

# The Hard Tissue Lesions Associated with Impacted Teeth

Dwi Putri Wulansari<sup>1\*</sup>, Irfan Sugianto<sup>1</sup>, Muliaty Yunus<sup>1</sup>, Rafikah Hasyim<sup>2</sup>, Nasyrh Hidayati<sup>3</sup>, Sri Naca Hardiana<sup>1</sup>

<sup>1</sup>Department of Oral and Maxillofacial Radiology, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia

<sup>2</sup>Department of Oral Biology, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia

<sup>3</sup>Department of Orthodontics, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia

**Corresponding Author:** dwiputri@unhas.ac.id

## ABSTRACT

This Radiography helps a dentist to evaluate the condition of hard tissue in the oral cavity. Radiography is one of the tools to establish the diagnosis of impacted teeth and the accompanied hard tissue lesions. Lesions that could accompany impacted teeth not only caries lesions but also lesions that extend into the jaw region. The purpose of this study was to determine the prevalence of impacted teeth accompanied by hard tissue lesions at Dental and Oral Hospital of Hasanuddin University based on panoramic radiography. This research was descriptive observational with consecutive sampling. The study population was all panoramic radiography data of patients aged 21-40 years that viewed from the medical record data from 2016-2017. Data obtained then processed in table form. The result showed that the frequency of impacted occurrence based on its location, 56.2%, occurs in the mandible. Impacted teeth that accompanied by caries was 53.4%, the periapical abscess was 28.8%, and the dentigerous cyst was 17.8%. The conclusion indicated that almost every case of impacted would be accompanied by a hard tissue lesion, either caries lesion or a lesion that extends into the jaw.

**Keywords:** Hard Tissue Lesion, Impacted Teeth, Panoramic Radiography

## Correspondence:

Dwi Putri Wulansari

<sup>1</sup>Department of Oral and Maxillofacial Radiology, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia

**Corresponding Author:** dwiputri@unhas.ac.id

## INTRODUCTION

Radiography is one of the tools to diagnose impacted teeth and jaw lesions.<sup>1</sup> Panoramic radiography technique is a preliminary feature to evaluate impacted teeth and hard tissue lesions in the oral cavity.<sup>1</sup> Impacted teeth are teeth that not erupted in its correct position.<sup>2,3</sup> There are several factors that cause impacted teeth of the jaw; high density of surrounding tissue, premature loss or the persistence of deciduous, or the unavailability of a place for eruption due to the narrow jaw.<sup>2</sup> Oral cavity lesion is a discontinuity of pathological or traumatic tissue or loss of function. Oral cavity lesions are defined as abnormal changes and might be caused by local and external factors.<sup>3</sup> Local factors that could cause oral cavity lesions are chronic irritation caused by overhanging restoration, radix, and caries.<sup>4,5</sup> External factors that could cause oral lesions are the habit of smoking, alcohol consumption, and virus infection.<sup>4,5</sup> Based on a study by Hamed Mortazavi and Maryam Baharvand who conducted the study by collecting more than 250 articles, concluded that there are ten types of hard tissue lesions in the oral cavity that were related to impacted teeth.<sup>4</sup>

In a study conducted by Ramamurthy in 2012 in India stated that women often experience impacted teeth compared with men with vulnerable aged 20 years and over, and decline by age increase.<sup>6</sup> However, the prevalence of hard tissue lesions associated with impacted teeth has not been studied in Oral and Dental Hospital of Hasanuddin University. The purpose of this study was to conduct a study on hard tissue lesions associated with impacted teeth using panoramic radiography techniques at Oral and Dental Hospital of Hasanuddin University

## MATERIAL AND METHODS

This study was a descriptive observational with cross-sectional study design. This study was conducted at the Dental Radiology Department, Oral and Dental Hospital of Hasanuddin University in May 2017. The subjects were

all of the radiography panoramic data from May 2016 to May 2017 with a non-probability sampling method. The inclusion criteria were radiography panoramic data of patients aged 21 to 40 years with impacted teeth and associated with hard tissue lesions.

## RESULTS

The ethics committee had registered this study with number: 413 / H4.8.4.5.31 / PP36-KOMETIK / 2017 and UH register number on June 19, 2017. The results are shown in the table as follows.

Table 1 showed that the number of cases of impaction accompanied by lesions based on gender in Hasanuddin University Dental Hospital, the highest number were women. Table 2 showed the distribution of impaction accompanied by lesions based on location, found that the area in the maxilla was 43.8%, and the site in the mandible was 56.2%. Based on table 3 it showed that caries was a hard tissue lesion that accompanies most impacted teeth of the third molar.

## DISCUSSION

From 73 panoramic radiography data of impacted teeth with hard tissue lesions during May 2016-May 2017 found that more than half of the impacted teeth occur in the mandible. A study conducted by Secic in Bosnia had similar results, impacted teeth have a higher prevalence to occur in the mandible.<sup>5</sup> Impacted teeth in mandible molars were associated with periodontal disease, caries teeth, odontogenic cysts, tumors, pain, jaw bone fractures, and adjacent teeth root resorption.<sup>7</sup> Impacted teeth were more common in the mandible because of the development of the retromolar space.<sup>5</sup> The development of the mandible ramus had a relation to anterior surface resorption, and deposition impacted teeth occur on the mandible as it did not get enough space for erupted.<sup>5</sup> The results of this study were in line with a study conducted by Delsy et al. in 2015 that showed that more than half of the impacted teeth were present in the mandible and

more common in teenagers and adults age groups in women.<sup>8</sup> From table 3, it was found that caries was the more frequent lesion occurring on impacted teeth. Caries commonly occurs in vulnerable ages 20-40 years that could be caused by several factors, such as dietary factors, environmental influences, bad habits, systemic health conditions, and oral hygiene.<sup>9</sup> The high percentage of caries in the mandible could be attributed to the number of pits and more grooves so that this retentive area becomes susceptible to the occurrence of caries.<sup>10</sup> Besides, as the permanent teeth in the mandible erupted early than the maxilla made the mandible more susceptible to gain caries than permanent teeth on the maxilla<sup>10</sup> According to Kramer at all, molar teeth, which impacted was susceptible to caries caused by microorganisms, and it was probably related to periodontal problems.<sup>9</sup> This study was in line with a study conducted by Yun-Hoa Jung and Bong-Hae Cho at the Dental School, Pusan National University, Korea, by collecting missing teeth data and impacted teeth using panoramic radiography in adults. Discovered more than half of impacted teeth cases in adults ranging in age from 25 years old and over that detected carious lesions via panoramic radiography.<sup>1</sup>

#### CONCLUSION

The results indicated that almost every case of impacted teeth was accompanied by a hard tissue lesion. The hard tissue lesions include caries, periapical lesion, or a lesion that extends into the jaw.

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## *The Hard Tissue Lesions Associated with Impacted Teeth*

**Table 1.** Impacted Teeth Associated with Hard Tissue Lesions Based on Gender

<b>Gender</b>	<b>n</b>	<b>%</b>
Men	30	41.1
Women	43	58.9
Total	73	100

**Table 2.** Impacted Teeth Associated with Hard Tissue Lesions Based on Location

<b>Location</b>	<b>n</b>	<b>%</b>
Maxilla	32	43.8
Mandible	41	56.2
Total	73	100

**Table 3.** Distribution of Lesion

<b>Hard Tissue Lesion</b>	<b>n</b>	<b>%</b>
Caries	39	53.4
Periapical abscess	21	28.8
Dentigerous cyst	13	17.8
Total	73	100