Impaction classification pdf

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The presence of related symptoms including pain, pericoronitis, lymphadenopathy and trismus was noted for each patient. The distributions of the values obtained were compared using the Pearson 2 test. Non-parametric values were analyzed using the Mann-Whitney U and Kruskal-Wallis test. Results: The average age of subjects was 30.58 ± 11.98 years (range: 19-73); in a review of the 2,133 affected third molar teeth, the most common angulation of impaction in the two maxillas was vertical (1,177; 55%). Level B impaction was most common in the maxilla (425/1.037; 39%), while level C impaction was most common in the mandible (635/1.096; 61%). Pain (272/705; 39%) and pericoronite (188/705; 27%) were the most common complications of impaction. In 705 patients (335 men, 370 women), pericoronitis was more prevalent in men (101; 30%) and generally related to lower third molars (236; 22%). The retromolar space was significantly smaller in females (p-lt; 0.05). In addition, there was a significant difference in the retromolar space for the jaw area (maxillary: 11.3 mm; mandibular: 14.2 mm) and the impaction level (A: 14.7 mm; B: 11.1 mm; C: 10.3 mm; 0.05). Conclusion: The third molar impaction model in a central Anatolian Turkish population was characterized by a high prevalence rate of C-level impaction with vertical position. Pain and pericoronitis were the most common symptoms usually associated with A-level impaction and vertical position. © 2015 S. Karger AG, Basel IntroductionTooth impaction is a pathological situation in which a tooth cannot or will not burst into its normal operating position In human teeth, the third molars have the highest impact rate of all teeth [1]. The main factors related to tooth impaction are lack of space, limited skeletal growth, increased crown size and late maturation of the third molars [2]. Although the third molars affected may remain symptom-free indefinitely, they could cause various symptoms and pathologies, such as pericoronitis, pain, swelling, distal cavities, bone loss, resorption of adjacent teeth, odontogenic cysts and tumors [3]. The onset of a pathology resulting from impaction is considered to have a multifactorial origin [4]. The condition, position and angulation of the rash have an impact on these symptoms [4]. The decision whether or not to remove a third mandibular molar is probably one of the most common treatment decisions in the dental profession [3,5,6]. Hashemipour et al. [7] noted that the anatomical position of the third affected molars shows significant variations that anticipate the difficulty of extraction. Several methods have been used to classify the impaction [4]. This classification is based on many factors, which are the level of impaction, the angulation of the third molars and the relationship to the anterior boundary of the ramus. The depth or level of the third maxillary and mandibular molars can be categorized using the Pell and Gregory classification system, where the affected teeth are assessed based on their relationship to the occlusal surface of the second adjacent molar [2]. In previous studies of the Turkish population, the affected molars were examined retrospectively using only radiological findings that included cavities, bone loss and periodontal damage [3], or clinical symptoms were assessed only by comparing the state of the rash [8]. Therefore, the objective of this study was to evaluate the third molar impaction model comprehensively by examining the state of the rash and angulation on panoramic x-rays and linking them to the associated clinical symptoms in a central Anatolian Turkish population. Materials and methodsA retrospective study was conducted with 705 patients (335 men and 370 women) of whom at least 1 third impacted molar was detected on panoramic X-rays in the Department of Oral and Maxillofacial Radiology from February to August 2014. The study plan was approved by the Faculty of Dentistry Administration. The exclusion criteria were records of patients aged 19 years with any pathological dentoalveolar condition, any abnormality or craniofacial syndrome such as Down syndrome, cleidocranial dysostosis or the presence of incomplete records or poor quality orthopantograms, incomplete root formation of the third molars or the absence of second adjacent molars , a history of any dental extraction or orthodontic treatment. During the examination of the panoramic x-rays, the patient's clinical records were also examined, and related symptoms including pain, pericoronitis, lymphadenopathy (LAP) and trismus were noted for each patient. All third molar teeth affected on x-rays were examined by a single examiner (S.Y.) using a Cliniview 10.0.2 X-ray viewer (Instrumentarium, Tuusula, Finland) to determine rash and angulation levels. In order to minimize the risk of false assessments caused by fatigue, no more than 50 x-rays were evaluated at a time. The depth of the third lower molars impacted in relation to the occlusal plane was recorded according to the classification of and Gregory (fig. 1). The angulation of an affected third molar was documented based on Winter's classification based on the angle formed between the cross longitudinal axes of the second and third molars (fig. 2). The distance between the ramus and the distal surface of the second molar (retromolar space) was also measured (fig. 3). Classification Pell and Gregory. Level A: The occlusal plane of the affected tooth is at the same level as the occlusal plane of the second molar (the highest part of the impacted third molar is at a level with or above the occlusal plane); Level B: The occlusal plane of the affected tooth is between the occlusal plane and the cervical margin of the second molar (the highest part of the affected third molar is below the occlusal plane but above the cervical line of the second molar); Level C: The affected tooth is less than the cervical margin of the second molar (the highest part of the third affected molar is below the cervical line of the second molar). Winter ranking. Vertical impaction: the long axis of the third molar is parallel to the long axis of the second molar (from 10 to -10 degrees); mesioangular impaction: the affected tooth is tilted towards the second molar in a mesial direction (11 to 79 degrees); horizontal impaction: the long axis of the third molars is horizontal (80 to 100 degrees); distortional impaction: the long axis of the third molar is tilted distally/posteriorly away from the second molar (from -11 to -79 degrees); (from 101 to -80 degrees). Measurements of the retromolar space on panoramic radiography (two-headed red arrows; colors in the online version only): a - line of the anterior boundary of the mandibular ramus; (b) line from the posterior boundary of the second maxillary molar; (c) line from the posterior boundary of the second mandibular molar. The value distributions obtained were compared using a Pearson 2 test, using the statistical package for Social Sciences 22. The distribution of the retromolar space was tested for normality using the Kolmogorov-Smirnov and Shapiro-Wilk tests. When the retromolar space was not normally distributed (p-lt; 0.05), the Mann-Whitney U test was used to compare the variables of two groups. The Kruskal-Wallis test and couple comparisons were used to compare variables to three groups. About 100 panoramic x-rays were re-evaluated after a 1-week interval to measure the intra-examination error. Cohen's kappa coefficient turned out to be 91%. ResultsFrom 705 patients (average age: 30.58 ± 11.98 years, range: 19-73) with at least 1 third molar tooth affected, 335 (47.5%) men and 370 (52.5%) were females; the difference was not statistically significant (p - 0.187). Of the 705 patients, one 2,133 affected molar teeth were examined - maxillary: 1,037 (49%) and mandible: 1,096 (51%) - and the difference was not statistically significant either (p - 0.201). The distribution of the third molars by impaction and angulation level is shown in the table The most common angulation of impaction in the maxillas and mandibulae was vertical. Level B impaction was most common in the maxilla (425; 39%), while level C impaction was most common in the mandible (635; 61%). The distribution of symptoms by sex and jaw area is shown in Table 2. Pain (272; 39%) and pericoronite (188; 27%) were the most common complications of impaction, followed by LAP (88; 12%) and trismus (70; 10%). There was no significant difference in the frequency of pain, lap and trismus between the sexes and areas of the jaw. Pericoronitis was more prevalent in men (101; 30%) females and was usually related to lower third molars (236; 22%). The distribution of symptoms showed significant differences in level of impaction and angulation (p-lt; 0.01), as shown in Table 3. The occurrence rate of symptoms showed higher percentages for pain (318; 37%), pericoronitis (112; 44%), LAP (112; 38%) and trismus (87; 38%) A-impaction level than other impaction levels. It was also noted that most symptoms of pain (408; 48%), pericoronitis (101; 40%), LAP (148; 51%) and trismus (107; 47%) were associated with vertically angular third molars. The retromolar space was significantly smaller in females (13.8 mm) than in males (11.9 mm; p-lt; 0.05). In addition, there was a significant difference in the retromolar space for the jaw area (maxillary: 11.3 mm; mandibular: 14.2 mm) and the impaction level (A: 14.7 mm; B: 11.1 mm; C: 10.3 mm; p and lt; 0.01; Table 4). Pair comparisons indicated that the retromolar space showed different results for impaction levels (Table 5). Distribution (numbers, percentages in brackets) of the third molar incidence by level of impaction and angulation distribution (numbers, percentages in parentheses) of symptoms by sex and jaw area Distribution (numbers, percentages in parentheses) of symptoms by level of impaction and angulation Means and DS of retromolar space (mm) by sex, jaw area and impaction level Compared with impact levels for retromolar space DiscussionT'd study showed a high prevalence rate of third impact in molar vertical position. This finding confirmed previous studies of Almendros-Marqués et al [4], Bataineh et al. [9] and Hugoson and Kugelberg [10], which had reported that the most common angulation was vertical. However, other studies had shown that the most common type was mesioangular impaction [11,12]. The impact level assessed on the basis of the Pell and Gregory classification showed that the B-level impaction was the most common in maxillary, similar to Hassan's study [1], while the C-level study was the most common in the mandible. These results conflict with most previous studies that have identified the most common position as A-level [7,13,14]. Other results are also in conflict with Blondeau and Nach [15] of Canada, and Almendros-Marqués et al. [4] of Spain stated that Level B was the most common position of the third mandibular molars. These angulation and level of impaction may be due to the difference in race, patient selection criteria and study population. In this case Richardson [16] and Vent and et al. [17] suggested that it would be inaccurate to predict the eruption or impaction of third molars before the age of 20 due to continuous changes in position during further development. Pericoronitis is a soft tissue infection located around the crown of a partially affected tooth, the appearance of which involves the accumulation of microorganisms and food remains [4]. The impact of gender on the development and frequency of pericoronite has been reported in the literature. In this study, we found a slight trend in male patients for pericoronitis, but other symptoms showed no gender predominance. In contrast, Bataineh et al. [9] reported that cases of pericoronitis were much more frequently seen in female patients than male patients. Similarly Yamalok and Bozkaya [18] found a predominance of females for pericoronite. However, Almendros-Marqués et al. [4] and Akarslan and Kocabay [2] found no gender predominance for all complaints and pathologies. The finding of a higher prevalence of pericoronite for the third molars affected in this study confirmed previous studies of Jamileh and Pedlar [19] and Khawaja [20] that pericoronite was the most common indication for removal of the impacted third mandibular molars. A probable explanation could be that pericoronitis is a common pathological condition of impacted mandibular teeth. In this study, the observation that angulation had a statistically significant impact on the development of pericoronitis and other clinical symptoms confirmed that vertical angulation was an important factor for the development of clinical symptoms. As previously suggested, Leone et al. [21] reported that the third molars most likely to cause pericoronite were vertical, slightly distoangular teeth. On the other hand, in the studies of Gung-rms [22] and Kay [23] the majority of cases of pericoronite have been reported to be involved in mesioangular impacts. Finally, Polat et al. [3] suggested that most molars with pathoses were either in a vertical position or in a mesioangular position, but this is because these positions have a higher frequency. In this regard, Murad et al. [24] suggested that these differences may be due to geographical variations related to diet. The level of rash of the third molars also has an impact on the development of clinical symptoms. In our study, we observed that most of the molars affected with pericoronite erupted at the same level as the adjacent molar second occlusal plane. Similar to our findings, Halverson and Anderson [25] reported an association of pericoronite with the third molar tooth at or below the height of the occlusal plane of the arc. Leone et al. [21] suggested a similar association with the third molar tooth at or above the occlusal plane. Ali et al. [26] suggested that these depths more frequently associated with soft tissue impaction, forming an armband over partially burst teeth and beginning pericoronite. The third molars are the teeth that most often follow an aborted rash path and become impacted. Lack of space appears to be the main cause of the aborted eruption. However, the rash cannot be guaranteed despite the sufficient space available in the jaw [27]. The development of space for the third molar is governed by many factors, including the resorption of the bone of the anterior boundary of the ramus, the rear slope of the anterior border of the ramus relative to the alveolar boundary, the forward movement of the dentition, the growth of the length of the mandible direction and the sagittal growth of the mandibular growth [28]. In this study, we found a significant difference in retromolar space for impaction levels. In addition, the retromolar space appeared to decrease while the impaction level was increased. In accordance with our conclusion, Bjork et al. [29] reported that the space behind the second molar was reduced in 90% of cases with a third mandibular molar impaction. Ganss et al. [30] reported that when the retromolar space is 13.9 mm in women and 14.3 mm in men, the probability of eruption is 70%. Later, Vent and al. [17] stated that if the retromolar space is at least 16.5 mm, the probability of eruption is 100%. With regard to these studies and our results, we can suggest that third-party molar teeth may be affected if the retromolar space is less than 13.8 mm for males and 11.9 mm for females in the Turkish population. ConclusionThe third molar impaction model in a central Anatolian Turkish population was characterized by a high prevalence rate of C-level impaction with vertical position. Pain and pericoronitis were the most common symptoms usually associated with A-level impaction and vertical position. Male patients with an impacted third-party lower molar had a tendency to develop pericoronitis. The retromolar space influenced the level of impaction. References Hassan AH: Model of third molar impactation in a Saudi population. 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