

Incidence of impacted third molar among Mosul dental students

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ABSTRACT

The purpose of this study is to determine the incidence of impacted third molar and its distribution between the jaws among Mosul dental students, in addition to the study of its relationship with the family history, habit and sex of the patient. The incidence of congenital missing third molar and its distribution between the jaws were also estimated.

The sample for this study consisted of 165 Mosul dental students; their age ranged from 20–25 years.

The results revealed 46.06% of impaction third molar where the females show higher incidence of impaction than the males and in the mandibular arch than the maxillary one. Patients with chewing gum and singing habits show less degree of impacted third molar than those without these habits. A high significant correlation was observed between third molar impaction and family history of the patient.

The study also revealed that the incidence of congenitally missing third molar was 12.57% and it is slightly higher in the maxilla than the mandible.

Key Words: Incidence, habits, third molar impaction.

الخلاصة

إن الغرض من هذه الدراسة هو بيان احتمالية سن العقل المظموور وتوزيعه على الفكين بين طلاب طب الأسنان / جامعة الموصل بالإضافة إلى دراسة العلاقة بين سن العقل المظموور وتأريخ عائلة وجنس المريض وبعض العادات التي يقوم بها. تم أيضاً دراسة احتمالية سن العقل المفقود وراثياً وتوزيعه بين الفكين.

تكونت عينة هذا البحث من ١٦٥ طالب وطالبة من كلية طب الأسنان / جامعة الموصل تتراوح أعمارهم بين ٢٠-٢٥ سنة.

أعطت النتائج ٤٦.٠٦% نسبة انطمار لسن العقل حيث أظهرت الإناث نسبة أعلى في الانطمار من الذكور وفي الفك السفلي أعلى منه في الفك العلوي. كما أظهر المرضى المعتادون على الغناء ومضغ العلكة احتمالية أقل في انطمار سن العقل عما عليه عند أقرانهم الذين ليس لديهم هذه العادات. كذلك كشفت الدراسة عن علاقة واضحة وقوية بين تأريخ العائلة للمريض ونسبة انطمار سن العقل لديه.

كشفت الدراسة أيضاً أن احتمالية فقدان سن العقل وراثياً كان ١٢.٥٧% وأنه أكثر بقليل في الفك العلوي عما عليه في الفك السفلي.

INTRODUCTION

Third molar impaction was defined as incomplete eruption of third molar because of its inclined position relative to the second molar or the ascending ramus, or vertical position whereby eruption was impeded by soft tissue and lack of space.⁽¹⁾ The typical third molar is a sound and well developed tooth, capable of providing

good service if it is located in an appropriate position.⁽²⁾

Retained, unerupted third molar teeth in adults have been associated with various pathologic conditions.⁽³⁻⁶⁾ These may include cystic lesions, association with neoplasms, pericoronitis, periodontitis, pathologic resorption as well as

detrimental effects on adjacent erupted teeth.^(4, 7-10)

The incidence of impaction may differ from one race to another due to the fact of genetically inherited factors and due to the type of food and habits which may have a role on the growth of the jaws.⁽¹¹⁾

The incidence of third molar agenesis may also differ from one race to another due to the genetically inherited factors and presence of some diseases like in Down's syndrome which may elevate the incidence to 74%.⁽¹²⁾

Kramer and Williams⁽¹³⁾ showed that maxillary third molar impactions counted for 62.57% and 37.44% mandibular third molar impactions. Muthe and Nanavati⁽¹⁴⁾ stated that third molar was the most commonly impacted tooth in both the jaws. Out of these teeth 3.5% were maxillary third molars and 90.2% were mandibular third molars. Sandhu and Kapila⁽¹⁵⁾ showed that third molar impactions were predominantly more in the mandible (83.21%) than in the maxilla (36.79%). The females probably have a greater tendency for third molar impactions than males, where the maxilla showing predominantly more agenesis than the mandible. Mustafa and Igzeer⁽¹¹⁾ studied the incidence of impacted wisdom teeth in Iraqi population and its correlation with the type of food and habits. They gave 37.02% of third molar impaction, where females show higher incidence of impactions than males and in the mandibular arch more than in the maxillary one.

The aim of this study is to know the incidence of third molar impaction and agenesis among Mosul dental students. Also to study the correlation between impaction and family history, sex and type of habits of the patient.

MATERIALS AND METHODS

One hundred and sixty five students from the College of Dentistry, University of Mosul, from third to fifth classes were examined using special case sheet. Periapical radiographs were used for students who have, or suspected to have, impacted or congenitally missing third molars.

In this study, as Sandhu and Kapila⁽¹⁵⁾ stated, any partially erupted third molar which can not erupt completely because of lack of space was designated as impacted.

The diagnosis of third molar agenesis was based on the examination of all radiographs and a negative history of previous third molar extraction as in Ades *et al.* diagnosis.⁽¹⁾

RESULTS

From 165 examined students (93 males and 72 females) as shown in Table (1), 76 (39 males and 37 females) were found to have one or more impacted third molars (46.06%). The females show higher percentage of third molars impaction than the males, but with no significant difference at $p < 0.05$ level of significance as shown in Table (2).

Table (1): Age distribution of Mosul dental students sample according to the age and sex

Age Group (Years)	Males (No.)	Females (No.)	Total (No.)
20 – 21	34	33	67
22 – 23	46	36	82
24 – 25	13	3	16
Total	93	72	165

Table (2): Z-test analysis of the relationship between impacted third molars and sex of the patient among Mosul dental students

	Males	Females	Total
Impaction	39 (41.94%)	37 (51.39%)	76 (46.06%)
Non-impaction	54 (58.06%)	35 (48.61%)	89 (53.94%)
Total	93 (100%)	72 (100%)	165 (100%)

Z = 1.214; not significant at $p < 0.05$.

Students who did not like chewing gum show a higher incidence of impacted

third molars than those who like chewing gum, but in very low degree with no

significant difference at 0.05 level of significance as shown in Table (3).

Students who did not like singing habit show a higher percentage of third molar impaction than those who like singing but with no significant difference

at 0.05 level of significance as shown in Table (4).

A highly significant relationship was observed between impacted third molars and family history of the examined patient as shown very clearly in Table (5).

Table (3): Z-test analysis of the relation between chewing gum habit and impacted third molar among Mosul dental students

	Students Liking Chewing Gum	Students not Liking Chewing Gum	Total
Impaction	20 (45.45%)	56 (46.28%)	76 (46.06%)
Non-impaction	24 (54.55%)	65 (53.72%)	89 (53.94%)
Total	44 (100%)	121 (100%)	165 (100%)

Z = 0.099; not significant at $p < 0.05$.

Table (4): Z-test analysis of the relation between singing habit and impacted third molar among Mosul dental students

	Students with Singing Habit	Students Having no Singing Habit	Total
Impaction	36 (40.45%)	40 (52.63%)	76 (46.06%)
Non-impaction	53 (59.55%)	36 (47.37%)	89 (53.94%)
Total	89 (100%)	76 (100%)	165 (100%)

Z = 1.554; not significant at $p < 0.05$.

Table (5): Z-test analysis of the relation between family history and impacted third molar among Mosul dental students

	Students Having Family History of Impaction	Students Having no Family History of Impaction	Total
Impaction	40 (74.07%)	36 (32.43%)	76 (46.06%)
Non-impaction	14 (25.93%)	75 (67.57%)	89 (53.94%)
Total	54 (100%)	111 (100%)	165 (100%)

Z = 5.042; highly significant at $p < 0.05$.

The mandibular third molar impaction shows higher percentage (54.16%) than the maxillary one (45.83%) from the total number of third molars impactions.

A 44 (24 males and 20 females) students had one or more congenitally

missing wisdom teeth in which 43 maxillary and 41 mandibular wisdom teeth missing from 660 total number wisdom teeth being examined as shown in Tables (6) and (7).

Table (6): Distribution of congenitally missing third molar

according to sex of patient among Mosul dental students			
	Males	Females	Total
Congenitally Missing Wisdom Tooth	24	20	44
Non-missing	69	52	121
Total	93	72	165

Table (7): Distribution of congenitally missing third molar between maxillary and mandibular arches among Mosul dental students

	Maxilla	Mandible	Total Number of Examined Wisdom Teeth
Congenitally Missing Third Molar	43 (6.51%)	41 (6.21%)	660 (100%)

DISCUSSION

The examination of 165 Mosul dental students of both sexes shows 46.06% of impaction third molars (one or more third molar impaction). This percentage of wisdom tooth impaction was more than the previous studies carried out on other races; Dachi and Howell⁽¹⁶⁾ (17.5%), Morris and Jerman⁽¹⁷⁾ (27.9%), Sandhu and Kapila⁽¹⁵⁾ (26%) and Mustafa and Igzeer⁽¹¹⁾ (37.08%). But the incidence of third molar impaction in this study was found to be slightly near the result found by Kramer and Williams⁽¹³⁾ who reported 47.44% on population that is 95% Negro.

The females show higher incidence of impaction (51.38%) than males (41.93%). This result is similar to many previous studies,^(11, 15, 18) where they attributed these results to the fact that the jaws of the females stop growing at the time when third molars are just beginning to erupt, whereas in the males the growth of the jaws continued beyond the time of eruption of third molars.

The present study revealed 54.16% of mandibular third molar impactions which is higher than that of maxillary third molar impactions (45.83%). This result is in agreement with Mustafa and Igzeer study⁽¹¹⁾ which observed that 50.86% of the

total third molar impactions were in the mandible and the remaining 49.13% were in the maxilla. Sandhu and Kapila⁽¹⁵⁾ found 83.21% mandibular wisdom impactions and 36.79% maxillary wisdom teeth impactions. Muthe and Nanavati⁽¹⁴⁾ showed 3.5% maxillary wisdom impactions and 90.2% mandibular one. The present study also coincides with Van der Linden *et al.*⁽⁹⁾ who revealed that mandibular wisdom impaction is greater (94%) than the maxillary wisdom teeth (62.9%); whereas this result was in contrary to the study of Kramer and Williams⁽¹³⁾ who stated that the incidence of third molar impactions was 62.57% in the maxilla which is higher than the mandibular third molar impaction (37.44%).

The result of the study reveals that there is correlation between chewing gum, singing habit and impaction of third molar. This result is in agreement with Sarnat and Shanedling⁽¹⁹⁾ and Mustafa and Igzeer⁽¹¹⁾ studies, where they attributed this result to the fact that the continuous movement of the jaw enhance apposition growth of the mandible as Sarnat and Shanedling⁽¹⁹⁾ supposed that normal growth of the mandible is in response to the growth of the tongue and masticatory muscles. Foster⁽²⁰⁾

also supposed that the mandible grows by cartilaginous and periosteal and endosteal growth.

A high significant relationship between impaction third molar and family history of the examined patient were observed. This is due to the fact that the person inherit from his parents the size of the jaw according to Moss's *et al.* theory which stated that the bone has an inherited potential to achieve its predetermined size and forms.⁽²¹⁾

The congenitally missing third molar shows slightly higher percentage in the maxillary arch (6.51%) than the mandibular arch (6.21%) from the total number of the examined third molars. This result is in agreement with Sandhu and Kapila⁽¹⁵⁾ and Van der Linden *et al.*⁽⁹⁾ studies where they found congenital missing third molars is more predominant in the maxilla than in the mandible; but the present study was in contrary with Mustafa and Igzeer⁽¹¹⁾ and Legovic *et al.*⁽²²⁾ studies where they found higher incidence of congenital missing third molar in the mandibular arch than the maxillary one.

CONCLUSIONS

The incidence of third molar impactions forms 46.06% among Mosul dental students.

The incidence of third molar agenesis forms 12.72% from 660 examined third molars.

Third molar impactions show higher incidence in the mandible than the maxilla.

Third molar impactions show higher incidence in the females than the males.

Students with chewing gum and singing habit show low incidence of third molar impaction than those without these habits.

A high significant correlation was observed between third molar impaction and family history of the examined patient.

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