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ACCESSORY INFERIOR ALVEOLAR CANAL: A CLINICO-RADIOGRAPHIC STUDY

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ABSTRACT

Backgrounds and Objectives: The mandibular canal is an important structure that should be noted before any surgery in the posterior region of the mandible. The presence of accessory canal should be excluded to avoid unwanted clinical complications. The aim of this study is to study the frequency of accessory inferior alveolar canal.

Methods: CBCT of 59 patients (ordered for implant and impacted teeth surgical planning), (118 right and left mandible views) were available as soft copies in the archives databases in the Denta private center in Erbil City, Iraq, between October 2019 and July 2021. Both male and female included in this study with age range from (19-45). All the CBCT scans were processed and observed with New Tom Giano CBCT 3D imaging (QR Sr-via silvestrini, 20- 37135 verona -Italy). The cone beam CT images were evaluated and the region of the inferior alveolar canal was examined for the presence or absence of the accessory canal.

Results: The frequency of accessory mandibular canal was observed in 12 (10.2%) patients of the total sample, 03 (6%) males and 09 (13.2%) females. No significant difference between male and female as (P = 0.199).

Conclusion: The presence of accessory canals should be excluded to avoid unwanted complications like bleedings or unexpected pain during implant procedures.

***KEYWORDS*:** CBCT, accessory IAC, mandible

INTRODUCTION

An intensive comprehension of the ordinary morphology of the human mandible and its conceivable physical varieties, are principal in dental practice, particularly in oral medical procedure and dental implantology. (1)

The mandibular trench (MC)is a significant and fundamental milestone that ought to be noted before any a medical procedure in the back area of the mandible. It runs from the mandibular foramen to the mental foramen and contains the sub-par alveolar supply route, vein and nerve (2,3). The most well-known surgeries that are acted in nearness to the neurovascular pack is position of intraosseous inserts. Strangely, the most generally impacted nerve is the inferior alveolar nerve (i.e., reports demonstrate up to 64.4% of entanglements are connected with this nerve), trailed by the lingual nerve. (4)

Harm to the mandibular waterway can cause tangible loss of motion of the lower teeth, gingiva, lip, and mental area. (5, 6) Special consideration is in this way expected during surgeries. Clinician blunders and inability to appropriately recognize this milestone can bring about wounds to this crucial design, and the patient could eventually endure fundamentally due to such mistakes. Intricacies, like changes in sensation, deadness, torment, and extreme dying, can influence the patient's general personal satisfaction. The iatrogenic idea of this condition altogether builds the mental impacts connected with this harm. (7,8)

There might be a few extra rigid parts of the inferior dental nerve preceding entrance through the mandibular channel, and such varieties might be related with the presence of adornment foramens and numerous waterways (10,11). A huge relationship has been seen between retro mandibular channel and the adornment mandibular foramen (12). In this embellishment mandibular foramen, there might be myelinated nerve strands and veins that are immediate parts of the substandard alveolar neurovascular group. These consequences might supply the district of the third molar, the mucosa of the retromolar triangle, the buccal mucosa and the lower molars (13). Mizbah et al. in 2010, tracked down presence of anatomical varieties of bifid and

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trifid mandibular channel which had an expanded gamble of injury to second rate alveolar nerve either during extraction or position of dental implants. (14).

The radiographic picture of the mandibular trench is a dim direct shadow with slender radiopaque prevalent and second-rate cast by the lamella of bone that limits the channel (15). The initially revealed presence of bifid mandibular trenches, as seen by radiographic assessments, was made in 1973, (16,17,18) portrayed 3 novel introductions of supplemental mandibular channels following a review investigation of all-encompassing radiographs. It has been shown that cone pillar registered tomography (CBCT) is the most reliable imaging methodology for the distinguishing proof and confinement of the mandibular channel and mandibular foramen. (19).

This study acted in an example of Erbil populace to decide the recurrence of frequency of extra mandibular channel by CBCT.

PATIENT AND METHOD

Sample selection:

CBCT of 59 patients (requested for implant and impacted teeth careful preparation), (118 right and left mandible perspectives) were accessible as delicate duplicates in the chronicle's information bases in the Denta private focus in Erbil City, Iraq, between October 2018 and July 2020. Both male and female remembered for this review with age range from 19-45.

CBCT Images:

All the CBCT checks were handled and seen with New Tom Giano CBCT 3D imaging (QR Sr by means of silvestrini, 20-37135 verona - Italy), 2014.The cone shaft CT pictures were assessed and the district of the substandard alveolar channel was inspected for the presence or nonattendance of the extra waterway. The pictures were assessed in three planes (pivotal, sagittal and coronal) with a cut of (0.15 mm) thickness.

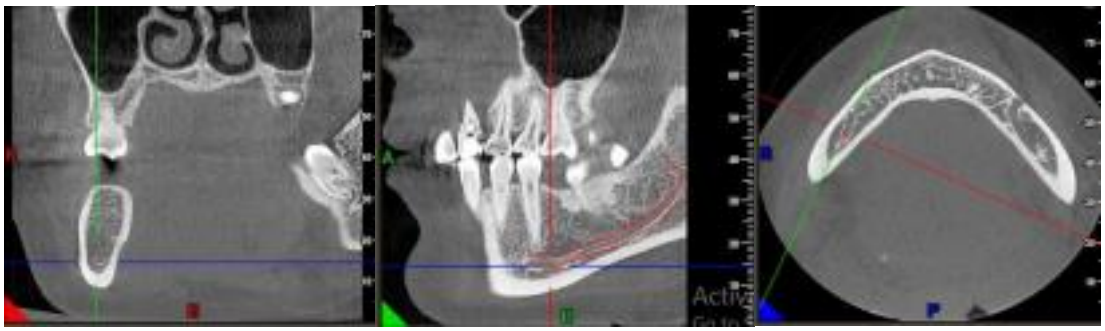

Fig.(1): Sections of CBCT showing accessory mandibular canal 1 Axial, 2 Coronal, 3 Sagittal.

STATISTICAL ANALYSIS

Statistical estimations were performed SPSS programming (SPSS rendition 19). The discoveries connecting with adornment channels were portrayed as frequencies as per the age and orientation of the members. Chi-square tests, the importance level was set at P< (0.05).

RESULTS

118 CBCT checks examined in this review, had a place with people matured between 18 to 45 years, 106 showed a solitary channel, while the leftover 12 introduced physical varieties in the mandibular waterway, demonstrating that the event of this condition in this study test was (10.2%) as per Table 2.

Table (1):- Description of the data

Valid Age (18- 45)	Frequency	Percent	Valid Percent	Cumulative Percent
Male	50	Cumulative	42.4	42.4
Female	68		57.6	100.0
Total	118		100.0	

Table(2): -Frequency of occurrence of accessory mandibular canal

Valid	Frequency	Percent
Present	12	10.2
Absent	106	89.8
Total	118	100.0

In the 118 patients distinguished, 50 guys and 68 females, an aggregate of 12 extra waterways were recognized. The event of embellishment mandibular channel was seen in 12 (10.2%) patients of the complete example, 03 (6%) guys and 09 (13.2%) females. No huge contrast among male and female as (P = 0.199). As displayed in Table 3.

Table(3):- Frequency of accessory mandibular canal according to gender

Accessory mandibular canal			Total	Asymp. Sig. (2- sided)
Gender	Present	Absent		.199
Male	3(6%)	47(94%)	50	
Female	9(13.2%)	59(86.8%)	68	

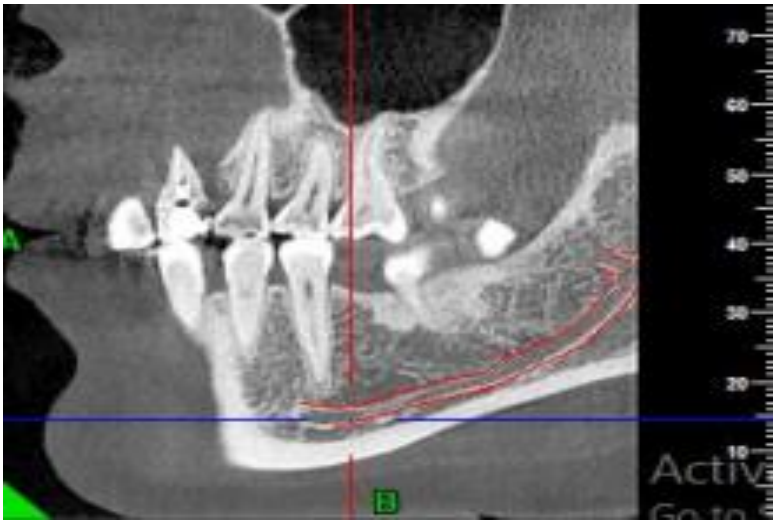

Fig. (2): -Sagittal section of CBCT showing accessory mandibular canal (black arrow).

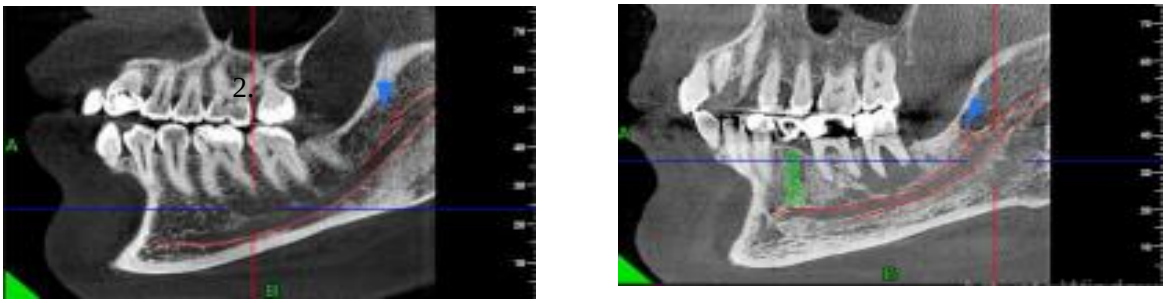

Fig. (3): - sagittal section of CBCT showing accessory mandibular canal. 1 female, 2 male.

DISCUSSION

It is vital to have a full comprehension of the physical area and arrangement of the mandibular trench. A few investigates have been done to assess the course of the mandibular waterway, for example, Sanchis et. al. (20) detailed the rate of bifid mandibular waterways as 0.35% (7/2012. Klinge et. al. (21) detailed in their review utilizing corpses that all-encompassing pictures neglected to show the mandibular waterway in 36.1% of examples. Bogdán et. al. (22) played out a near assessment of dry mandibles and all-encompassing pictures. As indicated by their review, the bifid mandibular waterway was noticeable in just 0.2% the last option, while it was apparent in 19.6% of the previous. These investigates recommend that the occurrence of bifid mandibular trench was in precise while utilizing all-encompassing radiograph.

More recently, 3D imaging, for example, cone beam CT have been used to assess the way of the mandibular canal.

It is critical to recognize the MC prior to doing a surgical procedure that includes the back region of the mandible. Mandibular trench identification is basic and requires ability. The MC typically shows up as a radiolucent zone encompassed by a radiopaque upper and lower verge on pictures. Presence of twofold mandibular waterway or frill mental foramen might create issues with deficient sedation of mandible or hardships with jaw surgical procedures (23,24,25).

Anil et al. revealed that variation in the anatomical structures of the IAN were viewed as in 2 of 20 analyzations (26). As per investigation of Yamada et al. something like one branch from the IAN could be recognized in 94.6% (27).

In this study, we determine the recurrence of accessory mandibular trench involving CBCT showing that the event of this condition in this study test was (10.2%) as 118 patients distinguished 50 guys and 68 females, a sum of 12 adornment trenches were identified.

There was no statistically significant contrast in the pervasiveness of an extra mandibular channel contingent upon orientation, the predominance of a frill mandibular waterway was viewed as higher in females 09 (13.2%) than 03 (6%) in guys as (P = 0.199).

Clinicians should focus on the presence of embellishment canal during treatment arranging in mandibular posterior region to stay away from potential entanglements or harming to this area.

CONCLUSION

We should remember the anatomical variety of mandibular canal to prevent harms to neurovascular bundle.

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