
The Influence of Minor Surgical Intervention on Quality of Life in Third Molar Impaction Cases

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ABSTRACT:

Background: There are several efforts to address impacted teeth, one of which is through a minor surgical intervention called Odontectomy. There are also several complications that may arise after Odontectomy is performed, but this usually only occurs for a few days, and patients will experience a more comfortable feeling compared to before the Odontectomy. This research aims to analyze the difference in the quality of life of patients before and after the Odontectomy surgical procedure.

Material and Methods: The method employed in this research was analytical observational, using a Cross-Sectional design. The sampling technique used was Accidental sampling, which involved patients who underwent Odontectomy at Bhayangkara Hospital Semarang Indonesia in October 2023. The total sample size was 10 patients based on inclusion criteria. The research was conducted using the OHIP-14 (Oral Health Impact Profile 14) questionnaire, consisting of 14 questions from 7 dimensions. Data analysis was performed using the Wilcoxon test because the data scale was ordinal.

Results: The results of this study indicated that before undergoing Odontectomy, the quality of life of patients at a moderate level was 3 individuals (30%), while those at a low level were 7 individuals (70%). After Odontectomy was performed, the quality of life of patients improved, with 1 individual (10%) at a moderate level, 9 individuals (90%) at a good level, and 1 individual (10%) at a very good level. The statistical analysis results showed that the significance value (P) was 0.005, indicating that $p < 0.05$.

Conclusion: The conclusion that can be drawn from this research is that there was a significant difference in the quality of life of patients before and after undergoing the Odontectomy procedure.

KEYWORDS: Molar Impaction; Odontectomy; Surgery; Quality of Life.

INTRODUCTION

Impaction is a condition where a tooth does not fully erupt occlusally, remains buried in the jawbone, and is covered by the overlying gum tissue [1]. The sequence of teeth most commonly impacted includes the third molars, canines, premolars, and finally, incisors. These teeth can be found in both the upper and lower jaws, on the right and left sides. The third molars are the last to erupt among all the teeth [2].

They are often referred to as wisdom teeth because they typically erupt during the adolescent to adult years, around the age of 17 and beyond. Impacted wisdom teeth can lead to various disturbances, ranging from mild to severe pain that can interfere with daily activities. Besides causing pain, impaction can result in several issues, such as food debris accumulation and plaque formation that can lead to cavities, soft tissue inflammation, bad breath, and if left untreated, can even lead to dentoalveolar abscesses [3].

Quality of life, according to the World Health Quality of Life (WHOQOL), is an individual's perception of their body's condition in their life context, cultural values, and the place they live, as well as their relationship with their self-defined goals, hopes, and standards of living [4]. Impaction conditions that cause loss or reduction in physiological function can significantly reduce an individual's quality of life. Dysfunction often manifests as pain during chewing. Those experiencing impaction tend to choose soft foods for easier swallowing [5].

There are several approaches to managing impacted teeth, especially third molars or wisdom teeth, one of which is through a surgical procedure called Odontectomy. The surgical process aims to remove the impacted tooth and eliminate dysfunction caused by impaction [6]. Some complications may arise after Odontectomy, such as swelling in the impacted tooth area, trismus (difficulty in opening the mouth), speech difficulties, and paresthesia (abnormal sensations) [7]. These complications typically occur for only a few days, and afterward, patients usually experience greater comfort compared to before Odontectomy or post-Odontectomy

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complications [8]. From the background information provided, the research aimed to analyze the quality of life in patients after they had undergone Odontectomy surgery for impacted third molars at Bhayangkara Hospital in Semarang, Indonesia.

METHODOLOGY

The research type employed was an analytical observational study using a case-control design. The population under investigation consisted of patients who underwent Odontectomy for impacted third molars at Bhayangkara Hospital Semarang. Sampling was carried out using an accidental technique, specifically among patients who underwent Odontectomy in October 2023.

The total number of patients who underwent Odontectomy was 10 individuals. The research was conducted by having patients complete the Oral Health Impact Profile-14 (OHIP-14) questionnaire, which is a method endorsed by the WHO and used to identify dimensions within Oral Hygiene-Related Quality of Life (OHRQoL). This research has been approved by the Health Research Ethics Commission (KEPK) of the Faculty of Dentistry, Universitas Islam Sultan Agung Semarang Indonesia. Informed consent was obtained directly from the respondent directly.

The inclusion criteria in this study were Patients who underwent Odontectomy at Bhayangkara Hospital Semarang, Indonesia, Patients diagnosed with impacted third molars, Patients scheduled for minor Odontectomy surgery within the specified time frame, and Patients aged between 17 and 25 years old. Meanwhile, the exclusion criteria in this study were Patients with mental disabilities, Patients who were uncooperative in filling out the questionnaire, and Patients with systemic diseases. The research data were analyzed descriptively and using the Wilcoxon test to observe differences between the quality of life of patients before and after minor Odontectomy surgery

RESULTS

The research data were sourced from the dental department of Bhayangkara Hospital, Semarang, Indonesia. Subsequently, the conducted research yielded the following outcomes:

Table 1. Description of Respondents Based on Gender

Gender	N	Age
Men	6	17 – 25 Years
Women	4	17 – 25 Years
	10	

Scoring analysis of each question in the pre-odontectomy questionnaire indicated that among the participants, 7 patients exhibited a low quality of life, scoring between 9 and 18 in total. Moreover, 3 patients were identified as having a moderate quality of life, scoring between 21 and 26 in total.

Table 2. Quality of Life Before Odontectomy Based on OHIP-14.

No	OHIP-14 Dimensions	OHIP-14 Item	Score	Quality of Life		
				Low	Medium	High
1	Limitations Functional	• Difficulty Speaking	9	V		
		• Difficulty in tasting food	8	V		
2	Physical Pain	• Severe pain	5	V		
		• Discomfort while eating	5	V		
3	Inconvenience Psychic	• Feeling anxious	13	V		
		• Feeling tense	12	V		
4	Inability Physique	• Dissatisfaction with specific foods	8	V		
		• Disruption while eating	13	V		
5	Inability Psychic	• Difficulty in resting	23		V	
		• Feeling embarrassed	18		V	
6	Limitations Social	• Disturbing others	20		V	
		• Difficulty in performing tasks	14		V	
7	Obstacles	• Life feels less satisfying	14		V	
		• Inability to engage in activities	5	V		

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Table 3. Data Analysis of Quality of Life Before Odontectomy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low	7	70,00	70,00	70,00
	Medium	3	30,00	30,00	100,0
	High	10	100,0	100,0	

The research results showed (Table 3) that the level of patients' quality of life before undergoing Odontectomy was low in 10 individuals (55.6%), and moderate in 8 individuals (44.4%). From the calculation of scores for each question in the post-Odontectomy questionnaire (Table 2), it was found that among the samples, 1 patient had a moderate quality of life, with a total score of 28, while 9 patients were found to have a high quality of life, with total scores ranging from 39 to 50

Table 4. Quality of Life After Odontectomy Based on OHIP-14

No	OHIP-14 Dimensions	OHIP-14 Item	Score	Kualitas Hidup		
				Low	Medium	High
1	Limitations Functional	• Difficulty Speaking	36			V
		• Difficulty in tasting food	35			V
2	Physical Pain	• Severe pain	36			V
		• Discomfort while eating	29			V
3	Inconvenience Psychic	• Feeling anxious	36			V
		• Feeling tense	34			V
4	Inability Physique	• Dissatisfaction with specific foods	32			V
		• Disruption while eating	34			V
5	Inability Psychic	• Difficulty in resting	19		V	
		• Feeling embarrassed	14		V	
6	Limitations Social	• Disturbing others	37			V
		• Difficulty in performing tasks	27		V	
7	Obstacles	• Life feels less satisfying	31			V
		• Inability to engage in activities	32			V

Table 5. Analysis of Data on Quality of Life After Odontectomy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Medium	1	10,00	10,00	10,00
	High	9	90,00	90,00	100,0
	Total	10	100,0	100,0	

The research results showed (Table 5) that the level of patients' quality of life after undergoing Odontectomy revealed that 1 (10%) person had a moderate quality of life, and 9 (90%) individuals had a high quality of life. From the calculation of scores for each question in the post-Odontectomy questionnaire (Table 4), it was found that among the samples, 1 patient had a moderate quality of life, with a total score of 28, while 9 patients were found to have a high quality of life, with total scores ranging from 39 to 50

Table 6. Wilcoxon Test data Analysis

		N	Mean Rank	Sum of Ranks
post - pre	Negative Ranks	0 ^a	,00	,00
	Positive Ranks	10 ^b	5,50	55,00
	Ties	0 ^c		
	Total	10		
			post - pre	
Z			-2,805 ^b	
Asymp. Sig. (2-tailed)			,005	

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The Wilcoxon test results (Table 6) indicated that the significance value (P) was 0.005, which signifies that $p < 0.05$, indicating a significant difference between the quality of life of patients before and after undergoing Odontectomy

DISCUSSION

The surgical treatment procedure of odontectomy is a surgery performed by oral and maxillofacial surgeons to remove impacted teeth. Impacted teeth are those that cannot grow properly and are trapped inside the gum or jawbone, preventing them from erupting into their normal position in the oral cavity. This procedure can affect the patient's quality of life in many aspects. Impacted teeth often cause significant pain due to the pressure exerted on the surrounding tissues. Trapped teeth can lead to inflammation, infections, and pressure on the nerves and bones in the vicinity. The odontectomy process removes impacted teeth and reduces pressure and sources of inflammation, which scientifically reduces the pain experienced by patients [8].

Impacted teeth can hinder the normal functions of the mouth, including speaking and chewing food. By removing impacted teeth, odontectomy treatment restores the necessary space for these normal functions. Scientific studies have shown that patients undergoing odontectomy can experience a significant improvement in their ability to speak clearly and chew food comfortably. Patients who are currently experiencing impaction will have difficulty speaking clearly. Someone with impacted teeth tends to restrain the movement of their mouth due to the pain caused by the position of the impacted teeth pressing on nerves, resulting in pain when the jaw moves [9].

The questions in the pre-odontectomy questionnaire related to the dimension of pain were categorized as low, whereas when filling out the post-odontectomy questionnaire, high quality of life results were obtained. The odontectomy procedure for impacted teeth can alleviate this pain because impacted teeth that remain inside the oral cavity can cause pain throughout the mouth, resulting in cephalgia or severe headache. Mouth and headache pain is caused by the presence of impacted teeth with varying root anatomy, formed perfectly, due to their proximity to the mandibular canal, which exerts pressure on the Inferior Alveolar Nerve with motor and sensory nerve fibers [10].

Based on the pre-odontectomy questionnaire, the dimension of psychological discomfort was categorized as moderate. However, when filling out the post-odontectomy questionnaire, it was categorized as high. This indicates that patients who have not undergone odontectomy surgery experience excessive anxiety and tension, but after undergoing odontectomy surgery, these feelings of anxiety and tension will decrease [11]. Mild to moderate anxiety is caused by several factors, such as excessive vigilance due to the need to protect certain foods and mouth movements, as well as negative thoughts about the condition of their oral cavity. Individuals may believe that their impacted teeth problems can lead to undesirable consequences, and these thoughts greatly disrupt their daily activities. Additionally, the effects of anxiety and tension can make them less active, reduce concentration, increase tension, and even lead to an increased heart rate and other symptoms [11].

The dimension of physical limitation includes questions about dissatisfaction with eating and sudden cessation of eating. This is similar to Grath's study, where individuals with impactions may experience continuous or sudden pain, even while eating. This condition causes individuals to stop chewing abruptly or struggle while waiting for the pain to subside [12]. Sudden cessation of eating is due to the pain experienced while chewing. Teeth receive chewing pressure, which is transmitted to other teeth, including the lower root area. As is known, impacted teeth also receive chewing load from adjacent teeth, and this condition causes the impacted teeth to compress the Inferior Alveolar Nerve, resulting in pain. This pain leads individuals to stop eating abruptly because the Trigeminal Nerve consists of a combination of sensory and motor nerves that function to move chewing muscles, so they wait until the pain subsides before continuing to eat [3].

This psychological disability dimension consists of two questions, namely, feeling difficulty in resting and feeling insecure or embarrassed about one's own condition. In this dimension, when filling out the pre-odontectomy questionnaire, the quality of life was categorized as moderate. When filling out the post-odontectomy questionnaire, similar moderate results were obtained. Someone experiencing headaches due to impacted teeth will find their sleep disrupted. The pain radiates through the Mandibular Canal originating from the lower jaw, causing discomfort from the mouth to the ear and to the temporal bone. The Trigeminal Nerve has sensory nerves that receive stimulation from impacted teeth, which is later expressed by the brain. Feelings of embarrassment are usually caused by swelling in the cheek, making the face appear asymmetrical [14].

The social limitation dimension includes questions about being easily offended by others and discomfort in engaging in activities or working outside. When filling out the pre-odontectomy questionnaire, both questions were categorized as moderate. After filling out the post-odontectomy questionnaire, different category scores were obtained. According to the SKRT-SURKESNAS, as many as 62.4% of Indonesians feel disturbed when working or attending school. This is due to many Indonesians experiencing dental problems, averaging 3.86 cases per day [15].

The final dimension is the handicap dimension. This dimension includes questions about life feeling unsatisfactory and the inability to perform activities at all. In this dimension, many patients complain of difficulty, even an inability, to perform activities. Due to the pain caused by impacted teeth, individuals will feel more satisfied in their lives when they are free from pain [16-18]. A limitation of this study is that it can only assess the quality of life of patients in one hospital, so the results only pertain to that particular hospital. Additionally, the study was only conducted on Type C impacted teeth, making it unable to compare with other types

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CONCLUSION

In this research, it can be concluded that there were 10 individuals (55.6%) with a low quality of life and 8 individuals (44.4%) with a moderate quality of life among patients before undergoing odontectomy. Meanwhile, in patients after odontectomy, there were 1 individual (5.6%) with a moderate quality of life, 7 individuals (38.9%) with a high quality of life, and 10 individuals (55.6%) with a very high quality of life. There was a difference in the quality of life between patients before and after undergoing odontectomy

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