R-6.3	L-1.22 R-1.19	L-2.6 R-2.4
15.	L-10.4 R-10.2.	L-2.8 R-2.7	L-7.2 R-7.1	L-1.37 R-1.30	L-3.6 R-3.3
16.	L-9.7 R-9.6	L-2.9 R-3.10	L-6.6 R-6.4	L-1.10 R-1.14	L-3.1 R-2.9
17.	L-9.6 R-9.8	L-2.7 R-2.8	L-6.4 R-6.1	L-1.50 R-1.44	L-3.5 R-3.6
18.	L-8.9 R-8.7	L-2.7 R-2.9	L-6.5 R-6.4	L-1.14 R-1.22	L-3.3 R-3.1
19.	L-9.9 R-10.2	L-2.6 R-2.3	L-7.0 R-7.1	L-1.25 R-1.38	L-3.4 R-3.4
20.	L-9.7 R-9.9	L-2.5 R-2.7	L-6.7 R-6.5	L-1.49 R-1.38	L-3.9 R-3.6
21.	L-10 R-10.1	L-2.9 R-3.1	L-6.3 R-6.2	L-1.27 R-1.34	L-3.9 R-4.1
22.	L-9.7 R-9.5	L-3.3 R-3.1	L-6.1 R-6.0	L-1.63 R-1.34	L-3.8 R-3.9
23.	L-9.9 R-9.5	L-3.2 R-3.4	L-6.3 R-6.1	L-1.20 R-1.25	L-3.7 R-3.6
24.	L-10.1 R-9.8	L-3.1 R-2.9	L-6.2 R-6.0	L-1.18 R-1.18	L-3.5 R-3.2
25.	L-9.8 R-9.7	L-3.2 R-3.4	L-6.0 R-6.4	L-1.25 R-1.29	L-3.9 R-4.0

RESULTS AND DISCUSSION:

From the study conducted and the values obtained values through SPSS software the following mean values were obtained for the position of mental foramen in all directions. For the Distance from the symphysis menti to posterior border of the mandible the mean value in right side was identified to be 9.420 and In the left side for the same was identified to be 9.492 with a standard deviation of 1.4160 and 1.3254 respectively for both sides.

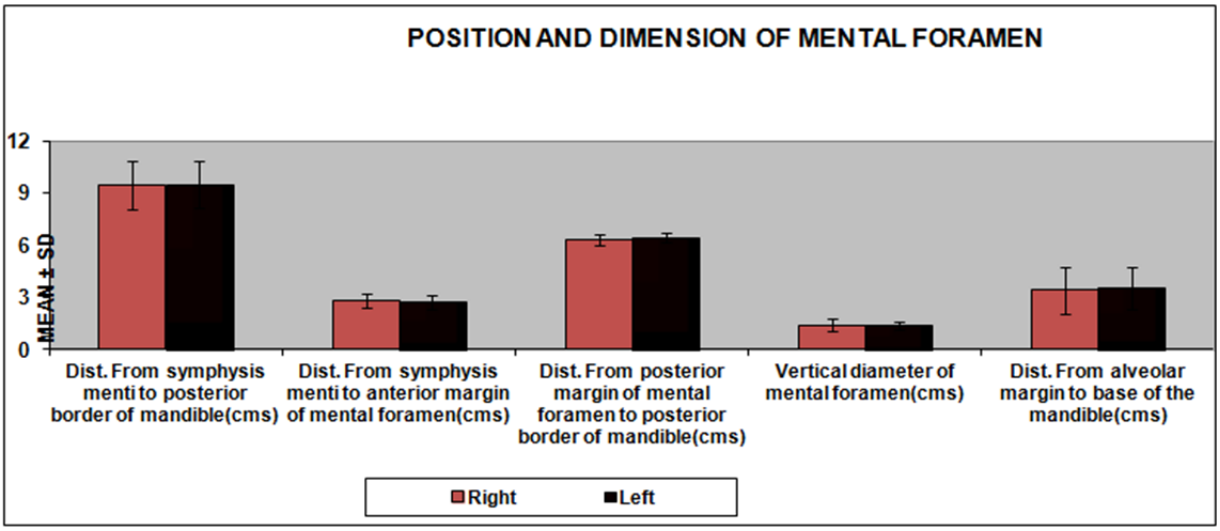
For the distance from the symphysis menti to anterior margin of the mental foramen the mean value In right side was found 2.800 and left side was 2.749 with a standard deviation of 0.4374 and 0.4174 for both sides respectively. For the distance from posterior margin of mental foramen to the posterior border of mandible the mean value was given as 6.316 in the right side and 6.428 in the left side with a standard deviation Of 0.3472 and 0.3048 respectively on both sides.. For the vertical diameter of the mental foramen the mean values was given to be 1.3776 on right side and 1.3660 on left side and has a standard deviation of 1.35213 and 1.26604 for right and left side respectively. Atlast for the distance between the alveolar margin to the base of the mandible the mean value for the right side was found to be 3.392 and for left side it was 3.520 with a standard of deviation for both right and left side respectively as 1.3450 and 1.2576. The values and tabulations regarding these mean value has been given in table 1. On analysing the datas it was identified that there was a significant variation in the position of mental foramen. This variation in mean values has been given in a graph for better understanding purpose also [Table2].

TABLE -1.

Group Statistics

	Side	N	Mean	Std. Deviation	Std. Error Mean
Dist. From symphysis menti to posterior border of mandible(cms)	Right	25	9.420	1.4160	.2832
	Left	25	9.492	1.3254	.2651
Dist. From symphysis menti to anterior margin of mental foramen(cms)	Right	25	2.800	.4374	.0875
	Left	25	2.749	.4174	.0835
Dist. From posterior margin of mental foramen to posterior border of mandible(cms)	Right	25	6.316	.3472	.0694
	Left	25	6.428	.3048	.0610
Vertical diameter of mental foramen(cms)	Right	25	1.3776	.35213	.07043
	Left	25	1.3660	.26604	.05321
Dist. From alveolar margin to base of the mandible(cms)	Right	25	3.392	1.3450	.2690
	Left	25	3.520	1.2376	.2475

TABLE-2.



CONCLUSION:

The results of this study showed that there is a significant variation in the position of mental foramen on the right and left side of the mandible . Knowing these differences will help the surgeons to be more careful and not to cause damage to the mental nerves and vessels which pass through that foramen.

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