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Severe external root resorption of the right maxillary second molar caused by the pressure from an impacted wisdom tooth

KEYWORDS
External root resorption;
Impacted tooth pressure;
Intervention

The external root resorption is a pathological process that usually occurs following various mechanical or chemical stimuli, such as infection, pressure, trauma, or orthodontic tooth movement. Although the root resorption is primarily detected radiographically, in some cases it can also be identified clinically through symptoms, such as tooth pain, swelling, and looseness of tooth.[1] This article reported a case of asymptomatic severe external root resorption of the right maxillary second molar (tooth 17) caused by the pressure from the impacted wisdom tooth (tooth 18) in a 71-year-old female patient.

This 71-year-old female patient came to a local dental clinic with a chief complaint of easy food impaction and difficulty in cleaning the right maxillary posterior teeth for several months in March, 2025. Intraoral examination revealed an old restoration and a mesial defect at the tooth 17 causing a marked food impaction between the teeth 16 and 17, as well as moderate mobility of the tooth 17. The panoramic radiograph of her initial visit taken in October 2009 revealed the impacted tooth 18, severely squeezing the root of tooth 17 (Fig. 1A). Subsequently, the periapical radiographs taken in March 2015 and March 2022, respectively still revealed the same condition (Fig. 1B and C). The periapical radiograph of this visit showed that the crown of tooth 18 took up the space of the root of tooth 17 (Fig. 1D). Therefore, the tooth 17 was hopeless and thus extracted due to severe external root resorption. The periapical radiograph taken after the extraction of tooth 17 showed that the crown of tooth 18 was located in the extracted socket of tooth 17 (Fig. 1E). From the sagittal view of the extracted tooth 17, there was a clear circular indentation on the root side (Fig. 1F). After soaking in bleach, the root surface of the tooth 17 undergoing external root resorption could be clearly observed and the apex of the disto-buccal root had completely disappeared (Fig. 1G and H).

The root resorption of permanent tooth is a pathological process that may occur either inside the tooth root (internal root resorption) or on the outside of the tooth root (external root resorption) and may ultimately lead to tooth mobility and early tooth loss. The external root resorption occurs when the cementum or other tooth tissue on the root surface is damaged or removed.[2] The root resorption can be classified into several conditions based on its etiological factors such as pulpal or periodontal infection, orthodontic tooth movement, impacted tooth pressure (such as the present case), and tumor pressure or as a result of tooth ankylosis.[3] There are also some rare cases of root resorption with unknown causes that do not fit into any of the above-mentioned categories and are usually classified as the idiopathic root resorption.[4]

Currently, there is no consensus on the treatment of different forms of external root resorption.[3] If the external root resorption occurs due to the pressure from an unerupted tooth or erupting tooth, or during

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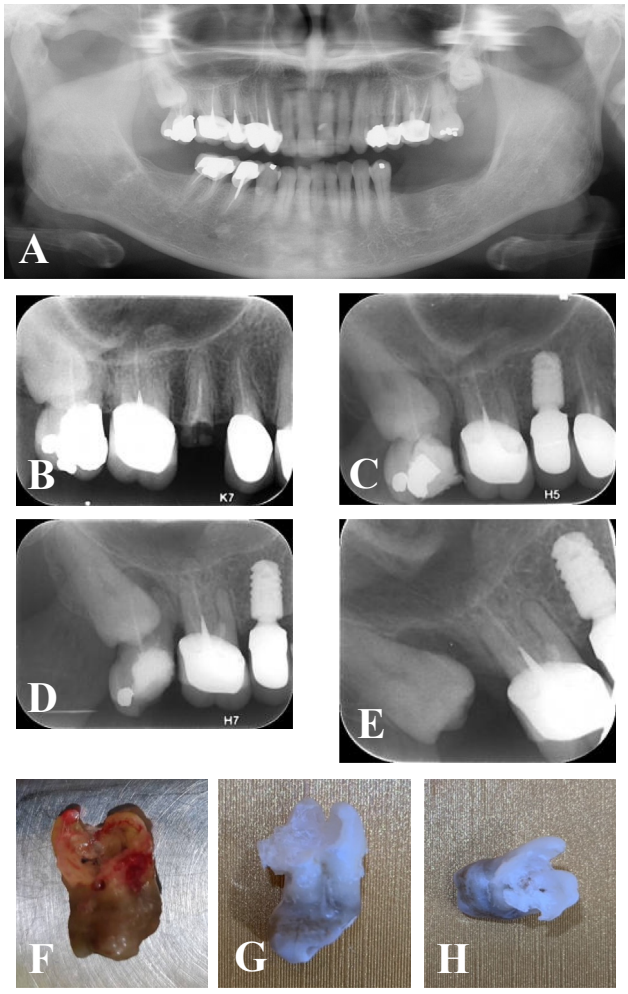

Figure 1 A series of radiographs and clinical photographs showing the severe external root resorption of the tooth 17 caused by the pressure from the impacted wisdom tooth 18 in our case. (A) The panoramic radiograph taken in October 2009 revealed the impacted tooth 18, severely squeezing the root of tooth 17. (B and C) The periapical radiographs taken in March 2015 and March 2022, respectively still revealed the same condition. (D) The periapical radiograph taken in March 2025 showed that the crown of tooth 18 took up the space of the root of tooth 17. (E) The periapical radiograph taken after the extraction of tooth 17 exhibited that the crown of tooth 18 was located in the extracted socket of tooth 17. (F) From the sagittal view of the extracted tooth 17, there was a clear circular indentation on the root side. (G and H) After soaking in bleach, the root surface of the tooth 17 undergoing external root resorption could be clearly observed and the apex of the disto-buccal root had completely disappeared.

orthodontic treatment and there is no evidence of infection, further root resorption can usually be stopped by extraction of the tooth causing pressure or removal of pressure.[4] Treatment options depend on the specific case and are aimed at addressing the cause of resorption and aiding regrowth of the resorbing lesions.[1] In our case, the patient's initial radiograph taken 16 years ago showed severe external root resorption of tooth 17 caused by the pressure from the impacted wisdom tooth 18, but the patient had no symptoms or infection in the tooth 17 for many years. Therefore, follow-up without further intervention was the treatment of choice in the early years. However, the severe external root resorption finally caused the marked mobility of the tooth 17, thus the tooth 17 was ultimately extracted.

Declaration of competing interest

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

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References

1. Ahangari Z, Nasser M, Mahdian M, Fedorowicz Z, Marchesan MA. Interventions for the management of external root resorption. *Cochrane Database Syst Rev* 2015;24:CD008003.
2. Leach HA, Ireland AJ, Whaites EJ. Radiographic diagnosis of root resorption in relation to orthodontics. *Br Dent J* 2001;190:16—22.
3. Fuss Z, Tsesis I, Lin S. Root resorption - diagnosis, classification and treatment choices based on stimulation factors. *Dent Traumatol* 2003;19:175—82.
4. Heithersay GS. Management of tooth resorption. *Aust Dent J* 2007;52(1 Suppl):S105—21.

Feng-Chou Cheng
Chia-Te Dental Clinic, New Taipei City, Taiwan
School of Life Science, College of Science, National Taiwan Normal University, Taipei, Taiwan
Science Education Center, National Taiwan Normal University, Taipei, Taiwan

Yu-Ting Hu**
Department of Medical Imaging, National Taiwan University Cancer Center, Taipei, Taiwan
Division of Dentistry, Department of Surgery, National Taiwan University Cancer Center, Taipei, Taiwan

Chun-Pin Chiang*
Department of Dentistry, National Taiwan University Hospital, College of Medicine, National Taiwan University, Taipei, Taiwan
Graduate Institute of Oral Biology, School of Dentistry, National Taiwan University, Taipei, Taiwan
Department of Dentistry, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, Taiwan
Institute of Oral Medicine and Materials, College of Medicine, Tzu Chi University, Hualien, Taiwan

**Corresponding author. Department of Medical Imaging, National Taiwan University Cancer Center, No. 57, Lane 155, Section 3, Keelung Road, Da'an District, Taipei City 106, Taiwan.

*Corresponding author. Department of Dentistry, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, and Institute of Oral Medicine and Materials, College of

Medicine, Tzu Chi University, No. 707, Section 3, Chung-Yang Road, Hualien 970, Taiwan.
E-mail address: cpchiang@ntu.edu.tw (C.-P. Chiang)

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