A Study To Assess The Educational And Training Implications

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Abstract

To evaluate and compare the clinical outcomes following Modified Mucogingival flap (MMGF) procedure with connective tissue graft / xenogenic collagen matrix in treatment of gingival recession defects. The Root coverage in mandibular anterior teeth is frequently challenging due to the presence of frenum insertion, shallow vestibule and insufficient attached gingiva. A modified mucogingival flap technique along with the use of a xenogenic collagen matrix has been attempted to address such clinical scenario. Method We observed 50 CBCT scans of patients which was obtained from the Oral Radiology Department of Buddha Dental Science and Hospital, Patna. The scan Was taken from using I-CAT 17-19 machine and vision software. The study Comprises of 50 maxillary scan taken in I-CAT CBCT machine in 50 patient of age Range was 15-75 years. CBCT scans from the patients with NPC pathology or impacted teeth in the region were excluded from the present study. Result Nasopalatine has four different morphological shapes was scan in sagittal Section and most common was cylindrical shape was found in both males and Females. And least common shape was found to be hourglass shape in both Gender. While age increasing the length of NPC was decreasing. In men length of the canal was found to be longer. Keywords: Fibroma, Pyogenic Granuloma, Tumor, Lobular capillary haemangioma, Hyperplasia, Oral

Mucosa. Introduction The Nasopalatine canal (NPC) ,also known as the anterior palatine canal. It is a long slender passage that present in the midline of the anterior maxillary region and it connects to the palate to the floor of the nasal cavity.(1) Canal continues in the oral cavity as a single incisive foramen through posterior to the central incisor teeth and in the nasal cavity as the foramina of Stenson, which were two in number. It contains the Nasopalatine (incisive) nerve and Nasopalatine artery, as well as fibrous connective tissue. A proper image of the incisive canal and foramen before any surgical procedure such as implant placement in the anterior maxillary region is highly significant (2). In anterior maxillary region patients vey consider for esthetic. Before placement of dental implant NPC should be properly evaluated.(2,3) Advantages of CBCT was high resolution and elimination of superimposition .CBCT has facilitated the precise three Dimensional evaluation of bone quantity and NPC canal position in the anterior maxillary region.(4) The present study is aimed to assess the morphological variation of Nasopalatine canal in relation to age and gender by using CBCT. Material and Methods This is a retrospective, randomized observational study. CBCT scan enrolled at a center in Patna, India. The study material included 50 CBCT scans of patients that included the entire NPC in all three planes. Age range was 15-75 years.CBCT scans from the patients with NPC pathology or impacted teeth in the region were excluded from the present study. The scans are obtained from using ICAT-19 machine and Vision software (Imaging Science International) CBCT scans will be acquired with ICAT 17-19 Cone Beam 3D Imaging machine operating at 120kvp,37.07mAs with 0.25mm voxel size and a field of view of 16x6cm maxilla. Evaluation of Images Shape of the canal was observed in the sagittal section and it classified as 1. Cylindrical shape: A cylindrical shape formed by parallel labial and palatal walls of the NPC.(figure1a) 2. Funnel shape: A funnel shape formed by an increasing anteroposterior dimension of the NPC from the nasal fossa to the hard palate. (figure 1b) 3. Hour glass shape: An hourglass shape in which the narrowest anteroposterior dimension of the NPC was at the level compared to the dimensions at the nasal fossa and hard palate levels.(figure1c) 4. Spindle shape: A spindle shape in which the widest anteroposterior dimension of the NPC was at the mid-level compared to the dimensions at the nasal fossa and hard palate levels.(figure1d) Figure1: Cone-beam computed tomography images show the four shapes of the Nasopalatine canal on sagittal planes. (a) Cylindrical shape, (b) funnel shape (c) hourglass shape (d) spindle shape. Nasopalatine canal length was measured between the floor of the nasal fossa and the level of the hard palate along the long axis of the canal in the sagittal section of CBCT scan. And length was measured by using digital length measuring tool.

Results

| Shape	Frequency	Percent
Cylindrical	27	54.0
Funnel	16	32.0
Hourglass	3	6.0
Spindle	4	8.0
Total	50	100.0

Table 1: Distribution according to shape
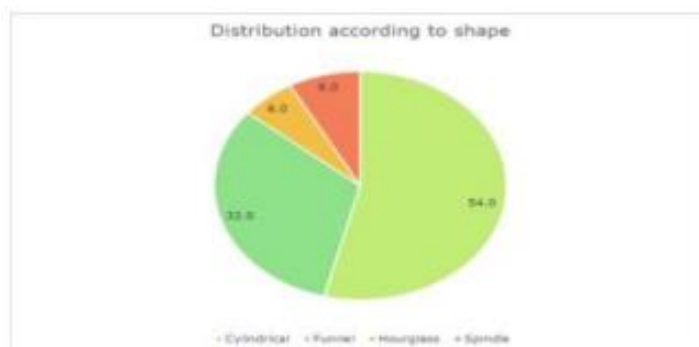
Out of 50 subject the most common shape f NPC was encountered is cylindrical shape which was seen in 27 participants and least common shape of NPC was hourglass shape seen in 3 participants.

Table 2: Distribution of shape according to gender.

Shape	Female		Male		Total	
	N	%	N	%	N	%
Cylindrical	12	24	15	30	27	54.0
Funnel	9	18	7	14	16	32.0
Hourglass	0	0	3	6	3	6.0
Spindle	1	2	3	6	4	8.0
Total	22	44	28	56	50	100.0
Chi sq	3.920			P value	0.270 NS	
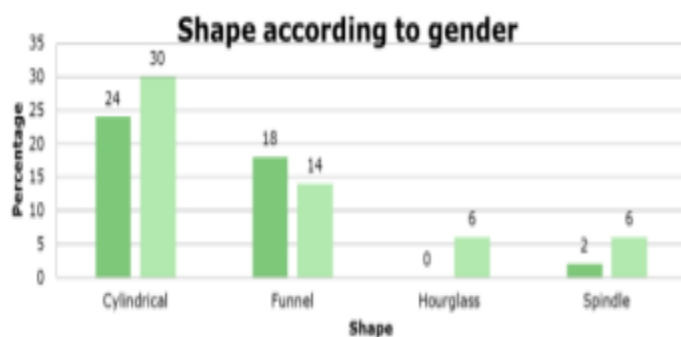
Out of 50 subjects the most common shape of NPC was cylindrical in both genders. However ,spindle shaped canal was least common among females And there was no reported case of hourglass canal in female.

Table 3: Distribution of shape according to age
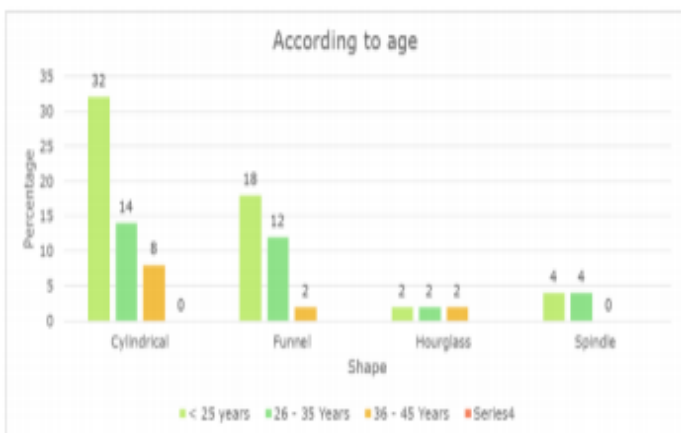
Shape	< 25 years		26 - 35 Years		36 - 45 Years		Total	
	N	%	N	%	N	%	N	%
Cylindrical	16	32	7	14	4	8	27	54.0
Funnel	9	18	6	12	1	2	16	32.0
Hourglass	1	2	1	2	1	2	3	6.0
Spindle	2	4	2	4	0	0	4	8.0
Total	28	56	16	32	6	12	50	100.0
Chi sq	3.458			P value			0.749 NS	

Out of 50 subject below the age of 25 years cylindrical shape of NPC was most commonly encountered and least common was encountered was hourglass shape. Between the age of 26-35years cylindrical shape of NPC was most commonly encountered and least common was encountered was hourglass shape. . Between the age of 36-45years cylindrical shape of NPC was most commonly encountered and no case was encountered was spindle shape.

**Table 4:** Length of Nasopalatine fosse according to age

Age	N	Minimum(mm)	Maximum	Mean
< 25 years	28	8.75	18.58	11.36
26 - 35 Years	16	8.73	13.48	11.14
36 - 45 Years	6	9.23	10.77	9.96
Overall	50	8.73	18.58	11.12
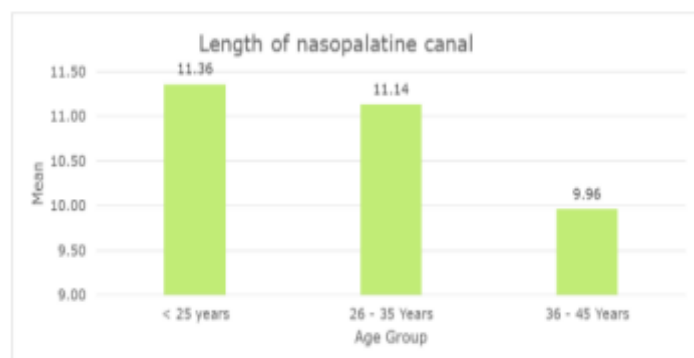
According to age length of NPC was observed that with the advancement of age length of the canal was decreasing in both the genders.

Table 5: Mean length of Nasopalatine foramen according to gender

Gender	N	Minimum (mm)	Maximum (mm)	Mean (mm)	Std. Deviation
Female	22	8.73	12.84	10.78	1.13
Male	28	8.75	18.58	11.38	2.00
Total	50	8.73	18.58	11.12	1.69
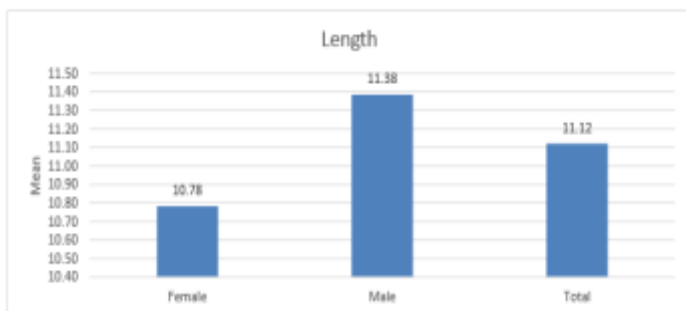
Length of the NPC was measured between the level of the nasal fossa and the level of the hard palate along the long axis of the canal. It range from 8.7518.58mm in male with mean of11.38mm and from 8.73-12.84mm in femle with mean of 10.78mm. This shows that the length of the NPC is relatively greater in male than in female. 10.78 11.38 11.12 10.40 10.50 10.60 10.70 10.80 10.90 11.00 11.10 11.20 11.30 11.40 11.50 Female Male Total Mean Length 12 Discussion Anatomical relationship between the NPC and the root of the maxillary Central incisors is a close; so it is necessary for radiological analysis before insertion of a dental implant or any other surgical procedure is planned in that region. Present study indicated that the NPC showed a great deal of variability with regard to its measurement as well as to its morphological appearance. In our study , four anatomical shapes of NPC have been reported in the sagittal CBCT slice. Study done by Thakur et al. in 2013 reported that a cylindrical shaped NPC was most commonly observed. In accordance with this , in our study, the cylindrical shape (54%) was found in most of the participants, funnel-shaped canal was found in (32%) spindle shape(8%) and hourglass (6%).our results are also consistent with the ones of Yasser et al., Liang et al., Asaumi et al. Average length of the NPC in our study, it was found to be 11.12mm ranging from 8.73 to 18.58mm; result close to the ones of Richa Mishra et al, Thakur et al.,Tozum et al. and Fukuda etal., whose mean canal length measurement in a sagittal plane was 10.08, 10.86nd 11.75mm ranging from 6.15mm to 16.04mm. In our sample the female canals are significantly shorter than the male ones, a thing which was supported by the findings of Richa Mishra et al., Thakur et al., Kajan et al., Liang et al., and Salami et al. The greater length of the NPC in the males (11.38mm) as compared to the length of the NPC in the female (10.78mm). In our study length of NPC decreases with increasing age which is in accordance with the study done by Fernandez-Alonso et al.,Liang et al. noticed an increases in NPC length with advancement of age. Conclusion The result from my present study highlight the anatomic variability of the NPC in relation to several limit . The result from this study suggest that gender is an important factor that can affect the characteristics of the NPC and the amount of bone anterior region.The shape of the canal and its anteroposterior dimensions are the most significant parameters for placement of implants in the maxillary anterior region.

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