



Original article

Radiographic Assessment of Distomolar Prevalence in Patients Attending to Faculty of Dentistry, University of Benghazi

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ABSTRACT

Background: Extra teeth are usually seen in any area of mandible and maxilla. The distomolar is an extra tooth that occurs in both jaws distal to the third molar, where various studies pointed to assess the occurrence of distomolars in various people. **Objectives:** Aimed to estimate the frequency of distomolars in teeth of patient attending to Faculty of Dentistry, University of Benghazi

Methods: A total of 3989 panoramic radiographs were examined for patient's age ranged from 20 years and above. The presences, location and shape of distomolars were studied. There were 1432 women and 2557 men. **Results:** The outcomes of the study showed that distomolars were detected in 0.18% of the examined people. The extra teeth were noticed in both genders with frequency 0.08% in men and 0.10% in women. In total, 9 extra teeth were detected in 7 patients. Upper jaw distomolars were more frequently observed than lower one. Distomolars in both quadrants of the jaw were found in one female patient and two distomolars were found in another one. All distomolars were impacted.

Conclusions: Even though the occurrence of the extra teeth is a little, initial exploration and management are significantly diminish or avoid problems, such as late eruption, non-eruption of teeth, ectopic eruption, abnormal root development or resorption of neighbouring teeth, crowding and cystic lesions.

Keywords: Supernumerary Teeth, Distomolar, Permanent dentition

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INTRODUCTION

The tooth is a very important part of the body. They aid in mastication, speech and esthetics of an individual. The number of permanent dentition consists of 32 teeth and that of deciduous dentition is 20 teeth. Many variations can occur in the teeth, including abnormalities in position, morphology, eruption and number. Supernumerary tooth is an additional number of teeth to the normal series.¹ It can appear in one quadrant of the jaw or in both quadrants, and affects either mandible or maxilla.²

Supernumeraries are categorized according to their location into many types: Mesiodens, par-amolar, distomolar, and para-premolar.³ A distomolar referred to an extra tooth that situated distal to third molars, and so it named as fourth molar.¹ It has normal morphology with well-developed crown, single root, and it may emerge in the oral cavity. In addition, it can be impacted within the jaw.⁴ Another classification according to their number was reported.¹ The solitary supernumeraries were categorized according to

their shape and morphology into supplementary and elementary.⁵

The supernumerary tooth of normal shape and size called supplementary tooth and may takes the form of incisors, while elementary tooth describes tooth of abnormal shape and size, such as pointed or tubercle shape, molariform, and composite odontom.⁶ Many supernumeraries teeth occur in association with syndromes such as Cleidocranial dysostosis, and Gardner's syndrome.²

The combination between genetic and environmental factors could be the cause for emerging of supernumerary teeth.⁷ Numerous theories have been suggested to explain the cause of supernumerary teeth such as atavism theory, which suggests that supernumerary teeth are a result of hereditary regression to extinct mandrills.⁸ The other theory is dichotomy that describes the splitting of tooth bud into two equivalent or inequivalent parts and formation of two teeth of equal or unequal size.² However, the most accredited theory is that the teeth develop due to active prolifer-

ation of the dental lamina.⁹ In this theory, the lingual extension and the remnant of dental lamina is related to formation of new teeth germ.²

Extra teeth are seen in any area of mandible and maxilla.¹⁰ The more common areas in the oral cavity are between the upper central incisors. Also they can appear in region of maxillary molars upper lateral incisors, mandibular premolars, and finally mandibular molars.^{10, 11} No gender prediction for distomolars was detected but occurrence of paramolar was predominantly in women than in men.¹² In contrast, extra teeth are commonly seen in men than in women.¹³

The incidence of fourth molar was investigated in Turkish patients using panoramic x-rays files, and the prevalence was ranged from 0.26% to 0.57%.¹⁴⁻¹⁷ The prevalence of distomolars in Indian patients was ranged from 0.03% to 2.1%.^{10, 18} It was determined that the incidence of distomolar among 2,267 Romanians adults was 0.26 %.¹⁹ Investigation the frequency of distomolar was carried out on 7348 Turkish adult patients (3212 women and 4136 men), and the prevalence was 2.2% in women and 1.3% in men.²⁰ The frequency of distomolar was 2% among 409 patients at Misawa in Japan.²¹ Studies were carried out on 25,186 Italian people, and the incidence of fourth molars was 0.18%.⁴

Supernumerary teeth usually asymptomatic and can be diagnosed with radiograph exams. However, complications may occur due to their presence which may include: Prevention or interruption of outbreak of related teeth crowding,^{22,23} or alteration in occlusion development, diastema between teeth that treated orthodontically, and dilacerations.²⁴ In addition, interruption of root development, local disturbance and neighboring teeth root resorption, and periodontitis also reported.²⁵⁻²⁷ Complications may arise with the fourth molar like cystic formation or neoplasm, eruption within the nasal cavity and surrounding structures. They may also cause several alterations in the esthetics, traumatic bite due to its buccal position, alteration during implanting of bone, and paresthesia.²⁸⁻³⁰

Reviewing the literature, various studies pointed to assess the occurrence of distomolars in various people. The purpose of this study is to estimate the incidence of distomolar teeth among Libyan populations, by radiographic examination.

MATERIAL AND METHODS

In this observational study, three thousands, nine hundred and eighty-nine (1432 males, and 2557 females) orthopantomographic radiographs

(OPG) of adult patient aged 20 years and above who attending the Oral Medicine and Radiology Department at Faculty of Dentistry- University of Benghazi. The panoramic images were taken using a Kodak 8000C digital panoramic system at 73 kVp, 12 mA and 13.9 s exposures setting. The OPGs from four different years (2011, 2012, 2015, and 2018) were collected and reviewed by the same professional to determine the prevalence, location, shape of distomolars. The descriptive analysis of the obtained results was adopted. SPSS for Windows Version 20.0 (SPSS Inc., Chicago, ILL., USA) was used.

RESULTS

A Total number of 3989 panoramic images of four different years were observed including 1432 males and 2557 females. The age of the study group is twenty year and older, the distomolar teeth were detected in seven radiographs. Four of them related to females and three related to males representing 0.18% of the examined X-ray (Table 1). Two of these OPGs were showing more than one distomolar making a total number of 9 supernumerary teeth among all panoramas

The differences among sexes was noted, the frequency is 0.10 % in female and 0.08 % in males among the seven panoramas presented with this type of anomaly (Table 2). More than one distomolars were found bilaterally in one OPG related to a female patient (Figure 1). In this case the right distomolar was small size, impacted and horizontally placed in the maxilla that disturbed the eruption of the third molar, whereas the left one was of normal size, impacted and vertically placed. Whereas in another OPG the distomolar was detected in both arches, one in maxilla and the other in the mandible (Figure 2). The first distomolar was vertically placed in the left quadrant of maxilla, while the second distomolar was horizontally placed in the right quadrant of the mandible without disturbing the eruption of the last molar. The presence of more than two distomolars in the same panorama was not recorded.

Supernumerary teeth were seen in right side of the maxilla in 6 cases while it was seen in the left side in only three cases. The presence, number, and position of fourth molar were illustrated in (Table 1). Concerning to the position of fourth molar in both jaws, all distomolars (n = 9) were impacted and asymptomatic and diagnosed incidentally on radiographic examinations (Figure 3). The prevalence of distomolar was higher on maxilla (0.15%) and it presents in lower arch in only one case (0.03%) (Figure 4).

Table 1: Reported cases of distomolar.

Gender	number	Supernumerary teeth (Number)	Percentage (%)
Females	2557	6	0.10%
Males	1432	3	0.08%
Total	3989	9	0.18%

Table 2: Distribution of distomolar according to gender, number and location.

Patients	Gender	Shape	No. of distomolars	Arch	Quadrant
P1	F	Conical	2	Maxilla	Bilateral
P 2	M	Supplemental	1	Maxilla	Right
P3	F	Supplemental	1	Maxilla	Right
P 4	F	Supplemental	2	Maxilla Mandible	Left Right
P 5	M	Tuberculate	1	Maxilla	Right
P 6	M	Tuberculate	1	Maxilla	Right
P7	F	Tuberculate	1	Maxilla	left

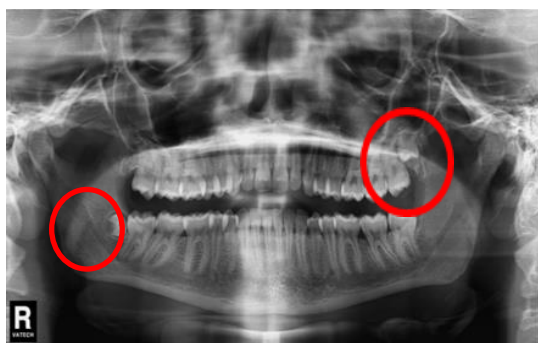


Figure 1: Panoramic x-ray shows bilateral Supernumerary teeth in both arches



Figure 2: Panoramic x-ray shows supernumerary teeth bilateral in maxilla

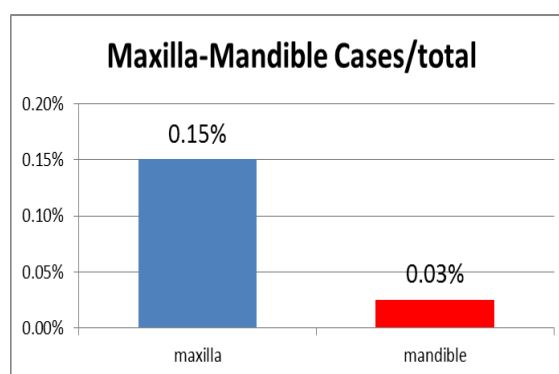
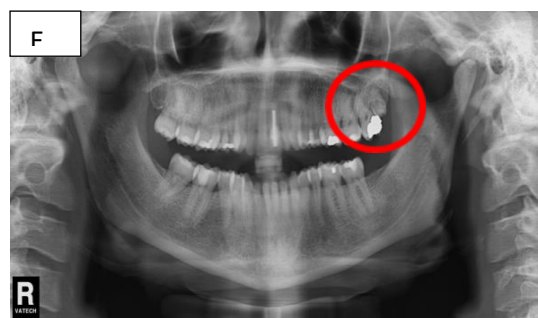
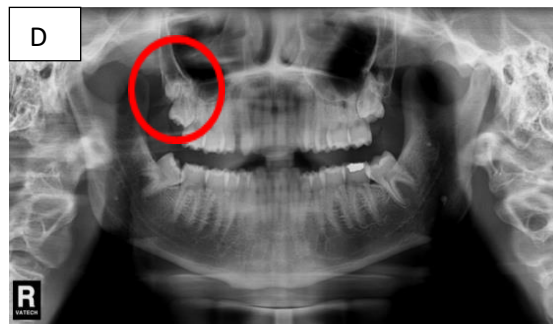
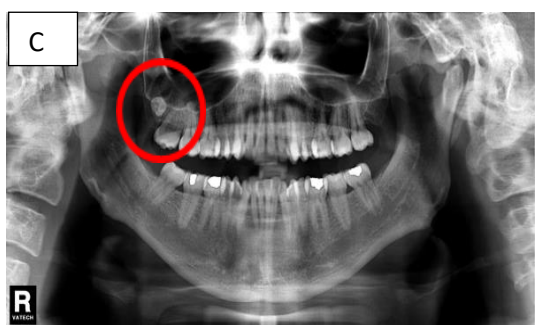
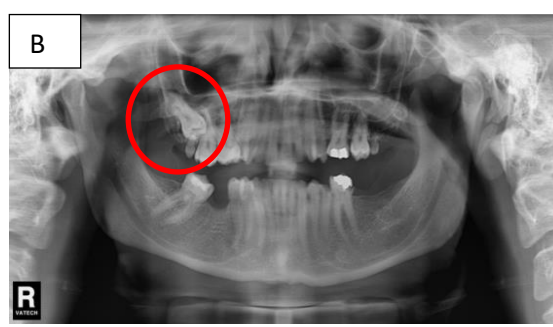


Figure 4: The figure shows the prevalence of distomolar in mandible and maxilla.

DISCUSSION

Supernumerary are uncommon developmental anomalies and their origin is unknown. However, many factor such as environmental and hereditary factors could play a role.²⁹ The distomolar teeth are reported in both dentitions with high incidence in the permanent teeth where the prevalence is ranged from 0.5 to 3.8% when compared to the deciduous teeth with incidence 0.3–0.6%.^{10, 12, 15, 31-33}

After analysis, it was found that 7 patients had distomolar teeth among 3989 patients and the frequency in both males and females was 0.08% and 0.10 respectively. This finding disagrees with the results reported in the literature where supernumerary teeth have higher frequency in men than women.³⁶⁻⁴¹ The reason could be a large number of females compared to that of males in the present study. The incidence of fourth molar in different people was investigated and different results have been reported, and it is ranged from 0.03% to 3.8%, and the result of our study was quite similar to that found in these studies.³⁴⁻³⁷

Age of patients with supernumerary teeth ranges from 5 to 70 in the literature; however, most of previous studies concentrated on primary and mixed dentition. The extra teeth are observed between 7 and 10 years of age, and the mesiodens presented the higher incidence.⁴²⁻⁴⁶ However, in the current research, the age ranged from 20 years and over and the incidence of distomolar was 0.18%. This result showed that supernumerary teeth may be detected in adult. One can speculate that a possible explanation for this finding may be the differences in age of the population and the diagnostic method used.

Developmental dental abnormalities, such as distomolar teeth may affect any area in mandible and maxilla.²² In this study the most commonly involved region is the maxilla and this result is in agreement with other published works.⁴⁷⁻⁴⁹ The presence of single and multiple distomolars has been stated by numerous studies.^{25, 28, 44, 50, 51}

According to our results five cases have single supernumerary teeth, while two extra teeth were established in two cases only. It was reported that high incidence of supernumerary teeth erupt without symptoms and usually impacted and diagnosed coincidentally on radiographic examinations.^{31,42} In addition, the uncommon growth of supernumerary teeth in the molar region could be an indicator of developmental anomalies, and the dental anomalies could be detected relatively at any age.^{52,53} In the current research, complications were seen in one case where distomolar teeth prevent eruption of third molar teeth. Although this complication does not occur frequently, there is need for early diagnosis which will allow for prevention of such complications.

Conclusion

Occurrence of distomolar is not very rare in Libyan population. This study documents several cases of distomolar in clinical practice. Therefore, a dentist should recognize signs that suggest presence of extra teeth and examine all patients carefully to take proper measures before any treatment plan. Since the fourth molars in the current research are mainly impacted and without symptoms, dentist must be able to diagnose the presence of extra teeth and identify the possible complications using panoramic radiograph. The finding in the present study revealed opportunities for further research on a larger sample at more centres.

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