

EFFECT OF FIXED ORTHODONTIC TREATMENT BY UNLICENSED DENTAL SERVICE ON DENTAL HEALTH

***(EFEK PERAWATAN ORTODONTI CEKAT OLEH
TUKANG GIGI TERHADAP KESEHATAN GIGI DAN
MULUT)***

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ABSTRACT

Orthodontic treatment is a treatment that induces light pressure on the teeth by using an orthodontic appliance so that the teeth move in a determined direction. Fixed orthodontic treatment must be following the instructions of an orthodontist however many unlicensed dental services and online shop sites offer free braces. Side effects can occur in patients with a fixed orthodontic appliance, but this has been minimized by dentists in the treatment process so that patients get greater benefits. Fixed orthodontic treatment by unlicensed dental services is done without any responsibility in case of an error that threatens dental health. It was reported that 22 years old woman complained that her lower anterior teeth were mobile and there was a white spot on the part where the bracket was set up. The patient wanted to remove the braces that were attached by the unlicensed dental services several years ago. Patients diagnosed with periodontitis localized of teeth 32-42 with

mobility grade II et causa trauma of fixed orthodontic appliances. The dental emergencies of tooth mobility, in this case, were carried out by orthodontic bracket removal on the upper and lower teeth and followed by periodontal treatment. So that it does not cause further damage to the underlying supporting tissue and cause the tooth to extrude.

Keywords: fixed orthodontic; unlicensed dental service

ABSTRAK

Perawatan ortodonti merupakan suatu perawatan yang menyebabkan tekanan ringan pada gigi geligi dengan menggunakan suatu piranti ortodonti sehingga terjadi pergerakan gigi ke arah yang diinginkan. Perawatan ortodonti cekat harus sesuai dengan anjuran dokter gigi spesialis ortodonti. Namun, banyak tukang gigi dan situs toko online yang menawarkan pemasangan alat ortodonti cekat secara bebas. Efek samping dapat terjadi pada pengguna piranti ortodont cekati, namun hal ini telah diminimalisir oleh dokter gigi dalam proses perawatannya agar pasien mendapatkan manfaat yang lebih besar. Berbeda dengan perawatan ortodonti oleh tukang gigi yang dilakukan secara bebas tanpa adanya suatu pertanggung jawaban legal jika terjadi kesalahan yang mengancam kesehatan gigi dan mulut. Dilaporkan seorang perempuan berusia 22 tahun dengan keluhan gigi depan rahang bawah goyang serta terdapat bercak warna putih pada bagian gigi yang di pasang alat ortodonti cekat. Pasien ingin melepaskan alat ortodonti cekat yang dipasang oleh tukang gigi beberapa tahun lalu. Diagnosis kasus pasien tersebut adalah periodontitis lokalisata pada gigi 32-42 disertai dengan kegoyangan gigi derajat II karena pemasangan alat ortodonti cekat yang keliru. Perawatan yang dilakukan pada kasus ini yaitu pelepasan alat ortodonti cekat rahang atas dan rahang bawah serta dilanjutkan dengan perawatan splinting. Simpulan dari kasus ini yaitu, penanganan kedaruratan dental berupa pelepasan alat ortodonti cekat dan splinting harus dilakukan segera untuk mencegah kegoyangan gigi dan agar tidak menyebabkan kerusakan yang lebih

parah terhadap jaringan penyangga gigi dan menyebabkan gigi terlepas.

Kata kunci: ortodonti cekat; tukang gigi

INTRODUCTION

Health is a basic and primary need in society. Along with the times, the need for higher health is often misused as a means of doing business or as a means of livelihood. This has resulted in many health cares practices that do not have a permit from the Government, many of which can be considered a violation of the law. One of the health cares practices that are currently rife in Indonesian society is the practice of unlicensed dental services, including those who serve the setting-up of dental braces (orthodontic treatment).¹

Orthodontic treatment is a treatment that induces light pressure on the teeth by using an orthodontic appliance so that the teeth move in a determined direction.²⁻⁴ Orthodontic appliances consist of a fixed appliance and a removable appliance. The indications for the use of orthodontic appliances vary in each patient depending on the condition of the teeth or malocclusion, and skeletal relationships.^{5,6}

Orthodontics like many other disciplines in dentistry can have adverse effects associated with the execution of

treatment. These effects can be related to the patient or practitioner. According to previous research, there are cases involving dental and oral diseases caused by unlicensed dental services that have abused the applicable regulations.^{7,8,9}

There are various risk factors or impacts associated with orthodontic treatment, such as periodontal tissue disorders, temporomandibular joint disorders, and hard tissue disorders.¹⁰ Several problems arise because of what unlicensed dental services do, and who have violated the applicable regulations. Some problems will occur because of using fixed orthodontic appliances by unlicensed dental services, one of which is mobile teeth.^{7,8}

An orthodontic appliance that is placed incorrectly can damage the function and position of the teeth. An orthodontic appliance that has been placed might give pressure on and also shift the unwanted teeth. Gingival infection can also arise from the use of the orthodontic appliance by unlicensed dental services due to unsafe or unhygienic medical equipment. The other problem is abnormalities in hard tissues.

Most of the patients undergoing orthodontic treatment-experienced white spots, caries, and demineralization of their teeth after treatment.⁴

There are many victims of unlicensed dental services in Indonesia that require special attention. It is easy to find cases of unlicensed dental services that occur continuously in the community due to the law is not implemented properly. Recently, the authority who have to develop and supervised have not carried out their obligations optimally. The practice of these elements outside of their authority and knowledge is very detrimental and dangerous to the community. Further studies are needed to follow up on the weakness of the law and the lack of understanding and awareness of the community on this issue.^{1,3,10}

CASE REPORTS

A 22-year-old female patient visited the dental clinic of *Rumah Sakit Gigi dan Mulut Universitas Jenderal Achmad Yani Cimahi Indonesia*, complaining about her lower anterior teeth had become mobile after several years of putting orthodontic appliances at an unlicensed dental service. The orthodontic appliances made her feel uncomfortable when eating, and she also complained of white patches on the facial side of her teeth. She felt this condition a

few months ago. She wants her complaint to be treated so she can eat comfortably again.

The patient was in good health condition according to general examination and her vital signs. There was no significant medical history of any disease which may have contributed to tooth mobility (periodontal disease). Intraoral examination showed that a fixed orthodontic appliance was placed on the upper and lower teeth (Figure 1). It was found that 32, 31, 41, and 42 were grade II mobility. There were also generalized deposits of dental plaque and calculus due to poor oral hygiene. No gingival recession was present.



Figure 1. Clinical features at first appointment.

Before starting with the therapy, starting treatment, the patient was informed of possible complications during orthodontic treatment, such as the potential for root resorption, more bone loss around the teeth, worsening periodontitis, and the need to maintain oral hygiene are at the highest level. The patient was also explained regarding the set up of

orthodontic appliances by unlicensed dental services could damage the bone around the tooth. This condition can cause a tooth to be lost. Then, informed consent was obtained from the patient.

The early treatment was started in November 2019. In the emergency phase of the therapy, due to the presence of a severe expressed gingival inflammation, we did orthodontic bracket removal using conventional debonding techniques on the upper and lower anterior teeth. After bracket removal with orthodontic pliers (Figure 2), remnants of adhesive on the tooth surface were removed utilizing various rotating instruments at low speed.



Figure 2. Bracket removal with orthodontic pliers.

We have advanced a thorough oral preventive regimen consisting of the complete removal of biofilm. After that, all 4 quadrants were scaled in several sessions. At the beginning of periodontal treatment, x-rays were taken to accurately assess the periodontal condition and bone defects. Furthermore, fluoride therapy was included as an addition to the conservative treatment.

The patient was given tooth mousse as topical fluoride therapy to treat the white spot lesions on her teeth (Figure 3). During the whole duration of the process, the patient was trained for proper maintenance of oral hygiene at home.



Figure 3. White spot lesions on the facial side of teeth.

This process was ongoing for over a week, with frequent professional oral-prophylactic sessions during every treatment. Over a week of observation patient's cooperation in oral hygiene maintenance was satisfactory. At the end of the emergency phase of therapy, the oral situation was improved as expected (Figure 4).



Figure 4. Improvement of the overall oral situation.

The therapeutic procedure for this patient will continue with splinting in the management of tooth mobility and was coordinated by the periodontology's.

DISCUSSION

Orthodontic treatment is like several other treatments that may be related to unfavorable side effects. Knowledge of those side effects is crucial to the orthodontist and therefore the patient willing to have treatment. Obtaining consent from the patient is as important as executing the treatment plan. Orthodontic appliances found should be as recommended by an orthodontist.¹¹

There are various types of orthodontic treatment. The types of devices used in orthodontic treatment also vary to get the desired tooth movement results. Orthodontic appliances consist of fixed appliances and removable appliances. Indications of orthodontic appliances vary in each patient depending on the condition of the teeth or malocclusion, and skeletal relationships. Fixed appliance or fixed orthodontics has important components such as brackets, bands, ligatures, and wires. The difference between fixed and removable orthodontics is that these devices cannot be removed by the patient.^{4,5}

The effect of using orthodontic appliances on oral health can be done by

maintaining oral hygiene so that the attachment of disease-causing microorganisms in the oral cavity due to the use of orthodontic appliances can be prevented. Oral hygiene in orthodontic appliance users is very important because it can affect the health of the teeth and the supporting tissues which can determine the prognosis of treatment, obviously.^{5,6}

Despite its enormous benefits, there are several impacts on orthodontic treatment. This impact is a result related to the orthodontic treatment process, such as the use of the appliance, materials, treatment methods, and other undesirable things during the orthodontic treatment process. However, this impact has been minimized by dentists in the orthodontic treatment process, so that the benefits obtained by the patient are greater than the impact. In contrast to orthodontic treatment by unlicensed dental services, which is a practice that is carried out without any responsibility for what they have done even if it is threatening the patient's health.^{3,12}

Setting up orthodontic appliances by unlicensed dental services and online shop sites that offer orthodontic appliances easily is not recommended by dentists for the public to have. Unlicensed dental service such as *tukang gigi* authority is also regulated in Minister of Health Regulation No. 39 of 2014. Concerning guidance,

supervision, and licensing that unlicensed dental services such as *tukang gigi* are authorized to only make artificial teeth from acrylic material and dentures insertion. But this arrangement is not obeyed by unlicensed dental services, there are still many unlicensed dental services that serve the practice of doing orthodontic appliances treatment.¹³

According to past research, the types of treatment done by unlicensed dental services include tooth extraction, restoration, and prosthodontic work. The treatments were usually done by the roadside with poor hygiene control and by using pliers and screwdrivers.¹⁴ On the other hand, news articles reported that the unlicensed dental service usually offer orthodontic treatments or more popularly known as fake braces treatment done in hotel rooms, and from home to home which made their services more easily accessible to patients.¹⁴

Unlicensed dental service claims that they studied dental procedures from their ancestors and by assisting in the dental clinic. Most of them admitted having learned the trade through the internet, mainly YouTube videos. Services are offered by unlicensed dental services via social media, Instagram, and Facebook. Orthodontics has the highest number of unlicensed dental activities reported. The

price range offered by the unlicensed dental services on social media was more than ten times cheaper than the price of getting orthodontic treatment from legal dental practitioners. This may be the main reason why youngsters were attracted to have braces fixed by unlicensed dental services.¹⁵ The other contributing factor to this may be the increasing trend of orthodontics services provided by these unlicensed dental services. In some Southeast Asian countries, teenagers are reportedly wearing fake train tracks glued to their teeth as a symbol of status, wealth, and style - despite the fashion fad being blamed for the deaths of at least two youngsters. Originally prescribed to treat malocclusion, fixed orthodontics appliance use has become a symbol of the high social status, exemplified by many celebrities.¹⁵

There are various risk factors or impacts associated with orthodontic treatment, such as periodontal tissue disorders, temporomandibular joint disorders, and hard tissue disorders. In previous research, there are cases involving dental and oral diseases caused by the performance of unlicensed dental services who have abused the applicable regulations.⁷

Some problems will occur because of using fixed orthodontic appliances by unlicensed dental services, one of which is

mobile teeth.¹⁵ Orthodontic appliances that are placed incorrectly can damage the function and position of the teeth. An orthodontic appliance that has been placed might give pressure on and also shift the unwanted teeth. This can make the underlying supporting bone shift and mobile and can even fall off. Gingival infection can also arise from the use of the orthodontic appliance by unlicensed dental practices due to unsafe or unhygienic medical equipment. The problem can continue to spread to the underlying tissue, such as the supporting bones that support the teeth might have swelled to injury to the surrounding tissue and halitosis can be caused by the disease.^{3,4}

In this case report, the patient felt that her lower anterior teeth were constantly mobile for months. This can occur due to the decrease in the alveolar bone crest which can be caused by various factors. Such as the maintenance of dental and oral hygiene is not adequate, trauma due to excessive pressure from the applied wire, and inflamed gingiva due to the use of unsterilized and non-sterile instruments. Orthodontic movement of teeth affected by periodontal disease causes an increase in osteoclast activity and may thus accelerate the rate of periodontal tissue destruction. Due to the risk of permanent tissue injuries and decreased periodontal support,

orthodontic tooth movement in patients with untreated periodontal disease is contraindicated.

The efficacy of orthodontic treatment depends upon the response of the periodontal tissues. Orthodontic tooth movement involves a restructuring of the alveolar bone. On the pressure, side bone is resorbed by osteoclasts, and on the opposite side osteoid and bone formation results from osteoblast activity. Orthodontic movement of teeth thus depends on the physiological processes of cell activity in the periodontal connective tissue and osteoclast - osteoblast activity in the alveolar bone. In young individuals with healthy periodontal tissues, a state of tissue readiness for tooth movement is reached a short time after treatment starts. With increasing age cell activity decreases and the tissue becomes richer in collagen in adults the tissue responses of cellular activation and rebuilding of the collagen fibers are significantly slower and hyaline zones are consequently more easily formed on the pressure side of the tooth.

Aside from that, the patient complained of white patches on the facial side of her teeth. There were white lesions on all facial parts of the teeth that have orthodontic appliances due to demineralization. That abnormalities in dental hard tissues are another problem

caused by orthodontic appliance installation. Most of the patients undergoing orthodontic treatment-experienced white spots, caries, and demineralization of their teeth after treatment.⁸ The demineralization process occurs around the brackets that are attached to each tooth due to food impaction and plaque accumulation.

A decrease in salivary pH was also experienced in patients receiving orthodontic treatment. Patients who have poor oral hygiene conditions tend to increase the risk of caries during orthodontic treatment. Therefore, most dentists provide materials that can produce fluoride to attach brackets or other components that adhere to the teeth in hope that the remineralization process can occur spontaneously in patients with fixed orthodontic appliances. In addition, another way to prevent this impact is chewing sugar-free gum to trigger saliva production, as it can function optimally as self-cleansing. But unfortunately, these actions and education cannot be obtained by patients' unlicensed dental services.⁴

In the field of dental work, it is not uncommon to make mistakes that cause health impacts. The practice that was done by an unlicensed dental service was not following the regulations made. They even put on braces, made permanent dentures, removed teeth, filled teeth, and even

whitened them. In addition, there have been many unlicensed dental services that practice without a permit and are illegal. Many unlicensed dental services are not competent but provide services like a dentist.¹⁶

Choosing an unlicensed dental service as a cheap alternative for fitting braces could have long-term detrimental effects on your oral health.¹⁷ Not only do illegal braces stick to your teeth, but the general public needs to be aware of the negative effects of using braces by unauthorized people, such as putting pressure on your teeth to reduce bone mass. Orthodontists use braces and dental instrument materials approved by the Food and Drug Administration compared to uncertified dental services that may not use the appropriate materials. If you receive a cheap offer, it may not be approved and may irritate your lips and cheeks, and can have disastrous consequences for users in the long run. Unauthorized braces can damage the bone around the teeth.¹⁸ In fact, you can lose your teeth.

The community must start to be aware and care about and take part in preventing the practice of unlicensed dental services that act outside their authority. The community must be aware that things such as the installation of braces, and veneers are serious matters that involve their health and

not just a trend.^{7,19} Proper education is needed by the Government so that people understand and care. It is hoped that the community can participate in supervising the practices carried out by these individuals.

Unlicensed dental service providers feel that their work does not pose a danger or harm to others because it is also with the consent and willingness of the customers themselves. These individuals do not have sufficient knowledge or knowledge and experience, but they still carry out the practice and put aside the dangers that may arise. They feel that they are competent so and legalize themselves in their practice without guidance and supervision from the Government. The unlicensed dental service providers individuals will not practice according to their authority because they feel that their work is very profitable from an economic point of view. The unlicensed dental services have violated the legal rules contained in the KUHP, Law Number 29 of 2004 concerning Medical Practices, Number 36 of 2009 concerning Health, and PERMENKES Number 39 of 2014 concerning Coaching, Supervision, and Licensing, Dental Work.^{1,7,19,20} The government, needs to act immediately in providing guidance and supervision so that the practice of dental artisans can run

following existing regulations and not harm various parties because in this case, it involves health and human life.

CONCLUSION

In this case report, the patient's complaint was the impact of malpractice by unlicensed dental services such as *tukang gigi*, for its fixed orthodontic appliances set up. The complaints were teeth' unwanted mobility, as well as the formation of white spots on all parts of the tooth enamel that have orthodontic appliances. The dental emergencies of tooth mobility, in this case, were carried out by orthodontic bracket removal on the upper and lower teeth and followed by periodontal treatment.

Unlicensed dental service is a public health concern. It requires the scientific community to investigate the problem and provide their expertise by scientifically looking at factors affecting people involved with unlicensed dental services and propose what would be the best way to prevent them from re-occurring.

CONFLICT OF INTEREST

We declare that there is no conflict of interest in the case report we write.

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