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Implant diagnostic imaging impaired by cosmetic gold thread therapy



KEYWORDS

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In planning implant treatment, orthopantomography and dental computed tomography (CT) scans are used to accurately determine the appropriate implant placement position.¹ In this report, we described a case in which a patient who underwent cosmetic gold thread therapy in the facial area had characteristic findings at the time of implant imaging diagnosis, and discussed points to be considered.

A 73-year-old female patient presented in 2019 for implant treatment of a maxillary right first premolar. She was a nonsmoker with no significant systemic medical history. Screening imaging by orthopantomography revealed a narrow radiopaque mesh-like pattern spread over the maxilla and mandible. The patient's interview revealed a history of cosmetic surgery using a gold thread lift technique in the soft tissue of the cheek area more than 10 years ago. After planning the placement of the implant in the maxillary right first premolar region, dental CT scans showed that all of these metallic structures were located in the buccal subcutaneous tissue (Fig. 1A and B). None of these structures were found in the maxillary bone tissue, so an implant was placed in a two-stage procedure (Straumann® Bone Level, 4.1 × 10 mm, Straumann, Basel, Switzerland). The superstructure was fabricated with a zirconia crown on a titanium base abutment. The patient has been under maintenance treatment for 3 years and no adverse events have been observed (Fig. 1C and D).

Gold thread therapy is a cosmetic procedure that uses skin traction to improve wrinkles and sagging of the cheek area associated with age-related changes. Implantation of

gold threads (0.1 mm diameter, 24 K gold) has been reported to improve skin structure and elasticity by increasing collagen production and delaying aging processes such as wrinkle formation (Fig. 1E and F).² This anti-aging treatment technique, in which a thin gold alloy is inserted into the buccal soft tissues under local anesthesia, is less invasive than an incisional method and is more easily tolerated by patients. However, as yet no clear evidence exists for the effectiveness of the treatment. Unlike earrings and necklaces or removable prosthetic devices, gold threads placed in vivo are not removable. Adverse events after the treatment include infection and allergic reactions to the gold alloy implanted in the skin, migration in the body, and exposure outside the skin, as well as fever during magnetic resonance imaging. Although rare, several cases in the craniofacial and dental fields have been reported in recent years.^{3,4,5}

Radiopaque mesh-like images overlapping the implant site may make imaging assessment of bone resorption and other parameters more difficult (Fig. 1G). During diagnostic imaging, great care must be taken not to mistake gold threads for electrostatic discharges, imaging plate injuries or defects, or ligature lines from orthodontic treatment. It is suggested that gold thread artifacts may make accurate reading of the intended implant placement site difficult. We emphasize the importance of having a thorough knowledge of the imaging of patients who have been treated with these specific anti-aging therapies, because the patient may not remember the history of these therapies.

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Figure 1 Radiographic and clinical photographs of our case. (A and B) Dental computed tomographic imaging taken with a surgical stent in the implant site in the maxillary right first premolar region. (A) Axial image showing a thin metallic radiopaque artifact in the soft tissue of the buccal region (arrowhead); (B) coronal image. (C) Random radiopaque artifacts can be seen overlapping in extensive areas of the maxilla and mandible, along with lattice-like structures. (D) Dental radiograph of the implant taken at the beginning of the maintenance phase showing linear radiopaque images overlapping maxillary sinus and maxillary right first molar root. (E) Facial appearance of the patient more than 20 years after gold thread therapy: frontal view. (F) Side view. (G) Implant placed in the past in the maxillary left first molar region. Overlapping linear radiopaque images interfere with the evaluation of bone resorption at the implant neck.

Declaration of competing interest

The authors declare no conflicts of interest relevant to this article.

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