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Research Article

**COMPLETELY IMPACTED TEETH IN EDENTULOUS AND  
DENTATE JAWS**<sup>1</sup>Dr Haider Ali, <sup>2</sup>Dr Muhammad Usman Shakoor, <sup>3</sup>Dr Sabina Alim<sup>1</sup>DOW University of Health sciences, Karachi<sup>2</sup> de'Montmorency College of Dentistry Lahore<sup>3</sup>Senior Lecturer, Rawal Institute of Health Sciences, Islamabad**Article Received:** June 2020**Accepted:** July 2020**Published:** August 2020**Abstract:**

**Aim:** The aim of this study was to study the prevalence of completely impacted teeth in dentate and edentulous jaws.

**Methods:** Panoramic X-rays of 2000 patients were evaluated retrospectively. There were 1,124 women and 876 men who attended the dental OPD of Punjab Dental Hospital for one year duration from March 2019 to March 2020.

**Results:** A tooth is considered affected when it is completely covered with bone or is not aligned with the remaining teeth in any of the dental arches. It was found that 141 (7.1%) patients had single or multiple fully impacted teeth. It was found more often in patients with 7.3% of teeth than 5.3% of edentulous patients. 119 (6%) patients had a permanent tooth jam, 22 patients (1.1%) had a supernumerary jam, the majority of which were found in men with a toothed tooth. The permanent canines were the most frequently retained permanent teeth, followed by premolars. In the case of supernumerary puncture, the supernumerary teeth resembling the premolar morphology in the premolar area occurred more often than the mesiodens.

**Conclusion:** To examine impacted teeth, a radiographic examination with a panoramic radiograph is not sufficient. A more detailed examination is needed to assess the exact location of impacted teeth in the dental arch and their proximity to vital structures or adjacent teeth. Therefore, cone-beam computed tomography (CBCT) is recommended.

**Key words:** impacted permanent teeth, impacted supernumerary teeth, alveolar cyst, multiple supernumerary teeth.

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**INTRODUCTION:**

Impaction or pathological impaction is defined as failure of a tooth to erupt in its appropriate site in the dental arch within its normal period of growth. A large number of fully impacted teeth can remain in both jaws without any symptoms. The impacted tooth may be one of the permanent teeth or a supernumerary tooth. A supernumerary tooth is an additional tooth to the normal row and can be found anywhere in the dental arch. The presence of supernumerary teeth is a relatively rare dental anomaly. Supernumerary teeth have often been seen as single teeth. The etiology of supernumerary teeth remains unclear. However, several theories have been proposed. Multiple supernumerary teeth are rare. Most cases include syndromes such as Gardener's syndrome, clavicle-cranial dysostosis, and cleft lip and palate. The incidence of non-fused multiple supernumerary teeth has been reported to be less than 1%. In the literature, the incidence of supernumerary teeth in the mandible and maxillary ranges from 0.2-0.9%. Mesiodens are considered the most common supernumerary teeth, with a frequency of 0.15 to 1.9% and a slight male predominance. Any tooth standing in the dental arch can be a stroke, but the most common in descending order are the molars in the mandible and maxillary, the maxillary canines, the mandible and the second premolar in the maxilla, and the central incisors in the maxilla. Therefore, the aim of the research was to investigate the frequency of teeth completely retained in the toothless and toothless jaws.

**METHODOLOGY:**

This is a retrospective study based on 2,000 panoramic images of adults. Panoramic x-rays were randomly selected from active dental records. All of the panoramic radiographs were made using one of two different panoramic machine (orthopantomography 10 machine (Siemens, Germany) or orthopantomaograph –OP 100; instrumentarium, Finland with exposure parameters of 57-90 KVP, 2-16 mA, and equivalent filtration of 2.5 mm Al, using Kodak Lanex regular intensifying screen and Kodak T MAT G/RA)The transparencies were processed with an HP processor according to the manufacturer's instructions. Panoramic X-rays were originally

taken for various dental purposes, not for this examination. Therefore, no attempt was made to pre-select a panoramic photo. All panoramic photos have been assessed by the author. A tooth was considered affected when it was completely covered with bone or was not aligned with the remaining teeth in the dental arch, or in some pathological condition that prevents the tooth from erupting, such as a dental cyst or odontoma. Patients were assessed, panoramic radiographs were taken and the following data were recorded: age, sex, number of impacted teeth, and tooth type (permanent or supernumerary), its location, and jam pathologies. Third molar impacts were excluded because in some cases the tooth may be retained and surgically removed outside of the dental school, which cannot be confirmed and therefore is not considered in this study. The evaluation was performed under standard radiographic interpretation conditions such as an observation window and poor room lighting. Data analysis was performed using the statistical package for the Social Sciences SPSS program. Gender, mean age and dental condition were analyzed. Significant differences between patients with teeth and edentulous ones, as well as differences between men and women with regard to the type of puncture, were analyzed using the Pearson Chi-square test. The level of statistical significance was set at 5%. The research project was approved by the College of Dentistry Research Center (CDRC) of King Saud University.

**RESULTS:**

The studied sample consisted of 2,000 panoramic images, which belonged to 1,124 women (56.2%) with the mean age of 37 years (SD 15.5) and 876 men (43.8%) with the mean age of 39.7 (SD 15.9). The age of the entire sample ranged from 15 to 90 years. There were 1737 edentulous patients (86.9%) with a mean age of 35 (SD13.7) and 263 (13.2%) edentulous patients with a mean age of 60 (SD9.6). One hundred forty-one (7.1%) of the 2,000 patients had single or multiple fully impacted teeth of any type, these impacted teeth were found in 127 toothless and 14 edentulous patients, although there was no significant difference between them at p value of 0.24.

**TABLE 1: Distribution of impaction type by dental status**

Dental Status	Type of Impaction		
	Impacted teeth	Supernumerary	Permanent teeth
Dentate	127 (7.3%)	22(17.3%)	105 (82.7%)
Edentulous	14(5.3%)	0 (0%)	14 (11.8%)
Total	141 (7.1%)	22 (17.3)	119 (84.4%)

Table (1) presents the frequency, percentage and type of impacted teeth in patients with edentulous teeth. Impacted teeth were more common in women than in men. They were 83 (7.4%) and 58 (6.6%) women and men, respectively, but no significant difference was found between them using the Pearson Chi-square test with a P value of 0.43. The most frequently retained teeth were permanent canines, in 94 patients (4.7%), premolars in 18 patients (0.9%) and, less frequently, central incisors (0.1%). None of the patients had the first or second molars dipped.

**TABLE 2: The distribution of impactions by tooth type and gender**

Gender	Tooth Type					
	Canine	Premolar	Central	Canine & central	Canine & premolar	Total
Male	36 (85.7%)	3 (7.1%)	1 (2.4%)	0	2 (4.8%)	42 (100%)
Female	58 (74.4%)	15 (19.2%)	1 (1.3%)	2 (2.6%)	2 (2.6%)	78 (100%)
Total	94 (78.3%)	18 (15.0%)	2 (1.7%)	2 (1.7%)	4 (3.3%)	120 (100%)

Table (2) presents the number and frequency of different types of permanent teeth impressions in male and female patients. Permanent tooth / tooth impacts were observed more frequently than supernumerary teeth. This was found in 119 patients (6%), while excess blows were reported in 22 patients with teeth (1.1%). A total of 35 supernumerary impacted teeth were found in 22 patients with teeth, more in men than in women.

**TABLE 3: The frequency of various type of supernumerary impacted teeth by gender.**

Gender	Type of Supernumerary Impaction			
	Premolar morphology	Mesiodens	Distomolar	Total
Male	11(64.7%)	59 (29.4%)	1(5.9%)	17 (100%)
Female	3(60.0%)	2(40.0%)	0	5 (100%)
Total	14(63.6 %)	7(31.8%)	1(4.5%)	22 (100)

Table 3 shows the prevalence of different types of impaction of supernumerary teeth in men and women with teeth. None of the supernumerary impacted teeth have been found in edentulous patients. Supernumerary impacted teeth were more common in men (29.3%) than in women (6%), with a slight significant difference between them of p value of 0.02. The supernumerary retained tooth, which resembles the premolar morphology of the premolar, was more common than the anterior mesiodens, where 0.7% and 0.4% respectively were recorded for premolar and mesiodens morphology. Registered retained mesiodens were single in all seven patients with different impaction patterns, where single or multiple dental arches were recorded as a retained supernumerary tooth with premolar morphology. Multiple supernumerary teeth retained over five teeth were rare in this study, the incidence was 0.1%, only one was found with ten retained supernumerary teeth in the premolars area. Figure 3 shows a panoramic X-ray of a 34-year-old man with multiple impacted teeth without any history of syndrome. None of the supernumerary teeth showed a cystic transformation. Neighboring teeth displacement and resorption were not visible. Whereas cystic is observed in some cases sticking of permanent teeth

#### DISCUSSION:

An impacted tooth remains embedded in the jawbone for a variety of reasons, the most common cause of impacted permanent teeth is tooth crowding, which means that the tooth has no room to erupt in the jaw in a timely manner. Teeth can also shift in the jaw for unknown reasons causing the tooth to stick. Many impacted teeth may not be a problem for humans and may never be aware of the problem unless an X-ray is performed on patients entering dental treatment. Given that

certain jamming can cause serious complications, therefore early detection of this retained tooth can prevent it. In this study, impaction of permanent teeth was found more frequently than supernumerary teeth, and also impacted teeth were more frequent in patients with notched teeth, and this finding is consistent with other findings. Despite the fact that in some edentulous patients it has been difficult to tell if impacted teeth, especially in the premolars, are permanent or supernumerary, therefore all impacted teeth in

edentulous patients have been considered permanent as there were no previously available panoramic images for comparison. The results of this study showed that the tooth most often affected is the permanent canines, followed by the lower premolars and less often the middle teeth, the same statement reported in the literature. Supernumerary teeth are extra teeth, their shape and size may resemble a group of teeth where they are in the jaws, or they may show little or no resemblance. They may appear as an impact or an eruption, singly or repeatedly, one-sided or on both sides, in one or both of the jaws. The incidence of supernumerary teeth in the population ranging from 0.1% to 3.6%, the result of this study showed that the incidence of supernumerary teeth is within this range. In the case of mesiodens in 7 patients the tooth was single, while the supernumerary teeth resembled premolars morphology in 14 patients, both single and multiple. In several studies that investigated the eruption of supernumerary teeth in the permanent dentition, approximately 25% of the supernumerary teeth were erupted, while the rest were affected. In this study, all registered teeth / supernumerary teeth were retained without any related dental anomalies. Several researchers have reported that mesiodens are the most common supernumerary tooth in the premaxillary between the two middle incisors; may resemble the morphology of permanent teeth or have an atypical morphology. Mesiodens crown direction can be normal, inverted or horizontal. The results of this study did not confirm their findings, in which the tooth / supernumerary teeth, which resemble premolar morphology, were recorded more often than mesiodens, however, supernumerary teeth were more common in men than in women, which is the same finding described by Acikgoz et al. Numerous impacted teeth supernumerary teeth are not common, although single or several supernumerary teeth have been widely described in the literature. Yuosf in 1990 reviewed many cases described in the English literature in the years 1969-1990, reported a tendency to the occurrence of many supernumerary teeth unrelated to the mandibular premolar syndrome, which is the same finding described in this study. there was one case of a male patient with no history of systemic disease or a known syndrome with multiple retained supernumerary teeth that resembled premolar morphology in the area of both premolars. The literature reports that most of the cysts formed around the mesiodens in the anterior jaw, but none of the supernumerary teeth in this study showed a cystic transformation, and no displacement and resorption of adjacent teeth were visible. This finding is consistent with Acikgoz et al. Therefore, close observation of patients with retained supernumerary and permanent teeth is necessary to prevent further complications resulting

from cystic transformation or resorption of the adjacent tooth root. In one case, the patient struck the canines and supernumerary teeth in front of the jaw. The presence of an oversized tooth may cause the permanent canine to be driven in. Early diagnosis of an impacted supernumerary tooth and treatment by extracting the supernumerary tooth can prevent such complications. The work presents a radiographic examination using a panoramic image as a screening test for patients presenting for dental treatment. Based on the results presented in this study, it appears that panoramic X-ray is considered good for detecting jamming. If a detailed examination is needed to assess the exact location of the retained teeth in the dental arch and the proximity of vital structures or adjacent teeth in both arches, a panoramic X-ray is not enough. Therefore, for a more detailed examination, a cone-beam computed tomography (CBCT) is recommended. CBCT has many advantages over simple panoramic videos, such as the accurate visualization of head and neck structures. The compact size and relatively low radiation dose, as well as the short scanning time with the CBCT scanner, make it suitable for imaging the craniofacial area, including dental structures.

#### CONCLUSIONS:

- Most of the impacted teeth were diagnosed accidentally during an X-ray examination.
- Permanent tooth impaction is more common than supernumerary tooth.
- A complication, such as cystic transformation resulting from impaction, is more common with the impaction of permanent teeth.
- The extraction of asymptomatic retained supernumerary teeth is not recommended, unless there are complications.
- Follow-up of patients with retained teeth by periodic radiological examination.
- CBCT is recommended for detailed examination

#### REFERENCES:

1. Gil-Marques, Blanca, Juan A. Sanchis-Gimeno, Aritza Brizuela-Velasco, Marcelino Perez-Bermejo, and Carolina Larrazabal-Morón. "Differences in the shape and direction-course of the nasopalatine canal among dentate, partially edentulous and completely edentulous subjects." *Anatomical Science International* 95, no. 1 (2020): 76-84.
2. Ren, Shuxin, Dean Morton, and Wei-Shao Lin. "Accuracy of virtual interocclusal records for partially edentulous patients." *The Journal of prosthetic dentistry* 123, no. 6 (2020): 860-865.
3. Donsimoni, Jean-Marie, Gérard M. Scortecchi, Carl E. Misch, Guillaume Odin, and Jean-Paul Meningaud. "Completely Edentulous Atrophic Jaws and Extreme Clinical Situations."

- In *Basal Implantology*, pp. 281-324. Springer, Cham, 2019.
4. Chochlidakis, Konstantinos, David Fraser, Evangelia Lampraki, Erna R. Einarsdottir, Abdul Basir Barmak, Panos Papaspyridakos, Carlo Ercoli, and Alexandra Tsigarida. "Prosthesis Survival Rates and Prosthetic Complications of Implant-Supported Fixed Dental Prosthesis in Partially Edentulous Patients." *Journal of Prosthodontics* (2020).
  5. Demirkol, Mehmet, and Nermin Demirkol. "The effects of posterior alveolar bone height on the height of maxillary sinus septa." *Surgical and Radiologic Anatomy* 41, no. 9 (2019): 1003-1009.
  6. Harper, Matthew Thomas. "The Effect of Occlusal Pressure on Vertical Force Generation on Dentate and Edentulous Subjects." (2019).
  7. Ventä, Irja, Miira M. Vehkalahti, Sisko Huumonen, and Anna L. Suominen. "Prevalence of third molars determined by panoramic radiographs in a population-based survey of adult Finns." *Community Dentistry and Oral Epidemiology* 48, no. 3 (2020): 208-214.
  8. Ahmad, Abdelnasir G., Motaz Osman, and Fadia Awadalkreem. "Full-mouth rehabilitation of a patient with cleidocranial dysplasia using immediately loaded basal implant-supported fixed prostheses: a case report." *International Journal of Surgery Case Reports* 65 (2019): 344-348.
  9. Fouda, Shaimaa-Mohamed, Mohammed M. Gad, Maha El Tantawi, Jorma I. Virtanen, Kirsi Sipila, and Aune Raustia. "Influence of tooth loss on mandibular morphology: A cone-beam computed tomography study." *Journal of clinical and experimental dentistry* 11, no. 9 (2019): e814.
  10. Zhang, Ya Qiong, Xue Bing Yan, Li Qi Zhang, Xiao Yan Xie, Deng Gao Liu, and Zu Yan Zhang. "Prevalence and Morphology of Mandibular Incisive Canal: Comparison among Healthy, Periodontitis and Edentulous Mandibles in a Population of the Beijing Area Using Cone-beam Computed Tomography." *Chin J Dent Res* 22, no. 4 (2019): 241-249.
  11. Dhara, Vasanth, Abhay T. Kamath, and Ravindranath Vineetha. "The influence of the mandibular gonial angle on the occurrence of mandibular angle fracture." *Dental Traumatology* 35, no. 3 (2019): 188-193.
  12. Chochlidakis, Konstantinos, Erna Einarsdottir, Alexandra Tsigarida, Panos Papaspyridakos, Davide Romeo, Abdul Basir Barmak, and Carlo Ercoli. "Survival rates and prosthetic complications of implant fixed complete dental prostheses: An up to 5-year retrospective study." *The Journal of Prosthetic Dentistry* (2020).
  13. Kawai, Taisuke, Ray Tanaka, Andy Wai Kan Yeung, Thomas von Arx, and Michael M. Bornstein. "Frequency and type of incidentally detected radiodensities in the maxillary sinus: a retrospective analysis using cone beam computed tomography (CBCT)." *Clinical oral investigations* 23, no. 3 (2019): 1091-1099.
  14. Dong, Heng, Na Zhou, Hui Liu, Haohao Huang, Guangwen Yang, Li Chen, Meng Ding, and Yongbin Mou. "Satisfaction analysis of patients with single implant treatments based on a questionnaire survey." *Patient preference and adherence* 13 (2019): 695.
  15. Unal Erzurumlu, Zerrin, and Peruze Celenk. "A radiological evaluation of the effects of edentulousness on the temporomandibular joint." *Journal of Oral Rehabilitation* 47, no. 3 (2020): 319-324.