

ORIGINAL ARTICLE

Profile of Odontectomy Cases in an Indonesian Teaching Hospital

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ABSTRACT

Extraction of impacted teeth has become one of the most common procedure in oral surgery. **Objective:** This study aimed to observe the frequency and distribution of odontectomy cases in Oral Surgery Clinic of RSGMP FKG UI. **Methods:** A descriptive study using dental record as secondary data at RSGMP FKG UI. **Results:** There were 145 odontectomy in June 2008–May 2009, 137 in June 2009–May 2010, and 174 in June 2010–May 2011, with total of 456. **Conclusion:** The number of odontectomy cases from June 2008–May 2009 to June 2009–May 2010 was decreasing while from June 2009–May 2010 to June 2010–May 2011 was increasing.

ABSTRAK

Profil odontektomi di rumah sakit pendidikan. Ekstraksi gigi impaksi telah menjadi prosedur yang sering dilakukan pada bedah mulut. **Tujuan:** Tujuan penelitian ini adalah untuk mengamati frekuensi dan distribusi odontektomi di Klinik Bedah Mulut Rumah Sakit Gigi dan Mulut Pendidikan Fakultas Kedokteran Gigi Universitas Indonesia (RSGMP FKG UI). **Metode:** Studi ini merupakan studi deskriptif menggunakan catatan medis sebagai data sekunder di RSGMP FKG UI. **Hasil:** Terdapat 145 odontektomi pada Juni 2008-Mei 2009, 137 pada Juni 2009-Mei 2010, dan 174 pada Juni 2010-Mei 2011, dengan total 456. **Simpulan:** Jumlah kasus odontektomi dari Juni 2008-Mei 2009 ke Juni 2009-Mei 2010 menurun, sedangkan dari Juni 2009-Mei 2010 hingga Juni 2010-Mei 2011 meningkat.

Key words: frequency, impacted teeth, odontectomy

INTRODUCTION

The impacted teeth extraction has become one of the most common procedure in oral surgery.¹ Impaction may occur because there is no path of eruption due to the tooth is developed in an abnormal position or is obstructed by a physical barrier such as another tooth, odontogenic cyst or tumor.² The most common impacted teeth are the maxillary and mandibular third molars, followed by the maxillary canines and mandibular premolars.³ The prevalence of impacted tooth is increasing in the modern human. The explanation for the occurrence of impacted tooth that appears to be most logical is the gradual evolutionary reduction in the size of the human mandible or maxilla due to the changes in diet. The modern diet does not require a great effort

for mastication, therefore the jaw lose its stimulus to grow. The reduction in the size of human jaws results in insufficiency of normal eruption space for the teeth, hence causing tooth impaction.⁴ The impacted teeth may cause several complications such as pericoronitis, periodontal disease, dental caries, root resorption, ulceration when using removable prostheses, and pathology that associated with tumour and odontogenic cyst.⁵ To prevent or relieve these complication, odontectomy are indicated to perform.⁶ As people's awareness in preventing or relieving the complication is increasing, the frequency of odontectomy cases will also increase. Studies about the frequency of odontectomy cases in Indonesia, especially in Jakarta, are rarely done. Thus, the aim of this study is to investigate the frequency and distribution of odontectomy cases

from the year of 2008 to 2011 in Oral Surgery Clinic of Rumah Sakit Gigi dan Mulut Pendidikan (RSGMP), Faculty of Dentistry, Universitas Indonesia.

METHODS

All dental records in oral surgery clinic of RSGMP FKG UI from the year of 2008 to 2011 were reviewed. Only dental records with history of odontectomy were included, no dental records were excluded for any reason. There are 456 odontectomy cases with data of element, angulation, class and position of impacted teeth were collected, besides data of age and sex at the time of procedure. The classification of impacted teeth's angulation was adapted from Winter's Classification. The Pell and Gregory's Classification were used not only to document the position of impacted mandibular third molar between Ramus Ascenden Mandibular (RAM) to distal aspect of mandibular second molar, but also to document the depth of third molar in mandible. The impacted maxillary third molar were classified by the depth of it buried in the bone and the approximation from sinus maxillary. The impacted maxillary canine's classification were according to the position from the processus of alveolar.^{3,7} The number of odontectomy cases, sex, age, element of tooth, and classification of impaction which are frequently recorded in doing odontectomy were displayed by frequency and percentage.

RESULTS

There were 456 odontectomy cases with 145 (31.8%) in June 2008 to May 2009, 137 (30.0%) in June 2009 to May 2010 and 174 (38.2%) in June 2010 to May 2011. According to sex, there were 193 (42.3%) males and 263 (57.7%) females presented with history of odontectomy from 456 odontectomy procedures (Table 2). The highest frequency was 151 (33.1%) at the age of 19 to 24 years and the lowest was 1 (0.2%) at the age of 61 to 66 years (Table 1). From the Table 2, there were six elements of impacted teeth recorded from 454 valid data. Those elements were 18, 28, 38, 48, 35, and 44 with the most common element of impacted teeth were right mandibular third molars as much as 50.4%. The occurrence of the different angulations of impaction is shown in Table 3.

From 290 of total valid data of angulation recorded, the most common angulation was mesioangular impaction (51.4%), followed by horizontal (27.6%), vertical (16.8%), and distoangular (0.7%). The occurrence of the different classes of impaction is shown in Table 4 with total number of 283 valid data documented. There were 214 cases of class II impaction, 66 cases of class I impaction and the lowest frequent was class III with only three cases. Table 5 shows the different positions of 291 valid data. Position A was the most frequent with total of 181 (62.2%), followed by position B (32.7%) and C (5.1%).

Table 1. Frequency and distribution of odontectomy according to age

Age groups (years old)	June 2008-May 2009 Frequency (%)	June 2009-May 2010 Frequency (%)	June 2010-May 2011 Frequency (%)	Total (%)
13-18	4 (0.9)	3 (0.7)	11 (2.4)	18 (4)
19-24	48 (10.5)	42 (9.2)	61 (13.4)	151 (33.1)
25-30	46 (10.1)	48 (10.5)	41 (9)	135 (29.6)
31-36	21 (4.6)	18 (3.9)	35 (7.7)	74 (16.2)
37-42	14 (3.1)	17 (3.7)	16 (3.5)	47 (10.3)
43-48	8 (1.8)	4 (0.9)	6 (1.3)	18 (4)
49-54	2 (0.4)	3 (0.7)	3 (0.7)	8 (1.8)
55-60	1 (0.2)	2 (0.4)	1 (0.2)	4 (0.8)
61-66	1 (0.2)	0 (0)	0 (0)	1 (0.2)
Total	145 (31.8)	137 (30)	174 (38.2)	456 (100)

Table 2. Frequency and distribution of odontectomy according to tooth element

Tooth element	June 2008-May 2009 Frequency (%)	June 2009-May 2010 Frequency (%)	June 2010-May 2011 Frequency (%)	Total (%)
18	2 (0.4)	1 (0.2)	6 (1.3)	9 (1.9)
28	3 (0.7)	3 (0.7)	2 (0.5)	8 (1.9)
38	64 (14.1)	63 (13.9)	79 (17.4)	206 (45.4)
48	76 (16.7)	70 (15.4)	83 (18.3)	229 (50.4)
35	0 (0)	0 (0)	1 (0.2)	1 (0.2)
44	0 (0)	0 (0)	1 (0.2)	1 (0.2)
Total	145 (31.9)	137 (30.2)	172 (37.9)	454 (100)

Table 3. Frequency and distribution of odontectomy according to tooth angulation

Tooth element	June 2008-May 2009	June 2009-May 2010	June 2010-May 2011	Total (%)
	Frequency (%)	Frequency (%)	Frequency (%)	
Mesioangular	42 (14.5)	55 (19.0)	52 (17.9)	149 (51.4)
Vertikal	16 (5.5)	12 (4.1)	21 (7.2)	49 (16.8)
Distoangular	5 (1.7)	4 (1.4)	2 (0.7)	11 (3.8)
Horizontal	25 (8.6)	27 (9.3)	28 (9.7)	80 (27.6)
Bukoversi	1 (0.4)	0 (0)	0 (0)	1 (0.4)
Total	89 (30.7)	98 (33.8)	103 (35.5)	290 (100)

Table 4. Frequency and distribution of odontectomy according to class of impacted tooth

Period	Class I	Class II	Class III	Total (%)
	Frequency (%)	Frequency (%)	Frequency (%)	
June 2008-May 2009	14 (4.9)	70 (24.7)	2 (0.7)	86 (30.3)
June 2009-May 2010	26 (9.2)	68 (24)	1 (0.4)	95 (33.6)
June 2010-May 2011	26 (9.2)	76 (26.9)	0 (0)	102 (36.1)
Total	66 (23.3)	214 (75.6)	3 (1.1)	283 (100)

Table 5. Frequency and distribution of odontectomy according to impacted tooth's position

Period	Position A	Position B	Position C	Total (%)
	Frequency (%)	Frequency (%)	Frequency (%)	
June 2008-May 2009	60 (20.6)	24 (8.3)	5 (1.7)	89 (30.6)
June 2009-May 2010	58 (19.9)	35 (12)	5 (1.7)	98 (33.6)
June 2010-May 2011	63 (21.7)	36 (12.4)	5 (1.7)	104 (35.8)
Total	181 (62.2)	95 (32.7)	15 (5.1)	291 (100)

DISCUSSION

Table 1 showed the highest number of odontectomy cases were 174 in June 2010 to May 2011. This number increased from the two previous year. It might be caused by the increasing of impaction cases due to change in size of human jaws and people's awareness in preventing or relieving the complication of impaction. Table 2 showed that odontectomy mostly performed in females (57.7%). Likewise, females (67%) were the commonest treated in Selcuk University Faculty of Dentistry Department of Oral and Maxillofacial Surgery.⁸ Previous study revealed that incidence of impacted teeth most common in female with ratio 1.32:1.⁹ The high frequency in females is a consequence of their jaws that stop growing when the third molars just began to erupt, whereas in males, the growth of the jaws continue beyond the time of eruption of the third molars.¹⁰ A study in Thailand, showed that the most common group performed odontectomy is age group of ≤ 20 years old (30%) and 21 to 30 years old (40%).¹¹ In the present study, age group of 20 to 24 years old was the common did odontectomy. There is increasing in an age group of 20 to 24 years old's awareness to prevent and relieve complication of impaction. Pedersen proposed that impacted teeth should be removed before 25 or 26 years old due to the difficulty in removing impacted teeth caused by mineralization of bone.¹²

Table 4 showed that the most common element of impacted teeth were right mandibular third molars.

Previous study revealed that odontectomy mostly performed on the right mandibular third molars (91.0%).⁸ Another study also revealed that odontectomy most frequently performed on the right mandibular third molars (50.22%), followed by left mandibular third molars (49.78%).¹³ The higher frequency of mandibular third molar is due to the time of eruption that the lastest of all teeth.³ According to table 5, odontectomy procedures were mostly performed to mesioangular impacted teeth (51.4%). Previous study showed that mesioangular were the most common (43%).¹⁴ Moreover, it was also presented that removal of mesioangular impacted teeth were the most common procedures (52.3%).¹⁵ During normal development the mandibular third molar begins its development in a horizontal angulation, and as the tooth develops and the jaw grow, the angulation changes from horizontal to mesioangular to vertical. Failure of rotation from the mesioangular to the vertical direction is the most common cause of the tooth remaining impacted.³

The highest frequency of odontectomy procedures were done to class II impacted teeth (75.6%). A literature revealed that class II (72.2%) were the most common found in odontectomy.¹⁶ The most common founded in odontectomy were class II (57.9%).¹⁵ These class II show that deficiency in size of human jaws. As long as consumption of soft diet in present day, size of human jaws will be decreased. A study at Klinik Pakar Pergigian Hospital Universiti Sains Malaysia showed that the most frequent position of tooth impaction was position A

(68%).¹⁵ Another study revealed that the most common was position A (54.55%).¹⁷ But another study showed that the most common position was B (80%).¹⁸ This study supports a study that stated position B was the most common.¹⁹ In the present study, position A was the most common position (62.2%). The difference is caused by difference in race of the subject.

CONCLUSION

We can conclude that during 2008 to 2011, the frequency of odontectomy in oral surgery clinic of RSGMP FKG UI increased, with the highest in June 2010 to May 2011. The most commonly found cases were impacted teeth with mesioangular, class II, and position A. The most common element of impacted teeth was right mandibular third molars. Odontectomy procedures were done mostly on females and age group of 20 to 24 years old.

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