Clinical Case

Diagnosis and Treatment of a Traumatic Bone Cyst during Orthodontic Treatment

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A 15-year-old female presented to our practice for orthodontic treatment to correct a malocclusion associated with mandibular prognathism and an edge-to-edge bite.

At the diagnostic session, we took a lateral cephalometric radiograph (Figure 1) and a panoramic radiograph (Figure 2).

A radiolucent lesion was observed in the anterior mandible, thus a periapical radiograph was obtained (Figure 3). The periapical radiograph demonstrated a radiolucent lesion apical to teeth #s 43,42,41 and 31 (FDI notation)

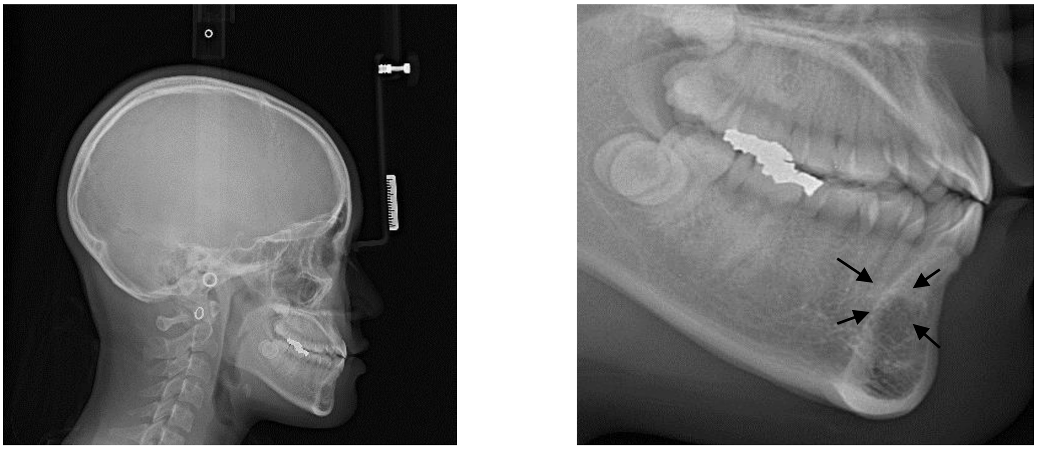

Figure 1. Lateral Cephalometric radiographic image showed a radiolucent lesion in the anterior mandible.

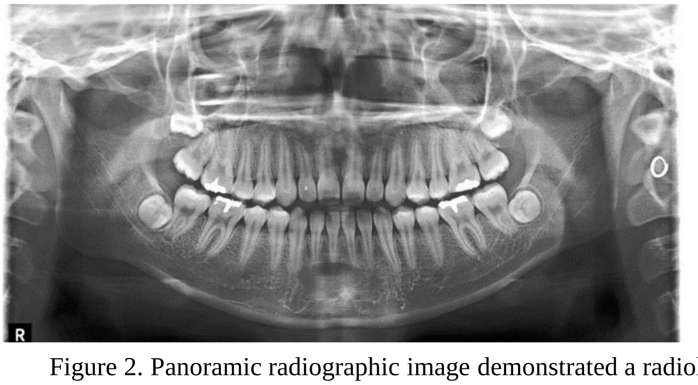

Figure 2. Panoramic radiographic image demonstrated a radiolucent lesion in the anterior mandible.

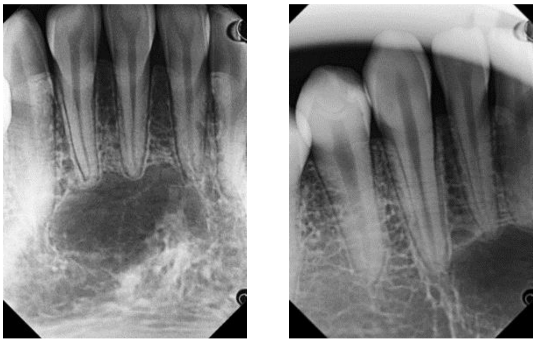

Figure 3. Periapical radiographic image showed a radiolucent lesion from teeth #s 43,42,41 and 31.

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A CBCT scan was obtained and demonstrated the volumetric dimensions of the lesion (Figure 4). Percussion testing was unremarkable for teeth #s 43,42,41 and 31. All teeth tested vital and the patient denied any past traumatic history.

Based upon the patient's age and location of the lesion a simple bone cyst (traumatic bone cyst) was included in the primary differential diagnosis,. The patient was referred to an oral and maxillofacial surgeon for further evaluation. A hard tissue biopsy was obtained and histological examination confirmed the diagnosis of a simple bone cyst. A simple bone cyst is a common condition with a low recurrence rate. The patient and parents were informed that the vitality of the teeth should be monitored and endodontic therapy should be considered if deemed necessary.

Two months after the biopsy, orthodontic treatment of the maxillary arch was initiated, followed by treatment of the mandibular arch. Throughout treatment, pulp vitality and periapical status of the teeth #s 43,42,41 and 31 were assessed with ice and percussion tests, respectively. The patient remained asymptomatic throughout orthodontic treatment, with no spontaneous pain or sensitivity associated with the mandibular incisors.

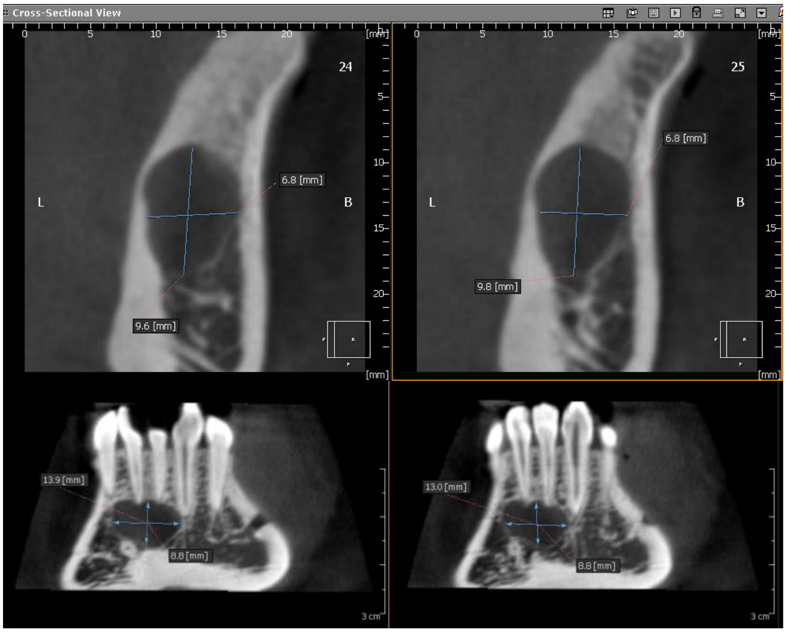

Figure 4. CBCT scan showed the volume of lesion.

Ten months after biopsy and curettage of the cyst a CBCT scan and a Panoramic radiograph were obtained to evaluate intra-bony healing as well as assessment of orthodontic treatment. Overall, normal lamina dura and the PDL spaces were visualized on #s 43,42,41 and 31.

The CBCT scan clearly demonstrated an increased radiopacity in the affected region, suggesting good bony fill and satisfactory post operative healing (Figure 5). Mobility, percussion and ice tests remained negative, and the patient denied any pain or sensitivity.

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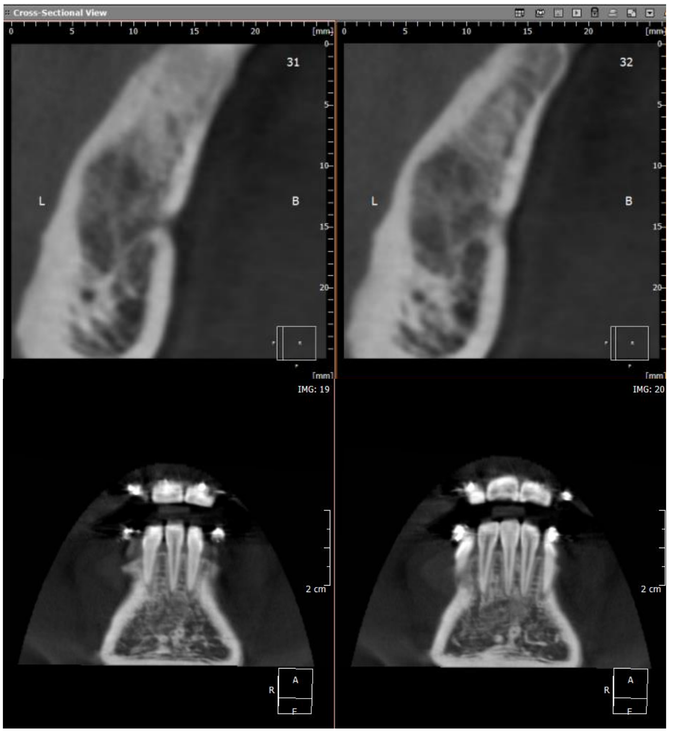

Figure 5: CBCT scan exhibited radiopacity in the region of the lesion, suggestive of bony fill and normal healing.

Testimonial

"The RAYSCAN Alpha has provided great images for the past six years.

One shot cephalometric X-ray images enable precise diagnosis while minimizing patient's movement and image distortion. 3D technology gives me more information to plan orthodontic treatment, and it is also a powerful tool in educating our patients.

The RAYSCAN Alpha has been one of the best investments since starting my practice in 2010.

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