

Increased Dentin Sensitivity after Scaling Action in Dental Patients

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ABSTRACT

Brushing your teeth can't remove tartar, what can remove tartar is scaling. scaling can have a negative impact on the teeth, because previously the teeth were surrounded by tartar, and after scaling there is an empty space in the subgingival area and leaves a wound or scratch on the tooth tissue, causing the tooth to feel sore or painful. This study aimed to analyze the increase in dentin sensitivity after scaling at the Dental Polyclinic, Grestelina Hospital, Makassar. The design of research was one group pretest-posttest. The subjects were 30 patient, selected using accidental sampling technique. Pain before and after the procedure was measured using the Visual Analogue Scale. Data were analyzed using Wilcoxon test. The results of the Wilcoxo test showed a p value = 0.000, so it could be interpreted that there was a difference in the level of dentin sensitivity between before and after the scaling procedure. In this case, after scaling, the sensitivity level becomes increasingly severe. Based on the results of the study, it can be concluded that the scaling action significantly increases the sensitivity of the dentin, so that the pain becomes more severe.

Keywords: scaling; dentin sensitivity; pain

INTRODUCTION

As one of the steps to maintain dental health, in addition to brushing teeth, it is also necessary to take steps to clean tartar regularly. Brushing your teeth can't remove tartar, what can remove tartar is scaling. Dentin hypersensitivity is a common complaint of patients and has been reported in one occurrence in 7 patients. The pain associated with hypersensitivity varies in intensity, starting from sensitivity only to sharp pain. ⁽¹⁾

Food residue that is not cleaned, over time will coalesce to become hard and will stick to the surface of the teeth along with the ingredients contained in the saliva. Usually this will start from the neck of the tooth which over time can cover the surface of the crown of the tooth with a yellowish color, which when it reaches below the gums the color will turn brown to black. ⁽²⁾

Tartar cleaning can be done by scaling either manually or by using an ultrasonic device. However, this scaling can have a negative impact on the teeth, because previously the teeth were surrounded by tartar, and after scaling there is an empty space in the subgingival area and leaves a wound or scratch on the tooth tissue, causing the tooth to feel sore or painful. In this case, the pain felt by the patient comes from the exposed dentin, so that when the patient talks, eats or drinks hot and cold, the patient feels pain. So, the cause of dentin hypersensitivity is the exposure of the dentin layer on the teeth.

Stimulus can be steam, touch, chemical and hot or cold stimuli. Basically, normal dentin is protected by enamel, so it cannot be affected by external stimuli, but dentin can become responsive if the enamel and cementum disappear due to attrition, abrasion, and erosion. ⁽³⁾

Bartlod ⁽⁴⁾ cit. Tjahajawati ⁽⁵⁾, from epidemiological studies on hypersensitive dentin conducted in various countries including Indonesia from 1964 to 2003, the prevalence of hypersensitive dentin was 4-74% of the population.

According to data from IPSOS Indonesia 2011, 45% of people in Indonesia when consuming cold, hot, sour foods will feel pain, and 52% of people do not go to the dentist because there are no complaints. People with sensitive teeth who are aware of their condition may not necessarily take care of it properly or see a dentist. Only 19% of Indonesians who experience sensitive teeth take the initiative to go to the dentist and only 2.4% try to overcome this by using a special toothpaste for sensitive teeth. ⁽⁶⁾

In a scaling procedure, the dentist will clean the tooth with a sharp-tipped tool on the entire surface of the tooth, including the gum pocket area. This stage sometimes causes toothache. In addition, pain during scaling

usually occurs in teeth that have decreased gums. After cleaning the tartar, the part of the tooth that is covered with tartar will again be exposed to liquid in the mouth, as a result that part will be more sensitive.

In a preliminary survey at the Dental Polyclinic, Grestelina Hospital, after scaling treatment, many patients complained of pain in their teeth. With the above background, it is necessary to conduct a study that aims to analyze the increase in dentin sensitivity after scaling at the Dental Polyclinic, Grestelina Hospital, Makassar.

METHODS

This type of research was pre-experimental with one group pretest-posttest design. The study was conducted from June to August 2021 at the Dental Polyclinic, Grestelina Hospital, Makassar. The population in this study were pro-scaling patients at the Dental Polyclinic, Grestelina Hospital, Makassar. The sampling technique applied was accidental sampling, with inclusion criteria including: aged 17 to 50 years, had tartar, could communicate well, and were willing to participate in the study. The sample size was 30 patients.

The independent variable in this study was scaling, while the dependent variable was the degree of pain in hypersensitive dentin. Pain before and after the procedure was measured using the Visual Analogue Scale (VAS). Furthermore, the measurement results which are categorical data were analyzed descriptively in the form of frequency and percentage ^(7,8), then continued to analyze the difference in pain levels between before and after scaling using the Wilcoxon test.

RESULTS

Of the 30 patients, most of them (70%) were women. This can be seen in table 1.

Table 1. Distribution of sex

Sex	Frequency	Percentage
Male	9	30
Female	21	70

Table 2 depicts the distribution of areas with hypersensitive dentin. It appears that the heaviest hypersensitivity is in the cervical area.

Table 2. Distribution of dentin sensitivity by area

Sensitivity level	Buccal	Occlusal	Lingual	Cervical
Not sensitive	8	25		
Mild Sensitive	20	5		
Medium Sensitive	2		18	
Weight Sensitive			12	5
Very sensitive				25

Table 3 presents the level of dentin sensitivity before scaling. It can be seen that the highest level of sensitivity was in the medium sensitive category (46.67%). Table 4 presents the level of dentin sensitivity before scaling. It can be seen that the highest level of sensitivity was in the very sensitive category (33.3%). The results of the Wilcoxo test showed a p value = 0.000, so it could be interpreted that there was a difference in the level of dentin sensitivity between before and after the scaling procedure. In this case, after scaling, the sensitivity level becomes increasingly severe.

Table 3. Distribution of dentin sensitivity levels before scaling

Sensitivity level	Frequency	Percentage
Not sensitive	6	20
Mild Sensitive	10	33.33
Medium Sensitive	14	46.67
Weight Sensitive	-	-
Very sensitive	-	-

Table 4. Distribution of dentin sensitivity levels after scaling

Sensitivity level	Frequency	Percentage
Not sensitive	3	10
Mild Sensitive	5	16.6
Medium Sensitive	7	23.3
Weight Sensitive	5	16.6
Very sensitive	10	33.3

DISCUSSION

The results showed that there were more female patients than male. Many other studies also reported the same findings, for example, the prevalence of dentin hypersensitivity sufferers in the world reached 74%, meanwhile in Indonesia it reached 45%, 67% of whom were Haneet & Vandana in their research in India. ⁽⁹⁾

The results showed that the cervix was the most sensitive area in hypersensitive dentinal conditions. This is because tartar initially accumulates in the cervical region of the teeth and over time the gums can become recession due to the accumulation of more and more tartar. After scaling or cleaning tartar, usually the tooth feels pain because the root surface that was covered by tartar is now clean and the dentin is exposed.

In patients with receding gums, tartar usually covers the cervical part of the teeth. Pain when scaling usually occurs in teeth that have decreased gums, so the roots will open. The root part is not covered by enamel, so after scaling, this part will feel more sensitive. Tartar that accumulates in large volumes will press on the gums and cause the tooth roots to open so that pain will occur. During the scaling procedure, the dentist will clean until it reaches the tartar that enters the gum pocket.

The results of this study indicate that after scaling, the pain due to dentin sensitivity becomes more severe. This increased sensitivity occurs because the patient's teeth have experienced demineralization of enamel, so that the level of dentin sensitivity shifts to a more severe level. In this regard, Kowalczyk, et al ⁽¹⁰⁾ reported that before being exposed, the subjects suffered from mild sensitivity and after exposure, the level changed to the moderately sensitive category. This indicates that prior to exposure, the teeth had undergone a demineralization process due to the masticatory process.

Dentinal hypersensitivity is pain that lasts short and sharp due to stimulation of the dentin. In conditions where the enamel and cementum are lost due to scaling treatment, the dentin is not protected by the enamel so that it is affected by external stimuli.

Pain is a sensory and emotional experience, and the patient's perception of pain is different and varied. Tickle, et al. found that subjects with dental anxiety were 2.3 times more likely to experience pain. ⁽¹¹⁾ This is in line with the results of this study that there were 3 people who after scaling treatment did not change the degree of pain. This may be due to the fact that the patient has had frequent dental treatments so he or she is not too anxious.

Scaling or tartar cleaning is associated with discomfort. Many methods are used to reduce pain during treatment including anesthesia and relaxation techniques. Patients with adequate knowledge of the factors associated with the experience of pain will be able to modify the pain that is felt well, so that the disturbance caused by pain can be reduced.

CONCLUSION

Based on the results of the study, it can be concluded that the scaling action significantly increases the sensitivity of the dentin, so that the pain becomes more severe.

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