CASE REPORT

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Incidental radiographic finding of charm needle or "susuk" in orthodontic panoramic and lateral cephalometric radiograph: a case report

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ABSTRACT

Background: The most common radiographic examinations in orthodontic are panoramic and lateral cephalometry. In panoramic and lateral cephalometric images in adult patients, sometimes can be found a fine foreign object which sometimes confuses as it scattered the radiographic image, such as needles. The needles found in the patients are known as "susuk" in Malay and Indonesian language or charm needles which believed to enhance beauty, charism, health, youth, luck, and to relieve pain. This case reports aim to elaborate the incidental radiographic finding of charm needle or "susuk" in orthodontic panoramic and lateral cephalometric radiograph.

Case Description: There was four adult woman conducted panoramic and cephalometric radiograph as a routine procedure before orthodontic treatment. The number of susuk inserted were varied, as it considered that the more needle increases the magical potency. In Case 1, the panoramic image depicts one "susuk" in the middle of the root of 44 (FDI notation) tooth. Besides, the cephalometric radiographs also show a "susuk" horizontally inserted at the root of the anterior lower teeth area. The panoramic image reveals one susuk around chin area below the apex of 42 teeth on Case 2 as well as on the soft tissue chin area in front of the apex of 41 teeth on cephalometric radiographs. In Case 3, two "susuk" were found inserted bilaterally symmetric at the upper premolar area by the panoramic image. Then, five "susuk" in the mandible and four "susuk" at the upper area of the maxilla were found in Case 4 by the panoramic image.

Conclusion: The susuk are often exposed as incidental findings in panoramic and lateral cephalometric radiographs that are taken before performing routine orthodontic treatments. Understanding the presence of susuk is essential to avoid misdiagnosis and mismanagement and help radiologists to prevent confusion while interpreting images.

Keywords: Panoramic, Lateral Cephalometric, Charm Needle, Susuk

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INTRODUCTION

Nowadays, besides children and adolescents, adults also seek for orthodontic treatments.[1] The goal of orthodontic treatment is to improve the arrangement of teeth and better occlusal contact so that an efficient occlusion function is obtained to produce a pleasant aesthetics facial appearance and to provide long term stability treatment results.[2] Before orthodontic treatment begins, a dentist makes a medical record that contains the chief of complaints, clinical examinations, take an impression to make a study model, and take the most common radiographic images in orthodontic examinations: the panoramic and cephalometric radiographs.[3]

Dentists or orthodontists perform radiographic images when patients seek additional information beyond the available clinical examinations, medical and dental history. Dentists combine this information and history to make a diagnosis. Treatment planning can be provided after a diagnosis is established. Extraoral radiographs are essential to evaluate the patient's complaints and clinical sign in detail.[4] The lateral cephalometric projection is the most commonly used radiographs in orthodontics.[5] Skeletal, dental, and soft tissue anatomic landmarks delineate lines, planes, angles and distances that are used to generate measurement and classify the patient's craniofacial. They are then used to generate the measurements and to classify craniofacial morphology.[3]

The panoramic imaging is a technique for producing a single image of the facial structure that include both maxillary and mandibular dental arch and their supporting structures.[6] Panoramic radiography, the most commonly used radiograph in dentistry, demonstrate broad coverage of hard and soft tissues of adult orofacial region, dentition, and adjacent structures.[6]

In panoramic and cephalometric examinations in adult patients, sometimes there is a foreign object in the form of a needle. These needles are found in the patients known as susuk in Malay and Indonesian

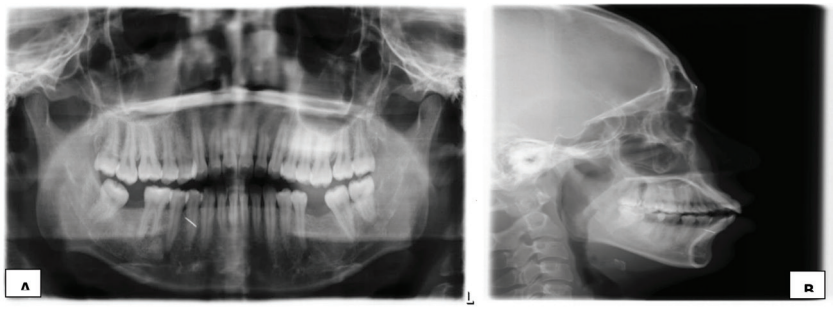

Figure 1. (A) panoramic image depicts one "susuk" in the middle of the root of 44 (FDI notation) tooth and (B) a susuk horizontally inserted at the root of anterior lower teeth area by the cephalometric image.

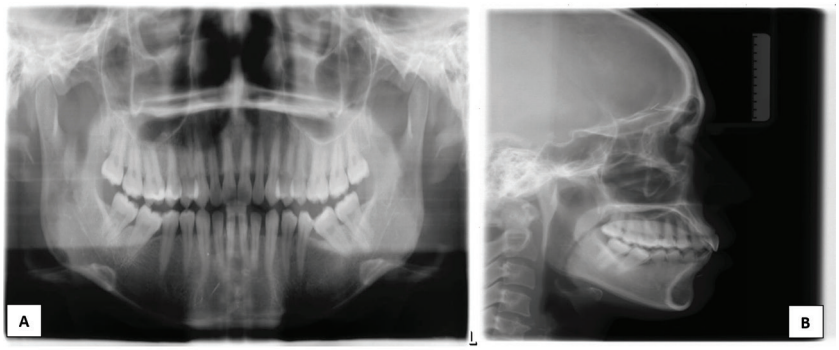

Figure 2. (A) This panoramic image reveals one susuk around chin area below the apex of 42 teeth. (B) one susuk at soft tissue chin area in front of the apex of 41 tooth and two "susuk" at the eyebrow area.

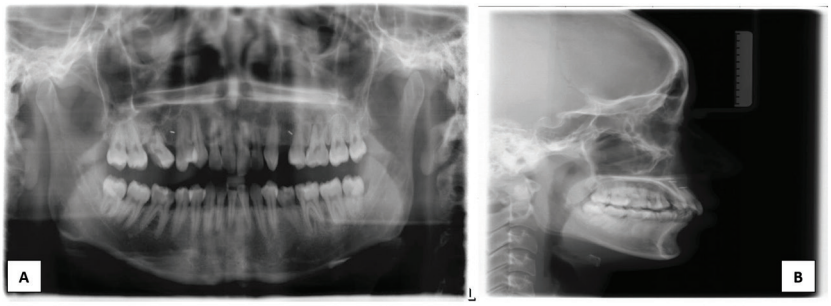

Figure 3. (A) two susuk inserted bilaterally symmetric at the upper premolar area by panoramic radiographs. (B) Cephalometric image denotes two susuk near the apex of the upper central incisive area.

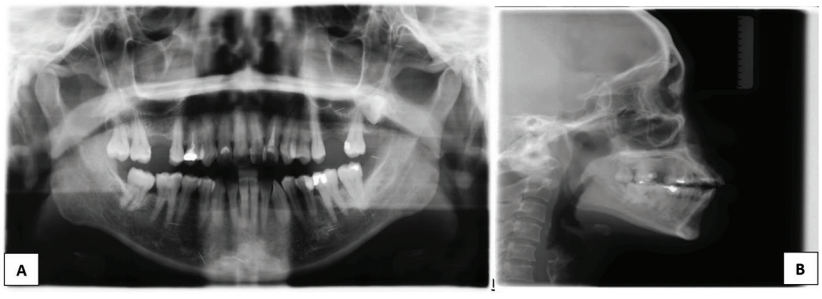

Figure 4. (A) Panoramic image indicates five "susuk" in the mandible and four "susuk at the upper area of the maxilla. (B) This cephalometric image demonstrates one "susuk" at menton and cheek area as well as two "susuk" near the orbita area.

language or charm needles.[7] The insertion of susuk is a common practice in the Southeast Asia region, especially to the people of Malaysia, Indonesia, Thailand, Brunei and Singapore.[8] So that, based on the mentioned above, this case studies aim to elaborate further the incidental radiographic finding of charm needle or "susuk" in orthodontic panoramic and lateral cephalometric radiograph among 4 adult woman cases.

CASE REPORTS

Of all the cases that we found, we report the incidence of single, double and many susuk that are found in four adult women who came to our clinic for orthodontic treatments to resolve their malocclusion. When routine panoramic and cephalometric radiograph were taken, we found a foreign body pin-like needles on the radiographic images.

In Case 1, the adult woman has conducted the panoramic image, which shows one "susuk" in the middle of the root of 44 teeth as a foreign body. Besides, she also got an evaluation from the cephalometric radiographs where one "susuk" was horizontally inserted at the root of anterior lower teeth area (Figure 1A and B). Based on the physical examination, the patient did not have any complaint regarding those things. A different case was found in Case 2, where one "susuk" was seen around the chin area below the apex of 42 teeth after the respondents underwent the panoramic image (Figure 2A). Besides, the respondent also demonstrates one "susuk" at soft tissue chin area in front of the apex of 41 teeth, whereas other two "susuk" were found at the eyebrow area by cephalometric radiographs (Figure 2B). The main reason for the "susuk" insertion by the case was a common practice to become beauty. There is no any complaint regarding it.

In Case 3, our panoramic image reveals two "susuk" inserted bilaterally symmetric at the upper premolar area in this woman (Figure 3A). Based on the cephalometric radiographs, it was denoted that two "susuk" found near the apex of the upper central incisive area (Figure 3B). No adverse clinical symptoms were found regarding those findings. Then, in Case 4, there were five "susuk" found in the mandible, and four "susuk" appear at the upper area of the maxilla by the cephalometric radiographs (Figure 4A). However, the cephalometric radiograph demonstrates one "susuk" at the Menton area, one "susuk" in the cheek area, and two "susuk" near the orbita area (Figure 4B). Patients had been used those "susuk" since a couple of years ago without any adverse effect on her health.

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DISCUSSION

Charm needles or susuk, are needle-shaped metallic talisman that can be subcutaneously inserted in different parts of the body.[9] Susuk is inserted mainly in the craniofacial region, but less often in other areas of the body such as the orofacial, chest, abdomen, breast, limbs, mon pubis and spine.[9] The most common sites of orofacial insertion include the forehead, cheeks, lips, and mandible.[10] They are usually seen as incidental radiographic findings.[11] Neither the lay public nor dental practitioners are well acquainted with the practice of wearing susuks. This is because the needles are worn under the skin and are not visible to the naked eye or easily detected on palpation. There was also a previous report in the medical and dental literature that discuss these phenomena.[12]

Susuks are inserted in the soft tissues of the body by "bomoh" or traditional healer who practice herbal medicine in Malaysian language, but "dukun" or "paranormal" or "clever man" in the Indonesian language whose practice are traditionally passed down over the generations.[9] Susuk is inserted in the body as talisman using a spell or "mantra" and are believed to improve health and strength, enhance and preserve beauty and charisma of the wearer, for youth preservation to relieve and cure aches and pain, to protect the wearer from harm, achieve success in business and career and to improve sexual attraction and relationship.[9,13] The ingrained needles are not apparent to the naked eye and differ in their number.[10]

The diameter of the talisman ranged from 0.44 to 0.51 mm (mean 0.47mm). The shortest needle was 5.38 mm, the longest 10.26 mm (mean 8.14 mm) and are inserted by gentle rubbing that is painless and leaves no external puncture marks.[7,14] The insertion of susuk do not cause any pain to the wearers according to the previous study.[13]

Susuk is mostly made of gold, sometimes silver and are often mixed with copper.[15] In a chemical analysis of four susuk which were removed from three patients, the susuk is composed of gold and copper.[16] The main composition was gold, which ranged from 75% to 95%, whereas cooper made up the remaining 3% to 25%.[16] The average gold content was 89.75% and average cooper content was 10.25%.[14] Another chemical analysis by Balasundram et al. on two susuk which were removed from two patients found that these susuks consisted mostly of gold (Au), copper (Cu) and silver (Ag). Gold made up the bulk of the content of needles at more than 85% of the norm concentration weight percentage in each sample.[17] The silver (Ag) content weight less than 3% and Copper (Cu) weigh less than 11%. Other traces of elements that were present are aluminium (Al), iron (Fe) and silicon (Si), in which each element made up less than 0.13%.[17] Some of the "susuk" are made from white sapphire.[18]

Gold is preferred to be used because it is the noblest of the metals, which makes it invulnerable to tarnish and corrosion.[14] However, pure gold is soft and malleable. When made into needles of such fine dimension, insertion into the skin would perhaps be challenging. When gold is alloyed with a small amount of copper, its hardness increases, providing ease of manipulation and insertion into the soft tissues.[14] Gold is also presumably used because of its biocompatibility with the human tissue. Also reported that susuk displayed no ferromagnetic characteristics, which makes it safe for magnetic resonance imaging scan procedure without causing any complications.[19]

The susuks are inserted mainly in the face and less often in the chest, abdomen, limbs, breast, mons pubis and spinal area.[19] In face area, susuk were most commonly found in chin, cheek, lip, forehead and eyebrow. The number of needles which have been detected by skull X-ray varies from 1 to 80.[19] They usually remain intact for many years but can break into smaller pieces due to corrosion and muscle contractions.[20] The number of needles inserted may vary, as it is considered the more needles that were inserted, the higher is the magical potency.

Only one study reported a broken charm needle inserted to a patient. A previous study by Chao TC depicted broken susuk in the calf regions and the susuk that were inserted in the left upper arm is broken into three pieces.[21] Another finding reported the susuk in the right and left forearm were broken into two and three pieces, respectively. These were the charm needles that were inserted to enhance strength.[21] The needles were corroded and broken due to muscle movements over a period of time, and according to the patients may be made up of stainless steel.[21]

It was also stated that these needles needed to be removed before the death of the person. Susuk removal has to be performed by the well informed and cultured person, usually the same person who inserted them in the first place.[22] Some believe that if the charm needles are to be removed before the person's death, the wearer is condemned to long-lasting anguish, and some believe that the presence of charm needles at the time of death will lead to an arduous death.[9]

Susuk wearer usually prefers to keep the knowledge of using their susuk confidential because this practice is socially condemned in the modern world and is prohibited by most religions.[23] Revealing the presence of talisman is considered to

lead to the susuk losing its magical power, and thus the patients kept it as a secret. Therefore, we also do not ask the patients about his or her charm needles, mainly women, to prevent embarrassment to the patients, because in many journals the patients deny and were reluctant to answer questions about it.[23]

In order to ensure the magical power of the susuk to work perfectly, the wearers are usually advised to follow some strict prohibitions, depending on the need of users.[23] Typically, the bigger power that is needed by the user, the more significant is the prohibition he/she should avoid. The regular prohibitions are as following: the users cannot eat some variants of banana (mostly golden banana and horn banana) and barbeque on the stick, the users are prohibited from walking under cloth string or walking near a soiled road (wet mud), the users are not allowed to walk under any stairs.[22,23] Certain foods such as papaya (*Carica papaya*), lady's finger, drumstick (*Moringa oleifera*), and pumpkin are also proscribed.[10]

Concerning medical health sciences, these hidden talismans can lead to misdiagnosis. They may be mistaken for any foreign bodies, especially in trauma cases.[10] This radiographical queerness resembles root canal filling, restorative pins, broken acupuncture needle, and damaged endodontic files.[24] Radiographs taken from different horizontal angulations may help distinguish between an endodontic filling material and susuk.[22] Acupuncture needles are larger and longer in size compared to susuk.[20] The mini implant as a temporary anchorage device in orthodontic is also larger in diameter and can be distinguished because the head of the needle is bigger to tie the wire or elastic. Some criteria may aid in making the diagnosis: most of the susuk needles are usually linear in shape and are inserted at multiple sites and are almost found to be bilateral.

Susuk should only be removed only if it is found to be the causative problem such as infection.[23] Sometimes surgical removal of susuk is complicated to conduct because it is difficult to locate its exact position and cannot explore into deeper soft tissues due to the risk of damaging the branches of facial nerve.[17]

Although the presence of susuk is controversial in many countries in Asia and is banned by some religions, the number of susuk wearers keep on growing every day.[22] We can see many susuk advertisings on the internet, newspapers and even posters posted on the streets that provide information such as the telephone number and material of the susuk.

CONCLUSION

The discovery of susuk on radiographic findings may become more frequent by the increase of travel and immigration from Southeast Asia. Awareness of its existence by clinicians is essential to avoid misdiagnosis and mismanagement of these patients and to enhance patient's management and to prevent embarrassment to the patients. Susuk rarely causes any symptoms and are unlikely to lead to any complications, so they should be left alone unless they lead to infection or interfere with surgical procedure or radiotherapy around the face and neck regions.

CONFLICT OF INTEREST

The authors declare there is no conflict of interest regarding the publication of the current case report.

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Author Contribution

All of the authors are equally contributed to the study from the selecting cases, interpreting the radiographs, as well as drafting of manuscript for publication.

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