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Ectopic third molar associated with a cyst in the sigmoid notch

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Teeth that are impacted or displaced in unusual locations are called ectopic teeth. The etiology of ectopic teeth is still unclear with theories that have been postulated including disturbances in tooth development, displacement due to pathologic conditions, trauma, or iatrogenic activities.[1] Ectopic third molars are quite rare. Third molars displaced in condylar region, coronoid process, sigmoid notch, ascending ramus, maxillary sinus, and infratemporal fossa have been reported.[1] In the present report, an ectopic mandibular third molar in the sigmoid notch associated with a cyst was presented.

A 37-year-old Taiwanese female visited out-patient clinic of Oral & Maxillofacial Surgery of our Institution with a complaint of right facial painful swelling for 1—2 weeks. Panoramic radiography revealed an inverted impacted right mandibular third molar locating in the right sigmoid notch; the ectopic tooth was surrounded by a well-defined unilocular radiolucent lesion without corticated border with the radiolucent lesion continued to extend to the retromolar trigone and forming a well-defined (less radiolucent) tunnel-like image, resembling an abnormal migration pathway (Fig. 1A). Examination of cone beam computed tomography (CBCT) was also performed (Fig. 1B—I). CBCT demonstrated an inverted ectopic tooth locating in right sigmoid notch with crown facing toward lateral side (Fig. 1B and E). The surrounded radiolucence lesion caused cortex perforation of sigmoid notch (Fig. 1B and E) and retromolar trigone (Fig. 1C and D). Increased bone density around the tunnel-like lesion was noted (Fig. 1F—H). The three-dimensional reconstruction image was shown in Fig. 1I. A displaced right mandibular third molar in the sigmoid notch surrounded by a cystic lesion was suspected. Via intra-oral approach to the area of cystic lesion, no communication was noted for distal end of the tunnel-like lesion; therefore, surgical treatment including only odontectomy and cystic enucleation was enough. The histopathological diagnosis of the radiolucence lesion encircling the ectopic tooth showed an inflamed odontogenic cyst (Fig. 1J). Panoramic radiography at 12 months after surgery revealed good bone regeneration for both the areas of cystic lesion and tunnel-like lesion (Fig. 1K).

Reviewing English literatures, including the current case, a total of eight cases of ectopic third molar in the sigmoid notch have been reported (five females, three males; mean age: 44.1 years; range: 37—60 years).[1] Among these eight cases, five cases were associated with inflamed cystic lesion[1—4]; one case with circum coronal radiolucency histopathologically diagnosed as chronic inflamed granulation tissue,[5] implicating that the pressure of cystic fluid and the expansion caused by chronic inflamed granulation tissues might play potential roles for producing a route of migration of the ectopic third molar. Noteworthy, as demonstrated in the present case as well as the report of Hanisch et al.,[1] CBCT can provide accurate three-dimensional images and valuable information for preoperative evaluation and surgical treatment plan for ectopic

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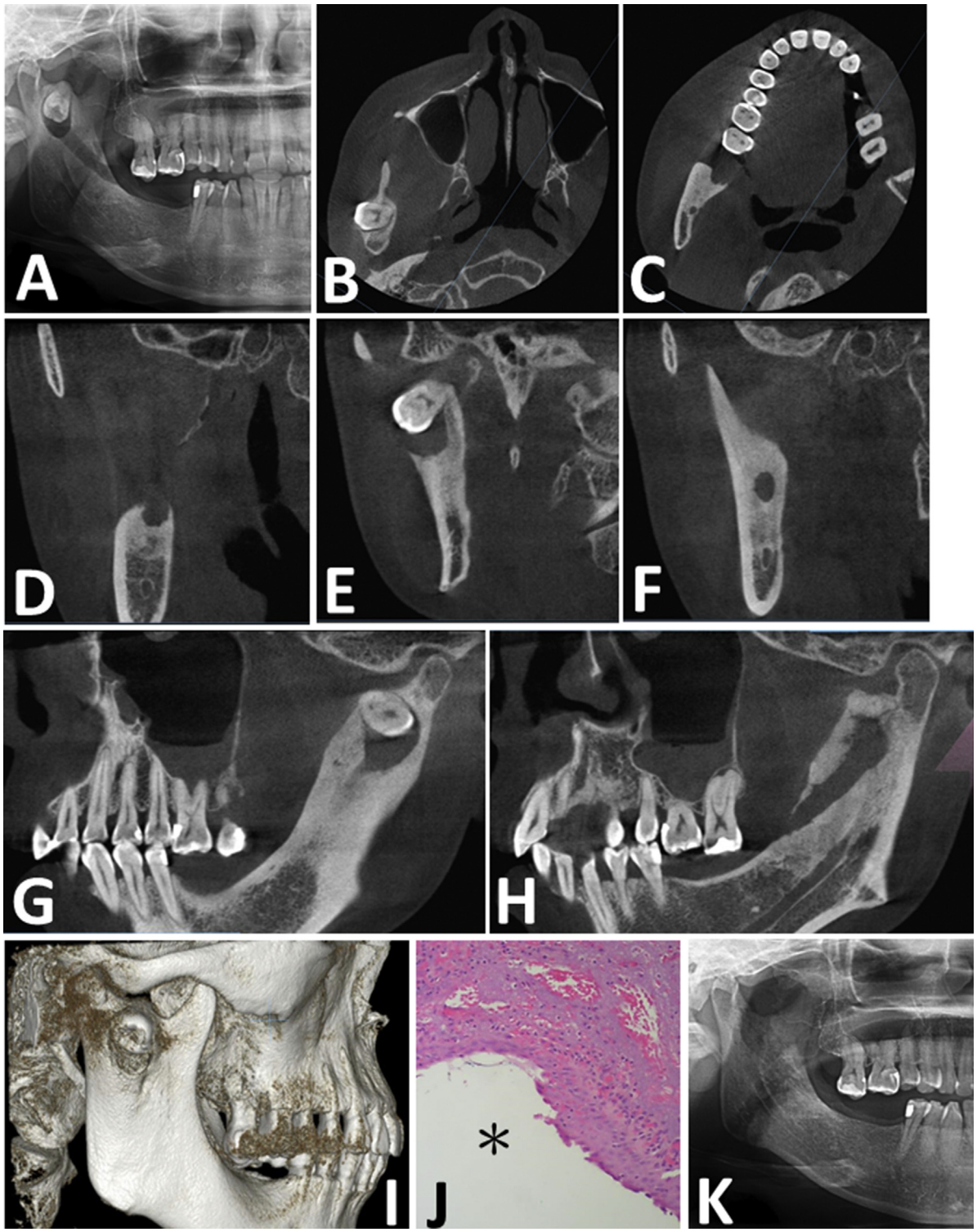

Figure 1 Panoramic radiography (A), cone beam computed tomography (CBCT; B—I), and microscopic picture (J) of the current case of ectopic third molar associated with a cyst in the sigmoid notch. Panoramic radiography reveals a well-defined unilocular radiolucent lesion without corticated margin encircling an inverted impacted right mandibular third molar locating in right sigmoid notch; the radiolucency extends to the retromolar trigone forming a well-defined tunnel-like image, resembling a migration pathway (A). CBCT reveals an inverted ectopic tooth locating in right sigmoid notch with the crown inclining laterally (B: axial view & E: coronal view); the surrounded radiolucency caused cortex perforation of sigmoid notch (B: axial view & E: coronal view) and retromolar trigone (C: axial view & D: coronal view). Increased bone density around the tunnel-like lesion was noted (F: coronal view; G, H: sagittal view); 3-dimensional reconstruction image was shown in (I) Hematoxylin and eosin-stained tissue section exhibiting lumen (*) with cystic epithelial lining and fibrotic capsule with lymphocytic inflammation (J, magnification, $\times$100). Post-surgical panoramic radiography demonstrated good bone regeneration for both the areas of cystic lesion and tunnel-like lesion (K).

third molars. Intraoral surgical approach has been employed for the extraction of the ectopic molars in seven cases[1]; only one case used extra-oral surgical access.[3]

Conflicts of interest

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

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Ching-Ying Chen
Division of Oral Pathology & Maxillofacial Radiology, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan

Yuk-Kwan Chen
Wen-Chen Wang
Division of Oral Pathology & Maxillofacial Radiology, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan

School of Dentistry, College of Dental Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan

Oral & Maxillofacial Imaging Center, College of Dental Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan

Han-Jen Hsu*
Division of Oral & Maxillofacial Surgery, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan

*Corresponding author.
E-mail address: d80.wu63@msa.hinet.net

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