Case Report

Three Cases of Distomolars

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Received 22 May, 2013/Accepted for publication 3 July, 2013

Abstract

The Frequency with which impacted supernumerary teeth are encountered in a clinical setting is relatively high, with the majority of such cases occurring in the median maxillary region, and very few in the molar region. In the molar region, mandibular distomolars (fourth molars) are very rare. Although a small number of case reports have described impacted supernumerary distomolars, very few have compared third molars and distomolars. Herein, the authors report two cases involving mandibular distomolars and one case a maxillary distomolar. In each of these cases, the third molar and distomolar were extracted and a macroscopic morphological analysis conducted. The results were then compared with those of the latest available literature.

Key words: Supernumerary teeth — Fourth molar — Distomolar —
Macroscopic morphology — Maxillo-mandibular region

Introduction

Various irregularities can occur in the teeth, including abnormalities in number, position, eruption, and morphology. An abnormality in the number of teeth may be the result of either a congenital defect or supernumerary teeth. The incidence of supernumerary teeth is around 1 to 3%⁽⁷⁾. Some of these cases are symptomatic, whereas others are asymptomatic. There are a number of theories as to why supernumerary teeth occur, but a specific cause has yet to be identified. The overwhelming number of such teeth

occur in the maxillary incisor region, whereas those in the mandibular incisor or molar regions are rare, and especially so with distomolars (fourth molar)^(7,14,15). Although a small number of reports have described the macroscopic morphology of distomolars^(2,4–6), even fewer have done so for the third molars and distomolars^(3,10,11). In the present report, we describe two cases of mandibular distomolars and one case of a maxillary distomolar in which the macroscopic morphology of the third molar and distomolar was analyzed and the results compared with those of the most recently published cases.

Table 1 Results of previous reports describing macroscopic morphology of third molars and distomolars

Author	Case	Location	Width of crown (mm)	Length of crown (mm)	Length of root (mm)	Cusps	Roots	Age	Sex
Takahashi <i>et al.</i> ⁽¹⁰⁾ (1994)	1	[8]	12.0	7.5	10.5	4	4	24	M
		[9]	6.4	6.6	11.2	1	1		
Takahashi <i>et al.</i> ⁽¹¹⁾ (1996)	1	[8]	8.8	7.5	14.0	4	2	24	F
		[9]	7.7	6.6	12.2	3	1		
	2	[8]	10.0	5.5	11.45	4	1	46	M
		[9]	6.3	5.1	8.9	3	1		
Kokten <i>et al.</i> ⁽³⁾ (2003)	1	[8]	10	8	9	/	/	22	F
		[9]	6	6.5	3.5	2	1		
		[8]	9.5	7.5	8.5	/	/		
		[9]	8.5	7	6	3	1		
	2	[8]	9.96	5.97	9.8	/	/	20	F
		[9]	5.22	6.48	7.16	2	1		
Ohata	1	[8]	☆12.5 ★10.9	6.3	12.1	5	1	25	F
		[9]	☆11.5 ★10.2	8.4	7.5	5	2		
	2	[8]	☆12.6 ★11.5	7.5	8.5	9	2	22	F
		[9]	☆9.3 ★7.8	6.2	7.2	7	1		
	3	[8]	☆11.2 ★9.3	6.8	11.4	3	3	38	F
		[9]	☆7.2 ★5.0	4.9	6.5	6	1		

☆ Mesiodistal crown diameter (mm) ★ Buccolingual crown diameter (mm)

Case History

1. Patient 1

The patient was a 25-year-old woman who first presented at our facility with the chief complaint of right mandibular wisdom tooth pain. Her personal and family medical history were unremarkable, and there were no notable systemic findings. An examination of the oral cavity revealed that the third molar was completely impacted, and mild inflammation was observed. Panoramic x-rays revealed that the third molar on the right side was positioned distally to the second molar, and was completely impacted in the normal direction of eruption. The distomolar was impacted largely horizontally in such a way that it overlapped the crown distal to the third molar. No irregularities were observed in the num-

ber of teeth in any other areas. The third molar and distomolar on the right side were extracted under local anesthesia. The third molar had five cusps and a single root (five root canals). The mesiodistal diameter of the crown measured 12.5 mm, the buccolingual diameter 10.9 mm, the crown vertical dimension 6.3 mm, and the root length 12.1 mm. Morphologically, the tooth had a molar configuration. The distomolar had five cusps, and the root was incomplete, but had separated into two roots. The mesiodistal diameter of the crown of the distomolar measured 11.5 mm, the buccolingual diameter 10.2 mm, the crown vertical dimension 8.4 mm, and the root length 7.5 mm. Morphologically, the tooth had a molar configuration (Table 1, Figs. 1 and 2).

Fig. 1 Panoramic radiograph showing impacted right mandibular third molar and distomolar (Patient 1)

Fig. 3 Panoramic radiograph showing impacted left mandibular third molar and distomolar (Patient 2)

Fig. 2 Extracted third molar and distomolar (Patient 1)
A: Distomolar, B: Third molar

Fig. 4 Extracted third molar and distomolar (Patient 2)
A: Third molar, B: Distomolar

2. Patient 2

The patient was a 22-year-old woman who presented at our facility with the chief complain of left mandibular wisdom tooth pain. Her personal and family medical history were unremarkable, and there were no notable systemic findings. An examination of the oral cavity revealed that the third molar was completely impacted, and the patient reported pain in that region. Panoramic x-rays revealed that the third molar was positioned distally to the second molar, and was completely impacted in a distally inclined direction. The distomolar was impacted horizontally in a distal orientation over the crown. The roots of both the third molar and distomolar were incomplete. No supernumerary teeth were observed in any other areas. The mandibular

third molar and distomolar on the left side were extracted under local anesthesia. The third molar had nine cusps, and the root was incomplete, but had separated into two roots. The mesiodistal diameter of the crown measured 12.6 mm, the buccolingual diameter 11.5 mm, the crown vertical dimension 7.5 mm, and the root length 8.5 mm. Morphologically, the tooth had a molar configuration. The distomolar had seven cusps, and the root was a single incomplete root. The mesiodistal diameter of the crown measured 9.3 mm, the buccolingual diameter 7.8 mm, the crown vertical dimension 6.2 mm, and the root length 7.2 mm. Morphologically, the tooth had a molar configuration (Table 1, Figs. 3 and 4).

Fig. 5 Panoramic radiograph showing impacted left maxillary third molar and distomolar (Patient 3)

Fig. 6 Extracted third molar and distomolar (Patient 3)
A: Third molar, B: Distomolar

3. Patient 3

The patient was a 38-year-old woman who presented at our facility with the chief complaint of cystic disease in the right mandibular molar region. Her personal and family medical history were unremarkable, and there were no notable systemic findings. An examination of the oral cavity revealed a slight protrusion of the mandibular molar region on the right side. Presentation of the maxillary third molar on the left side was also observed, with an indentation in the mandibular gingiva. On panoramic x-rays, a radiolucent region was revealed on the right side, extending from the mandibular first premolar to the first molar. Additionally, presentation of the maxillary third molar on the left side was also observed, and the distomolar, which

was dwarfed in the distal direction, was horizontally impacted. No irregularities in the number of teeth were observed in any other area. Cystectomy and extraction of the maxillary third molar and distomolar were performed under general anesthesia. The third molar had three cusps and three roots. The mesiodistal diameter of the crown measured 11.2 mm, the buccolingual diameter 9.3 mm, the crown vertical dimension 6.8 mm, and the root length 11.4 mm. Morphologically, the tooth had a molar configuration. The distomolar had six cusps, and the root was a single root. Morphologically, the configuration was that of a molar, but the tooth was dwarfed. The mesiodistal diameter of the crown measured 7.2 mm, the buccolingual diameter 5.0 mm, the crown vertical dimension 4.9 mm, and the root length 6.5 mm. Morphologically, both teeth had maxillary molar configurations, but the center cusp of the distomolar was overly large (Table 1, Figs. 5 and 6).

Discussion

Bolk¹⁾ classified supernumerary teeth appearing on either the buccal or palatal side of the molar region as paramolars, and those appearing distally to the third molar as distomolars, or fourth molars. In the present cases, the supernumerary teeth were distal to the third molar, and were therefore diagnosed as distomolars according to Bolk's classification. Based on previous reports, the incidence of fourth molars is rare, at between 0.02 and 0.16%^{6,15)}, with most of them, or 1.15%¹³⁾, being reported as maxillary teeth, and only 0.02% being reported as mandibular⁶⁾. The present patients were all women, but there are numerous reports indicating that supernumerary teeth occur more commonly in men^{6,12,13)}. According to earlier reports, most supernumerary teeth had yet to erupt and, when they did, they were always maxillary, whereas all mandibular supernumerary teeth were impacted^{4,7,13,15)}. In the present cases, both the third and fourth molars had incomplete roots in Case 2, making it difficult for them to erupt

from a positional standpoint, and in all three cases, the teeth had not yet erupted. With respect to morphology, some reports have indicated that the crown configuration of the distomolars (fourth molars) is often poor when located in the maxilla, with many being peg-shaped, whereas mandibular distomolars or fourth molars have been observed to be similar to normal molars in configuration^{4,7-9,15}. Tochiara¹² classified the configurations of the tooth crown as conical molar-shaped, or pseudomorph, and measured the mean lengths of the teeth, their crowns and roots, and distomesial-by-buccolingual diameters in each of these categories. They also reported that the roots were single roots. In a report by Kokten *et al.*³, the crowns and roots of distomolars had a standard tooth morphology, but were slightly smaller than existing third molars. He also reported that the crowns had either two or three cusps, and that all had single roots. In both of the cases of mandibular distomolars reported here, the roots were incomplete⁴, and in Case 2 the roots of both the third molar and distomolar were incomplete, although the patient was 22 years of age (Table 1).

In the present cases of distomolars, the crown morphology was molar type. The maxillary distomolars were dwarfed⁵, with the root length being half of that of the third molars. In terms of size, the crowns of the distomolars described here were largely the same size as that of the molar-type teeth reported by Tochiara¹². The distomolar crown was approximately 10% of the size of the third molar crown in Case 1, and approximately 30% of the size in Case 2. In Case 3, the distomolar crown was smaller, at around 40%, the size of the third molar crown. Characteristics common to all three of the cases reported here included: (1) position: the distomolar was located distally to the third molar, and was completely impacted; (2) direction of eruption: the third molar had erupted in the normal direction, but the distomolar was impacted in an orientation largely horizontal to the axis of the third molar; (3) morphology: the distomolar crown

was molar type, and in Cases 1 and 2, the distomolar roots were incomplete; and (4) sex: all three patients were women.

Table 1 shows the results of previous reports describing the macroscopic morphology of the third molars and distomolars in 8 patients (3 maxillary and 5 mandibular cases), including those reported here^{3,10,11}. The mean age of the 8 patients was 27.6 years. There were more women than men, at a ratio of 6:2. In the 3 cases of maxillary distomolars, the crowns were approximately one-half of the size of the third molars. With respect to crown length, the distomolar crown was longer than that of the third molar in only 1 of the 3 cases. In terms of root length, in 2 cases the root was approximately half the length, and in only 1 case was it longer. There was considerable variation in the number of cusps, ranging from 1 to 6. The teeth had single roots. In a comparison of the 5 cases of mandibular distomolars, the crowns were approximately 40% smaller than the crowns of the third molars in 2 of the 5 cases, and in the other 3 cases were approximately 10 to 30 % smaller. In terms of root length, the roots were incomplete in 2 of the cases seen by the authors, so a comparison was not possible. However, in 1 case, the roots tended to be short. The third molars had more cusps than the distomolars, which tended to have fewer cusps, at 3 to 6. However, in the present cases, the distomolars had more cusps, and a larger number of the teeth had single roots. In terms of differences in the size of maxillary and mandibular distomolars, the maxillary distomolars were more likely to be dwarfed as there was less bone mass in the posterior maxillary tuberosity of the third molar, and they were more likely to have erupted. The mandible had comparatively more bone mass in the ramus, making it easier for the tooth to develop, but conversely, this could also leave the tooth more vulnerable to impaction.

Conclusion

Here, the authors have reported 2 rare

cases of mandibular distomolar and 1 case of maxillary distomolar. The macroscopic morphology of the third molar and distomolar was analyzed and the results compared with those of the most recently published cases. The findings were found to largely correlate with those of earlier reports.

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