壁報論文比賽作品欣賞 醫院組 第一名

上頷竇中隔解剖評估及其與臼齒缺失和上頷竇氣室化之關聯性

Anatomy evaluation of maxillary sinus septa and their relationship with the absence of molars and sinus pneumatization

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Background :

Maxillary sinus septum is a bony projection with different size, location and orientation. Sinus floor elevation is required when considering implant placement at posterior maxilla with inadequate ridge height. However, the anatomic variation such as the presence of sinus septa, may increase the risk of surgical complication.

To reduce the complication during sinus floor elevation procedure, it is important to understand the prevalence, location and morphology of sinus septa. Whether the absence of maxillary molars would affect the occurrence of sinus septa is controversial and to the best of our knowledge, no study has examined the influence of sinus pneumatization on septa occurrence. The aim of the present study is to evaluate the prevalence, location and orientation of sinus septa and the relationship between the presence of septa and absence of molars and sinus pneumatization.

Material and methods :

In this retrospective study, the presence of maxillary sinus septa was analyzed in 134 consecutive patients undergoing implant treatment by using cone-beam computed tomography (CBCT). Septa with a height of more than 2.5 mm were included in this study (Fig. 1A,B), and their height, location, and orientation (transverse, Fig.1A; sagittal, Fig. 1C; horizontal, Fig. 1D) were recorded. The absence of maxillary molars, sinus mucosal change, and extent of pneumatization were also evaluated to determine their relationship with the occurrence of maxillary sinus septa. Sinus pneumatization was measured by the distance between the reference line connecting the root tips of the first and second maxillary premolars and the most inferior floor of the maxillary sinus. The value was positive when the sinus floor was caudal to the reference line, which implied the presence of pneumatization (Fig.1E)

The prevalence of septa and their distribution and orientation were analyzed using descriptive statistics. The X^2 test was used to evaluate the relationship of the presence of septa with sex, age, and the absence of molars. Multiple logistic regression analysis was used to test the effect of the absence of molars and sinus pneumatization on the presence of sinus septa. The odds ratio and 95% confidence interval were estimated. $P < 0.05$ was considered statistically significant.

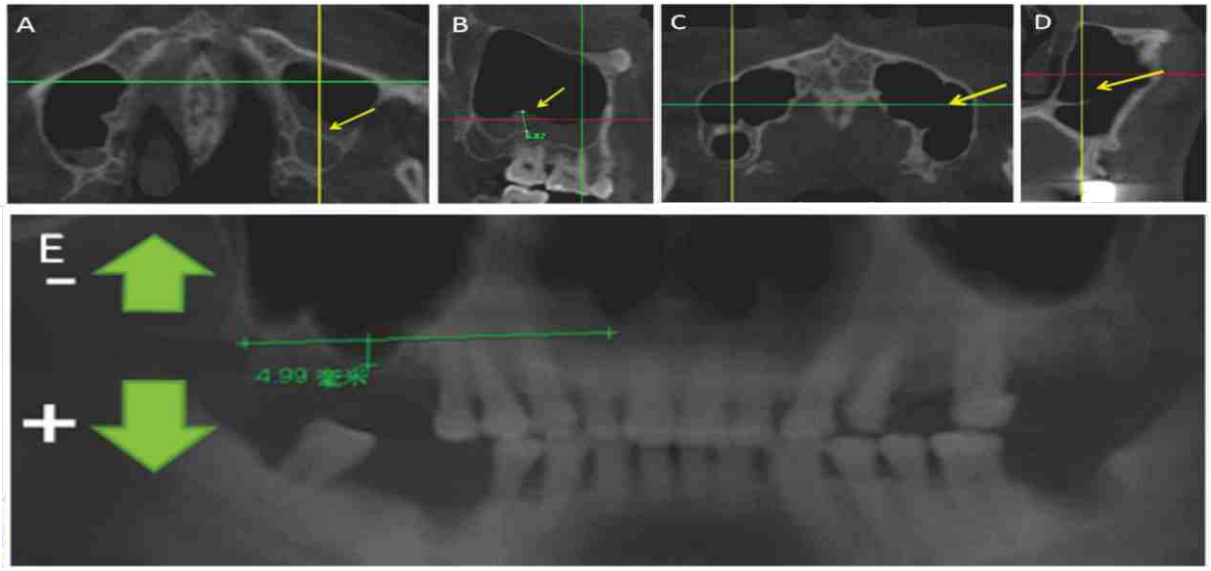

Figure 1. Cone-beam computed tomography (CBCT) images

Results：

Table 1.
Distribution of maxillary sinus septa on CBCT images from 134 patients

Septa number/ subject	Septa distribution		Number of patients	Number of patients with septum/septa	
				Septum (n=1)	Septa (n≥2)
(A) Distribution of the presence of septum/septa in 134 patients					
0	Right 0	Left 0	83		
1	Right 1	Left 0	15	31	
	Right 0	Left 1	16		
2	Right 2	Left 0	2	16	
	Right 1	Left 1	14		
3	Right 2	Left 1	2	3	20
	Right 1	Left 2	1		
4	Right 3	Left 1	1	1	
Total			134	51 (38.1%)	20 (14.9%)
		Number (sinuses or septa)		All sinuses	Prevalence
(B) Prevalence of septa at sinus level in 268 examined sinuses					
Total sinuses with septum/septa		69 (35 in right, 34 in left)		268	25.7% (69/268)
Total septa in all sinuses		76 (1x31+2x16+3x3+4x1)			28.4% (76/268)

Table 2.
Location and orientation of maxillary sinus septa in 268 examined sinuses

	Number of septa (%)	Total septa	*P*-value*
(A) Distribution of maxillary sinus septa according the location relative to the position of the teeth			
Anterior (-5D)†	16 (21.1%)		
Middle (5D-7D)‡	45 (59.2%)	76	<0.001
Posterior (7D-)§	15 (19.7%)		
*χ^2 test			
†Mesial to the distal surface of the maxillary second premolar			
‡From the distal surface of maxillary second premolar to the distal surface of second molar			
§Distal to the distal surface of maxillary second molar			
(B) Orientation of maxillary sinus septa			
Bucco-palatal (transverse)	69 (90.8%)		<0.001
Sagittal	4 (5.3%)	76	
Horizontal ‖	3 (3.9%)		
‖Horizontal type of septa: septa parallel to the sinus floor			

Table 2.
Relationship of sex, sinus mucosal change, absence of molars, and sinus pneumatization with the presence of sinus septa

	Septum/septa		*P*-value
	With	Without	
(a) χ^2-test			
Sex			
Male	31	42	0.250
Female	20	41	
Mucosal change			
Yes	22	63	0.972
No	47	136	
Absence of molars			
Dentate	48	123	0.248
Edentulous or partially dentate	21	76	
Sinus pneumatization			
Yes	45	69	0.001*
No	12	63	
	OR	95% CI	*P*-value
(b) Multiple logistic regression analysis			
Presence of molars	2.04	0.89-4.65	0.091
Sinus pneumatization	2.78	1.33-5.82	0.007*
*The significance was accepted at $P < 0.05$.			

Discussions：

Our study used a septum height of >2.5 mm as a threshold to exclude the irregularity of the sinus floor and septa with a low height (<2 mm), which may not require additional management during sinus floor elevation procedures. The prevalence of septa in this selected population is within the range reported in previous studies using CT or CBCT (range = 29.3%–47% at the patient level; 20.4%–33.2% at the sinus level)[1-2].

Previous studies have also reported a higher prevalence of septa in the middle region which were in accordance with our result[2]. A meta-analysis reported the orientation of septa as bucco-palatal in 87.6%, sagittal in 11.1%, and horizontal in 1.3% of septa[3]. Our result also showed that sagittal and horizontal orientations were uncommon.

Conflicting results have been obtained for the relationship between missing molars and septum occurrence in the literature. Kim et al. have reported that the prevalence of septa is significantly higher in edentulous segments than in dentate segments[1]. Shen et al. have suggested that the distribution of septa is not significantly related to the absence of molars[2]. In the present study, the presence of septa was not significantly related to the presence of molars (P = 0.091) but was significantly correlated with sinus pneumatization (OR = 2.78; P = 0.007). The correlation between the extent of sinus pneumatization and septum occurrence might be attributed to the irregular resorption of residual alveolar bone adjacent to the molar root tips following tooth loss and further sinus expansion, resulting in a bony projection over the sinus floor, as described by Krennmair et al[4].

Conclusions：

For the study population, the prevalence of septa was 38.1% at the patient level, 25.7% at the sinus level, and 28.4% at the septum level. The most frequent location of septa was in the region of the first and second molars, and the most common orientation of septa was bucco-palatal. The occurrence of septa was not influenced by age, sex, or sinus mucosal change. The presence of septa was not correlated with the absence of maxillary molars but was significantly correlated with sinus pneumatization.

References:

1. *Kim MJ, Jung UW, Kim CS, et al. Maxillary sinus septa: prevalence, height, location, and morphology. A reformatted computed tomography scan analysis. J Periodontol 2006;77: 903-908.*
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論文原稿

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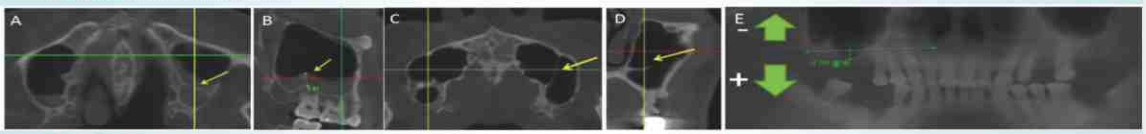

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壁報論文比賽作品欣賞 醫院組 第二名

A Two-Year Retrospective Study of Pediatric Dental Emergency Visits at a Hospital Emergency Center in Taiwan

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Introduction

The emergency department (ED) visit is generally preceded by an urgent condition due to injury, accident, disaster, or disease that requires immediate medical management. It is also common for children to visit the ED for dental problems. The American Dental Association (ADA) and the American Association of Oral and Maxillofacial Surgeons (AAOMS) define dental emergencies as jaw and alveolar bone fractures, avulsed or displaced teeth, fractured teeth with pulp exposures, acute alveolar abscess, upper airway impairment, oral mucosal lacerations, acute dental pain and infection, and uncontrolled bleeding. Previous studies suggested that the main reasons for children's ED visits were toothaches associated with dental caries, dental trauma, swelling of soft tissue, and tooth eruption problems. In a nine-year study of ED visits conducted at a children's hospital and medical center in the US, trauma accounted for 60 percent of the emergencies, while dental infections as the reason for the visit increased from 30 percent to 44 percent in a four-year period. According to a report in 2006, the prevalence of ED visits for pediatric dental care has been increasing in the last two decades.

The Linkuo Medical Center of Chang Gung Memorial Hospital (LMCCGMH) is the largest hospital in Taiwan and has an ED that functions as one of the emergency medical centers and serves a wide geographic area in northern Taiwan. About 100,000 patients visit the ED of LMC at CGMH each year. Among these visitors, more than 1000 have dental complaints.

There is a paucity of information regarding the prevalence and dental emergency types of ED visits in a medical center setting in Taiwan, and the characteristics of pediatric dental emergency of LMCCGMH have never been reported. Therefore, the objective of this retrospective study was to investigate the prevalence and characteristics of the pediatric dental emergency visits of the CGMH ED over a two-year period.

Subjects and methods

A retrospective chart data review of patients under 18 years of age with dental complaints who visited the CGMH ED from January 2012 to December 2013 was conducted. Electronic medical records were reviewed by a single pediatric dentist. Statistics were then derived from the data set. Standard quantitative analyses were conducted using Microsoft Excel formulas. Statistic analysis was carried out descriptive statistics and Pearson's chisquare test with the significance level set as $p<0.05$ using SPSS software.

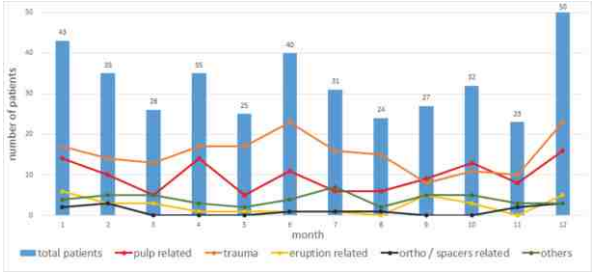
The following information was collected:

- The time, day, and month of a patient's emergency department visit
- Patient demographics: age, gender
- Diagnosis (pulp-related problems, orodental trauma, eruption-related problems, orthodontics or space maintainers related problems, bleeding, ulceration, etc.)
- Diagnosis of orodental trauma: defined as those involving injuries to the teeth, soft tissues and jaws. Information about the type of tooth (primary or permanent) and its classifications of trauma were recorded. The classification includes injuries to the teeth, supporting structures, gingival, and oral mucosa.
- Treatment: consultation and oral hygiene instruction, dental treatment (including local anesthesia injection), medication only, dental treatment with medication.

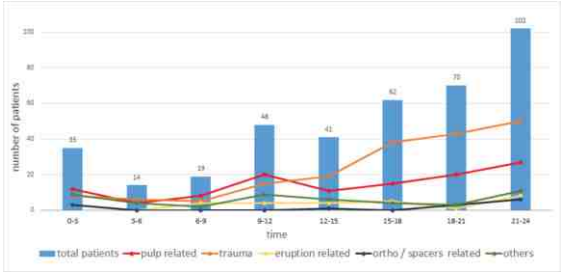
Results

From January 2012 to December 2013, a total of 397 children with dental problems had visited LMCCGMH for dental emergencies, which represents 0.77 percent (397/51766) of all pediatric patients in ED during the two-year period. Six cases were excluded due to incomplete chart data. Data were available for a total of 391 participants.

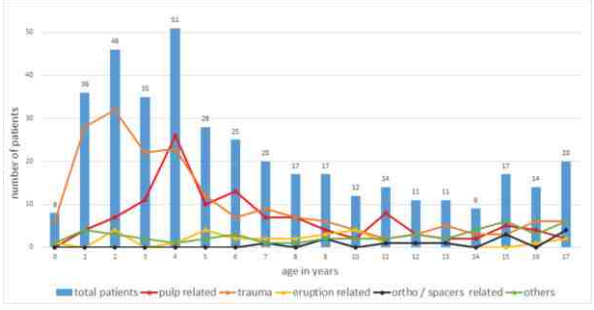
Of 391 patients, there were 235 males (60.1%) and 156 females (39.9%) (p<0.001). Ages ranged from 2 days to 17 years old, with a mean of 6.37 years. Most children seeking emergency dental services (176/391, 45.0%) were 4 years of age or younger (p<0.001).



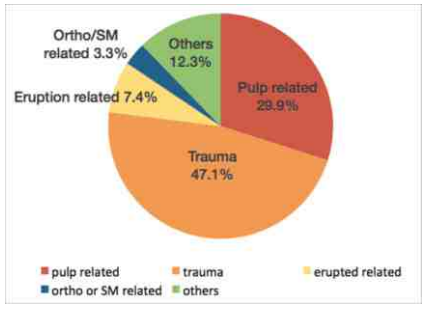
Distribution of number of patients who visited the emergency department with dental problems in relation to month



Distribution of number of patients who visited the emergency department with dental problems in relation to time



Distribution of number of patients who visited the emergency department with dental problems in relation to age



Reasons of seeking dental emergency services (n=391)

Classification of traumatic dental injuries by incidence (n=441)

Variable	Primary dentition (n=272)	Permanent dentition (n=169)
Injuries to the hard dental tissues and the pulp, n (%)	*28 (100.0)*	*44 (100.0)*
Enamel infraction	1 (3.6)	5 (11.4)
Enamel fracture	3 (10.7)	9 (20.4)
Enamel-dentin fracture	4 (14.3)	15 (34.1)
Complicated crown fracture	13 (46.4)	14 (31.8)
Uncomplicated crown- root fracture	2 (7.1)	1 (2.3)
Complicated crown- root fracture	1 (3.6)	0 (0.0)
Root fracture	4 (14.3)	0 (0.0)
Injuries to the periodontal tissues, n (%)	*181 (100.0)*	*93 (100.0)*
Concussion	13 (7.2)	15 (16.1)
Subluxation	82 (45.3)	36 (38.7)
Extrusion luxation	4 (2.2)	4 (4.3)
Lateral luxation	36 (19.9)	13 (14.0)
Intrusion luxation	19 (10.5)	4 (4.3)
Avulsion	27 (14.9)	21 (22.6)
Injuries to the supporting bone, n (%)	*3 (100.0)*	*8 (100.0)*
Comminution of the maxillary alveolar socket	0 (0.0)	1 (12.5)
Comminution of the mandibular alveolar socket	0 (0.0)	0 (0.0)
Fracture of the maxillary alveolar socket wall	0 (0.0)	0 (0.0)
Fracture of the mandibular alveolar socket wall	0 (0.0)	1 (12.5)
Fracture of the maxillary alveolar process	2 (66.7)	2 (25.0)
Fracture of the mandibular alveolar process	1 (33.3)	1 (12.5)
Fracture of the maxilla	0 (0.0)	0 (0.0)
Fracture of the mandible	0 (0.0)	3 (37.5)
Injuries to gingiva or oral mucosa, n (%)	*60 (100.0)*	*24 (100.0)*
Laceration of gingiva or oral mucosa	45 (75.0)	17 (70.8)
Contusion of gingiva or oral mucosa	5 (8.3)	1 (4.2)
Abrasion of gingiva or oral mucosa	10 (16.7)	6 (25.0)

Management of the emergencies based on reasons of visits

Variable	Pulp related problems (n=117)	Orodental trauma (n=184)	Eruption related problems (n=29)	Orthodontics/Spacers related problems (n=13)	Others (n=48)
Dental treatment, n (%)	0 (0)	6 (3.3)	8 (27.6)	7 (53.8)	22 (45.8)
Medication, n (%)	94 (80.3)	90 (48.9)	8 (27.6)	1 (7.7)	13 (27.1)
Dental treatment with medication, n (%)	21 (18)	72 (39.1)	7 (24.1)	4 (30.8)	7 (14.6)
Consultation and oral hygiene instruction, n (%)	2 (1.7)	16 (8.7)	6 (20.7)	1 (7.7)	6 (12.5)
Utilization of dental x-rays, n (%)	50 (42.7)	102 (55.4)	12 (41.4)	0 (0)	12 (25.0)

Discussion

These results revealed that orodental trauma was the most frequent cause of emergency care (47.1%). Most children with dental injuries at our dental emergency clinic had more than one tooth traumatized, with an average number of 2.09 teeth. In this study, luxation injuries appeared more

frequently in both primary and permanent dentition. According to the literature, luxation injuries were the most frequently occurred in both the primary and permanent dentition. In contrast, a study assessing the dental injury types in a university-based pediatric dentistry postgraduate outpatient clinic, reported that luxation injuries were seen more often in primary dentition whereas tooth fractures were more common than luxation in permanent dentition. Some authors have attributed this difference to the spongy nature of the supporting structures surrounding primary dentition in young children and to the lower root/crown ratio, compared to permanent teeth, thereby favoring luxation injuries over fractures.

Dental caries are commonly seen in children in Taiwan. A previous national dental survey reported a very high level of caries problem, in which the deft index for children at age 3,4,5,6 was 2.58, 4.41, 6.94 and 7.31, respectively. In the present study, caries-associated dental pain accounted for 29.9% of pediatric dental emergency visits. The peak age for this group of patients was 4 years of age. Young children needing emergency treatment may create a difficult treatment situation for both the patient and dentist. Emergency treatment is usually provided by the on-duty dental resident, and optimal behavior management is often compromised when operative or surgical treatment becomes necessary in this age group during afterhours. Result shows that caries-associated problems were predominantly treated with medication prescription, reflecting a behavior management difficulty. Even if the pain or infection was treated at the ED, the underlying dental problem was often not resolved.

The proportion of children in this study presenting complaints other than caries/pulpitis, cellulitis, and orodental trauma was relatively high. Some of these patients were not in pain, or had symptoms that were purely physiologic, such as primary tooth exfoliation or permanent tooth eruption. Almost one fifth (81/391, 20.7%) of all ED visitors in this current study did not need of immediate attention according to the ADA and AAOMS definitions. This included 25 patients seeking ED assistance for eruption related problems, 12 for orthodontic appliances and space maintainers, and 44 patients for gum problems. The utilization of dental emergency appointments for non-emergency situations may reflect “abuse” of the healthcare system by using such emergency services as primary care and in lieu of regular dental care. This study indicates that the hospital ED needs to develop a screening method for determining true dental emergencies, triaging emergency care, and prioritizing patients who need urgent dental care.

Discussion

This study reveals that dental emergencies presented to a children’s hospital in Taiwan are predominantly related to trauma and pulpal pain. Patients tend to be male and 4 years of age or younger. A significant number of pulpal problems were in primary lower posterior teeth. The most frequent dental trauma was luxation, both in primary and permanent dentition. The major management for dental emergency was prescription medication for pulp-related problems and orodental trauma. The follow-up rate for orodental trauma was the highest. While some dental emergencies are unforeseeable or unavoidable, increasing knowledge and awareness about proper at-home care as well as regular checkups may be a social initiative that can help reduce the high frequency of ED visits that involved preventable conditions, such as early childhood caries.

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Department of pediatric dentistry, Chang Gung Memorial Hospital

Introduction

The emergency department (ED) visit is generally preceded by an urgent condition due to injury, accident, disaster, or disease that requires immediate medical management. It is also common for children to visit the ED for dental problems. The American Dental Association (ADA) and the American Association of Oral and Maxillofacial Surgeons (AAOMS) define dental emergencies as jaw and alveolar bone fractures, avulsed or displaced teeth, fractured teeth with pulp exposures, acute alveolar abscess, upper airway impairment, oral mucosal lacerations, acute dental pain and infection, and uncontrolled bleeding. Previous studies suggested that the main reasons for children's ED visits were toothaches associated with dental caries, dental trauma, swelling of soft tissue, and tooth eruption problems. In a nine-year study of ED visits conducted at a children's hospital and medical center in the US, trauma accounted for 60 percent of the emergencies, while dental infections as the reason for the visit increased from 30 percent to 44 percent in a four-year period. According to a report in 2006, the prevalence of ED visits for pediatric dental care has been increasing in the last two decades.

The Linkuo Medical Center of Chang Gung Memorial Hospital (LMCCGMH) is the largest hospital in Taiwan and has an ED that functions as one of the emergency medical centers and serves a wide geographic area in northern Taiwan. About 100,000 patients visit the ED of LMC at CGMH each year. Among these visitors, more than 1000 have dental complaints.

There is a paucity of information regarding the prevalence and dental emergency types of ED visits in a medical center setting in Taiwan, and the characteristics of pediatric dental emergency of LMCCGMH have never been reported. Therefore, the objective of this retrospective study was to investigate the prevalence and characteristics of the pediatric dental emergency visits of the CGMH ED over a two-year period.

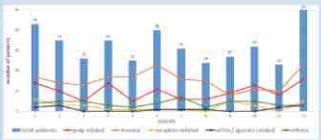
Subjects and methods

A retrospective chart data review of patients under 18 years of age with dental complaints who visited the CGMH ED from January 2012 to December 2013 was conducted. Electronic medical records were reviewed by a single pediatric dentist. Statistics were then derived from the data set. Standard quantitative analyses were conducted using Microsoft Excel formulas. Statistic analysis was carried out descriptive statistics and Pearson's chi-square test with the significance level set as $p<0.05$ using SPSS software.
The following information was collected:

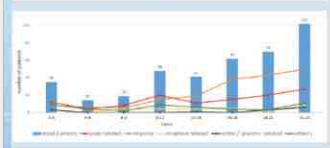
- The time, day, and month of a patient's emergency department visit
- Patient demographics: age, gender
- Diagnosis (pulp-related problems, orodental trauma, eruption-related problems, orthodontics or space maintainers related problems, bleeding, ulceration, etc.)
- Diagnosis of orodental trauma: defined as those involving injuries to the teeth, soft tissues and jaws. Information about the type of tooth (primary or permanent) and its classifications of trauma were recorded. The classification includes injuries to the teeth, supporting structures, gingival, and oral mucosa.
- Treatment: consultation and oral hygiene instruction, dental treatment (including local anesthesia injection), medication only, dental treatment with medication.

Results

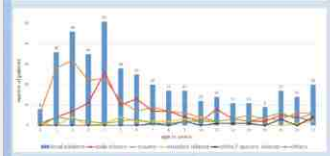
From January 2012 to December 2013, a total of 397 children with dental problems had visited LMCCGMH for dental emergencies, which represents 0.77 percent (397/51766) of all pediatric patients in ED during the two-year period. Six cases were excluded due to incomplete chart data. Data were available for a total of 391 participants.
Of 391 patients, there were 235 males (60.1%) and 156 females (39.9%) ($p<0.001$). Ages ranged from 2 days to 17 years old, with a mean of 6.37 years. Most children seeking emergency dental services (176/391, 45.0%) were 4 years of age or younger ($p<0.001$).



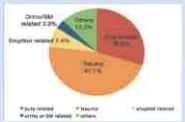
Distribution of number of patients who visited the emergency department with dental problems in relation to month



Distribution of number of patients who visited the emergency department with dental problems in relation to time



Distribution of number of patients who visited the emergency department with dental problems in relation to age



Reasons of seeking dental emergency services (n=391)

Classification of traumatic dental injuries by incidence (n=441)

Variable	Primary dentition (n=272)	Permanent dentition (n=169)
Injuries to the hard dental tissues and the pulp, n (%)	*28 (100.0)*	*44 (100.0)*
Enamel infraction	1 (3.6)	5 (11.4)
Enamel fracture	3 (10.7)	9 (20.4)
Enamel-dentin fracture	4 (14.3)	15 (34.1)
Complicated crown fracture	13 (46.4)	14 (31.8)
Uncomplicated crown- root fracture	2 (7.1)	1 (2.3)
Complicated crown- root fracture	1 (3.6)	0 (0.0)
Root fracture	4 (14.3)	0 (0.0)
Injuries to the periodontal tissues, n (%)	*181 (100.0)*	*93 (100.0)*
Concussion	13 (7.2)	15 (16.1)
Subluxation	82 (45.3)	36 (38.7)
Extrusion luxation	4 (2.2)	4 (4.3)
Lateral luxation	36 (19.9)	13 (14.0)
Intrusion luxation	19 (10.5)	4 (4.3)
Avulsion	27 (14.9)	21 (22.6)
Injuries to the supporting bone, n (%)	*3 (100.0)*	*8 (100.0)*
Comminution of the maxillary alveolar socket	0 (0.0)	1 (12.5)
Comminution of the mandibular alveolar socket	0 (0.0)	0 (0.0)
Fracture of the maxillary alveolar socket wall	0 (0.0)	0 (0.0)
Fracture of the mandibular alveolar socket wall	0 (0.0)	1 (12.5)
Fracture of the maxillary alveolar process	2 (66.7)	2 (25.0)
Fracture of the mandibular alveolar process	1 (33.3)	1 (12.5)
Fracture of the maxilla	0 (0.0)	0 (0.0)
Fracture of the mandible	0 (0.0)	3 (37.5)
Injuries to gingiva or oral mucosa, n (%)	*60 (100.0)*	*24 (100.0)*
Laceration of gingiva or oral mucosa	45 (75.0)	17 (70.8)
Contusion of gingiva or oral mucosa	5 (8.3)	1 (4.2)
Abrasion of gingiva or oral mucosa	10 (16.7)	6 (25.0)

Management of the emergencies based on reasons of visits

Variable	Pulp related problems (n=117)	Orodental trauma (n=184)	Eruption related problems (n=29)	Orthodontics/Spacers related problems (n=13)	Others (n=48)
Dental treatment, n (%)	0 (0)	6 (3.3)	8 (27.6)	7 (53.8)	22 (45.8)
Medication, n (%)	94 (80.3)	90 (48.9)	8 (27.6)	1 (7.7)	13 (27.1)
Dental treatment with medication, n (%)	21 (18)	72 (39.1)	7 (24.1)	4 (30.8)	7 (14.6)
Consultation and oral hygiene instruction, n (%)	2 (1.7)	16 (8.7)	6 (20.7)	1 (7.7)	6 (12.5)
Utilization of dental x-rays, n (%)	50 (42.7)	102 (55.4)	12 (41.4)	0 (0)	12 (25.0)

Discussion

These results revealed that orodental trauma was the most frequent cause of emergency care (47.1%). Most children with dental injuries at our dental emergency clinic had more than one tooth traumatized, with an average number of 2.09 teeth. In this study, luxation injuries appeared more frequently in both primary and permanent dentition. According to the literature, luxation injuries were the most frequently occurred in both the primary and permanent dentition. In contrast, a study assessing the dental injury types in a university-based pediatric dentistry postgraduate outpatient clinic, reported that luxation injuries were seen more often in primary dentition whereas tooth fractures were more common than luxation in permanent dentition. Some authors have attributed this difference to the spongy nature of the supporting structures surrounding primary dentition in young children and to the lower root/crown ratio, compared to permanent teeth, thereby favoring luxation injuries over fractures.

Dental caries are commonly seen in children in Taiwan. A previous national dental survey reported a very high level of caries problem, in which the deft index for children at age 3,4,5,6 was 2.58, 4.41, 6.94 and 7.31, respectively. In the present study, caries-associated dental pain accounted for 29.9% of pediatric dental emergency visits. The peak age for this group of patients was 4 years of age. Young children needing emergency treatment may create a difficult treatment situation for both the patient and dentist. Emergency treatment is usually provided by the on-duty dental resident, and optimal behavior management is often compromised when operative or surgical treatment becomes necessary in this age group during afterhours. Result shows that caries-associated problems were predominantly treated with medication prescription, reflecting a behavior management difficulty. Even if the pain or infection was treated at the ED, the underlying dental problem was often not resolved.

The proportion of children in this study presenting complaints other than caries/pulpitis, cellulitis, and orodental trauma was relatively high. Some of these patients were not in pain, or had symptoms that were purely physiologic, such as primary tooth exfoliation or permanent tooth eruption. Almost one fifth (81/391, 20.7%) of all ED visitors in this current study did not need of immediate attention according to the ADA and AAOMS definitions. This included 25 patients seeking ED assistance for eruption related problems, 12 for orthodontic appliances and space maintainers, and 44 patients for gum problems. The utilization of dental emergency appointments for non-emergency situations may reflect "abuse" of the healthcare system by using such emergency services as primary care and in lieu of regular dental care. This study indicates that the hospital ED needs to develop a screening method for determining true dental emergencies, triaging emergency care, and prioritizing patients who need urgent dental care.

Conclusion

This study reveals that dental emergencies presented to a children's hospital in Taiwan are predominantly related to trauma and pulpal pain. Patients tend to be male and 4 years of age or younger. A significant number of pulpal problems were in primary lower posterior teeth. The most frequent dental trauma was luxation, both in primary and permanent dentition. The major management for dental emergency was prescription medication for pulp-related problems and orodental trauma. The follow-up rate for orodental trauma was the highest. While some dental emergencies are unforeseeable or unavoidable, increasing knowledge and awareness about proper at-home care as well as regular checkups may be a social initiative that can help reduce the high frequency of ED visits that involved preventable conditions, such as early childhood caries.

壁報論文比賽作品欣賞 醫院組 第三名

Five Root Canals in Mandibular Right First Molar : A Case Report

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Department of Dentistry,Taipei Tzu Chi Hosiptal2

Introduction

Recent literatures pointed out the major variant of root canal system of mandibular first molar is the presence of a mesial accessory canal is with 0.26-37.5 %(1), including one study revealed the incidence of 6 % in Taiwanese population(2). The presence of a third canal in the distal root is relatively rare. This is a case which received root canal treatment and five root canals were explored under microscope (Vertucci's Type II canal type in distobuccal root).

Case report

A 77-year old male patient complained about spontaneous pain in the lower right molar area for 2 days. A clinical and radiograph examination revealed an extensive caries approximating the pulp of the lower right first molar **(Fig.1)**. No specific pathosis at periapical area was noted from the PAF film. The patient presented severe lingering pain to cold test. The tooth was tender to vertical percussion. A diagnosis of irreversible pulpitis with normal status of the right mandibular first molar was made. After administering local anesthesia and removing the caries, the endodontic emergency treatment was performed and another appointment was arranged for a regular root canal treatment.

Fig.1

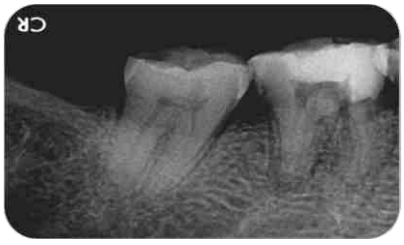

Fig.2

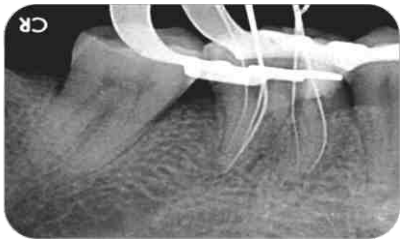

Fig.4

The root canal treatment was performed after removing the caries and building up mesial wall with glass ionomer **(Fig.2)**. Examination of the pulp chamber floor revealed four distinct root canal orifices distributed in each root(1 mesial roots and 2 distal roots). After thorough cleaning and shaping of all canals by several appointments during the following month, the symptom of tender by percussion test didn't improved. After discussing with patient the situation, the following root canal treatment was performed under microscope for further examination and treatment. By proper magnified vision, an additional distobuccal canal (Vertucci's Type II canal configuration in distobuccal root) was discovered **(Fig.3)**. After cleaning and shaping of all the 5 canals was done **(Fig.4)** and the canals were dried with absorbent points, the obturation procedure was accomplished by warm vertical compaction technique **(Fig.5)**. The symptom improved during the follow-up period.

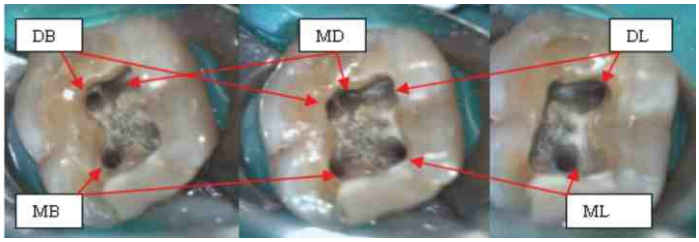

Fig.3

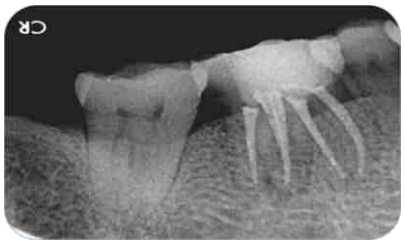

Fig.5

Discussion

The majority of mandibular first molars root canal distribution is two canals in the mesial root and one or two canals in the distal root(3).In 1974, Vertucci and Williams (4), as well as Barker et al.(5) first reported the presence of a middle mesial (MM) canal in a mandibular molar. Since then, there have been multiple literatures pointed out the major variant of root canal system of mandibular first molar is the presence of a mesial accessory canal is with 0.26-37.5 %(1), including one study revealed the incidence of 6 % in Taiwanese population(2) .

In 1983, Berthiaume (6) first reported on the cases in which a third canal was located in the distal root. The incidence of three canals in distal root of mandibular first molar in different races range from 0.2~3% (7),is relatively rare. Only one case report (8) about right mandibular first molar with three distal canals in Taiwanese population is searched by the author.

It is imperative that aberrant anatomy is identified before and during root canal treatment of such teeth to avoid missing canals. The detection of additional root canals requires a careful clinical and radiographic inspection. Diagnostic tools such as multiple radiographs, careful examination of the pulpal floor with a sharp explorer, troughing grooves with ultrasonic tips, staining of chamber floor with 1% methylene blue dye, performing sodium hypochlorite “Champagne bubble test” (9), and better visualization using an operating microscope or magnification loupes are all important aids in the detection of additional root canals.

Summary

Instrumentation is one of the key factors in the success of endodontic therapy. The clinician should be aware of the incidence of these extra canals in the mandibular first molar to avoid missing canals and incomplete instrumentation. The clinician can perform a thorough examination of the pulp chamber under adequate magnification equipment to insure complete debridement of all canals. This increases the chance for long-term successful endodontic therapy.

Reference

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論文原稿

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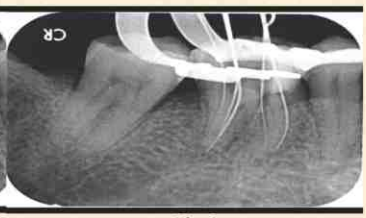

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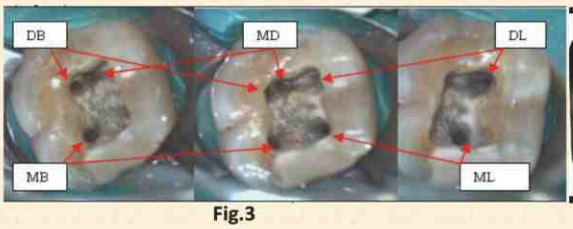

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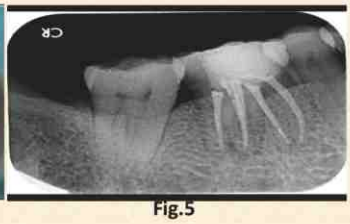

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學術專題

社團法人桃園市牙醫公會第廿二屆第二次會員代表大會

壁報論文比賽得獎名單

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