

Susuk charms? A case report

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IN BRIEF

- Introduces susuk charms.
- Provides background information on susuk charms.
- Demonstrates a comprehensive use of current knowledge and non-invasive techniques to tentatively diagnose the objects.

This case report describes an interesting incidental finding on an orthopantomogram: bilateral radio-opaque objects in the mandibular rami region. The origin of the objects remains unidentified; however, the authors have tentatively identified these as being susuk by a process of exclusion of other possibilities.

INTRODUCTION

This case report describes the incidental finding of what are believed to be susuk charms identified by radiographic investigations taken before orthodontic treatment. The orthopantomogram (OPG) and lateral cephalogram are the two most common radiographs used by orthodontists. These views provide invaluable information relating to the developing dentition, crown-root ratios, skeletal and dental relationships. In accordance with national requirements for radiological practice,¹ it is imperative that clinicians requesting or taking these views perform a complete evaluation (report) of their radiographic investigations.

The majority of incidental, non-dental, findings in dental radiography are dominated by maxillary sinus inflammatory disease, or root filling materials/instruments found within the peri-apical region.² However, there have also been reports of gunshot pellets, objects pushed up into the nasal cavity by children,² haemangiomas³ and fibro-osseous lesions.⁴

In this paper we describe a case in which bilateral radio-opaque objects in the mandibular rami region were

located as an incidental finding on a panoramic radiograph.

CASE REPORT

AT, a 15-year-old female was referred by her general dental practitioner (GDP) to the orthodontic department at The University Dental Hospital of Manchester. The reason for referral was crowding and advice regarding the management of her carious 15 and 16 teeth. Medically AT was fit and well.

An orthodontic assessment revealed that AT had Class III incisors on a Class III skeletal base, moderate upper arch crowding with upper lateral incisors in cross-bite, a buccally displaced 13, mild lower arch crowding and the presence of all teeth including developing wisdom teeth. She had an IOTN dental health component score of 4d and an aesthetic component score of 8.

As part of the assessment before orthodontic treatment a panoramic radiograph was taken to inform diagnosis and treatment planning. The panoramic radiograph revealed five small radio-opaque objects bilaterally in the region of the mandibular rami distal to the developing third molars (Fig. 1). AT and her parents were questioned regarding any previous surgery/intervention in the orofacial region or any episodes of general anaesthesia. None were reported and her medical history was clear. The patient and her parents maintained they had no knowledge as to what the objects on the radiograph might be. On further questioning it emerged that AT had moved to the UK from Mongolia



Fig 1. AT's panoramic radiograph showing the presence of all permanent teeth including developing third molars. Note the secondary images of the objects streaked across the contra-lateral side of the radiograph

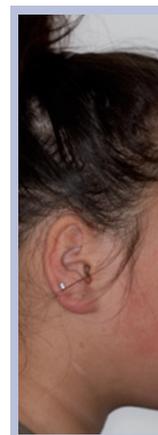


Fig 2. Scarring evident in the one of the right neck folds

when she was two years old and this suggested the objects may have been placed before AT moved to the UK. A thorough extra-oral examination revealed some scarring in one of AT's right neck folds (Fig. 2); on questioning both AT and her parents reported being unaware of any cause or explanation for this. Intra-orally, palpation and visual examination did not reveal the location/presence of the objects.

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As part of a complete orthodontic assessment a lateral cephalogram was taken. Once again the presence of the radio-opaque objects was evident (Fig. 3).

To more accurately locate and to help identify the objects a limited volume cone beam computed tomography (CBCT) was requested and performed in August 2012. This confirmed the presence of multiple radiopacities of metallic density outside bone, medial to the mandibular rami, distal to the third molars. The objects were almost symmetrical and consisted of two well-localised collections of five cylindrical radiopacities, of metallic density, lying within soft tissue 3–4 mm medial to the medial aspect of the mandible just anterior to the tonsil regions. Each individual radiopacity had a similar size (length = 3 mm, width <1 mm) and shape (straight, probably cylindrical). Beam hardening artefacts were found to arise from the radiopacities, consistent with a high atomic number material for example, gold (Fig 4).

An ENT surgeon was contacted with the images to query the presence of surgical clips in the tonsillar region. His opinion was that, although some surgeons did use surgical clips in tonsillectomy procedures, due to the morphology of the radiopaque objects these could be ruled out as a possibility.

The radio-opaque objects were strikingly similar to brachytherapy beads used in the management of cancer. Therefore in September 2012, a medical physicist was called upon to assess the objects for radioactivity using a Geiger counter. The test revealed no emission of radioactivity.

DISCUSSION

After a thorough search of the literature and contact with international experts, there are no previous reports of similar radio-opaque objects (that is, being placed bilaterally medial to the mandibular rami region) being encountered on radiography.

Radiopaque objects have been used in the past for assessing facial growth, however, the markers are placed in specific locations, in hard tissue not soft tissue and these sites are selected for their stability.^{5–7} The objects in this case are not in these locations and their morphology is not typical of implants conventionally used for these studies.

These images were posted, with an anonymised case history on an international oral radiology discussion group (ORADLIST),⁸ to which numerous specialist oral radiologists throughout the world are subscribed. This process revealed an additional potential diagnosis: susuk charm needles.

The differential diagnosis the authors devised, the investigations performed and conclusions reached are summarised in Table 1.

WHAT IS SUSUK?

Susuks are charm needles inserted subcutaneously in the orofacial and other bodily regions.⁹ They are approximately 0.5 mm in diameter and 5–10 mm in length and composed of solid gold, silver or diamonds.^{10,11} Hence these charm needles can be very biocompatible and remain hidden for many years; sometimes the presence of the charm is hidden from the wearer.

Nambiar *et al.* reported an increased incidence of susuk in Malay Muslim women and a common site is the maxillofacial region.¹² One case series on susuk in the orofacial region reported that susuk recipients may be forbidden from eating certain types of food (for example, bananas).⁹

AT and her parents were subsequently questioned about the possibility of susuk; all reported no knowledge of their presence. However, this would be expected in light of the nature of the beliefs surrounding susuk. The susuk talismans are believed to preserve the wearer's youth, beauty and charisma. They are used to offer protection against minor ailments, injury or harm but can also be placed to ensure business success rather than for medical reasons. The hidden talismans are kept secret as failure to do so removes the potency of the charm.



Fig 3. AT's Lateral Cephalogram

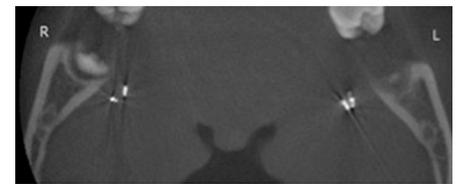


Fig 4. CBCT image – Axial view showing metallic objects medial to the mandibular rami bilaterally

PREVIOUS REPORTS OF SUSUK IN THE OROFACIAL REGION

A review of the literature revealed several case reports of susuk in the orofacial region.^{9,13–15} The number of susuk charms per patient in the orofacial region ranged from 1–80. Although susuk may be inserted symmetrically,¹⁶ none of the published case reports demonstrated the presence of susuk bilaterally medial to the mandibular rami. Furthermore, all insertions appeared to be subcutaneous rather than intra-oral.

WHAT COULD THE OBJECTS IN THIS CASE BE?

After excluding all other possibilities it is most likely that the objects are susuk charms.

Table 1 A summary of the differential diagnosis the authors devised, the investigations performed and conclusions reached

Potential origin of object	Investigation/action to confirm/refute	Conclusion
Surgical clips	DPR, CBCT and opinion of an ENT surgeon. No apparent history of surgery	Unlikely. Conventional clips are of a differing morphology
Brachytherapy beads	Geiger counter and opinion of an expert in nuclear medicine	Unlikely, but excluded by lack of radioactivity
Markers for a growth study	Questioning parents about knowledge of inclusion in such a study. Opinion of a consultant orthodontist	Unlikely
Earrings/jewellery	Visual examination prior to imaging. Opinion of a consultant radiologist	Nothing of this nature present when imaging
Cultural	Questioning patient and parents. Opinion of radiologists internationally	Potentially susuk charms, although not seen in this region previously

THE USE OF CBCT IN THIS CASE

CBCT was used as a means of accurately localising the radiopaque objects. Because this technique requires a higher X-ray exposure than conventional radiographic techniques, justification and optimisation are essential, particularly in a young person. In this case, while conventional facial bone views might have sufficed in providing approximate localisation of the foreign bodies, CBCT provided exact information, and an undistorted assessment of object dimensions. In terms of optimisation of exposure, a 'low dose protocol' was used (half rotation), along with reduction of tube current. Consequently, the effective dose would probably have been about 40-50% of the reported 54 μ Sv for this scanner and field of view.¹⁷

CONCLUSION

This case describes a previously unreported finding, the origin of which cannot be definitively identified using current knowledge and literature, but which has been tentatively identified as susuk by a

process of exclusion of other possibilities. To date the radiopaque objects remain *in situ* without a definitive diagnosis and AT is undergoing a course of treatment within the orthodontic department at The University Dental Hospital of Manchester. In the long term there is a need for ongoing clinical review; it is possible that the foreign bodies may appear at the surface and be exfoliated at some point.

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