Late-Forming Supernumerary Teeth

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Supernumerary teeth can occur in both arches, in either the deciduous or the permanent dentition.[1-3] The majority are found in the mandibular arch and in male patients, and the premolars are the teeth most commonly affected.[4-9]

Supernumerary maxillary premolars have a variable morphology, while those in the mandible usually mimic the shape of a normal premolar crown.[10,11] Supernumeraries tend to grow more lingually and vertically than normal premolars. The crown of a supernumerary premolar generally forms between the ages of 12 and 14, but root growth can continue until age 23.[12] It has been hypothesized that a supernumerary, rather than being an abnormality of a normal dentition, may represent a post-permanent dentition.[13,14]

Grahnen and Lindahl reported that 3.1% of the patients in their sample had supernumerary teeth, with 18% of these being late-forming supernumeraries in the mandibular premolar region.[15] In another study, the incidence of supernumeraries was .29-.64%, with 8-10% of these forming late in the premolar region.[16] When the supernumerary develops later than the permanent tooth, the tooth germ can be resorbed or dislocated. A supernumerary can also cause the formation of an odontogenic cyst, and it can displace the adjacent teeth, causing interdental spacing, root resorption, or rotation.[17,18]

Early detection is important in minimizing these complications. Surgical removal is the treatment of choice, but carries the risk of damaging the adjacent teeth or structures. There is also the possibility of a loss of vitality of adjacent teeth from damage to the vascular lymphatic supply, as well as the risk of paresthesia due to nerve

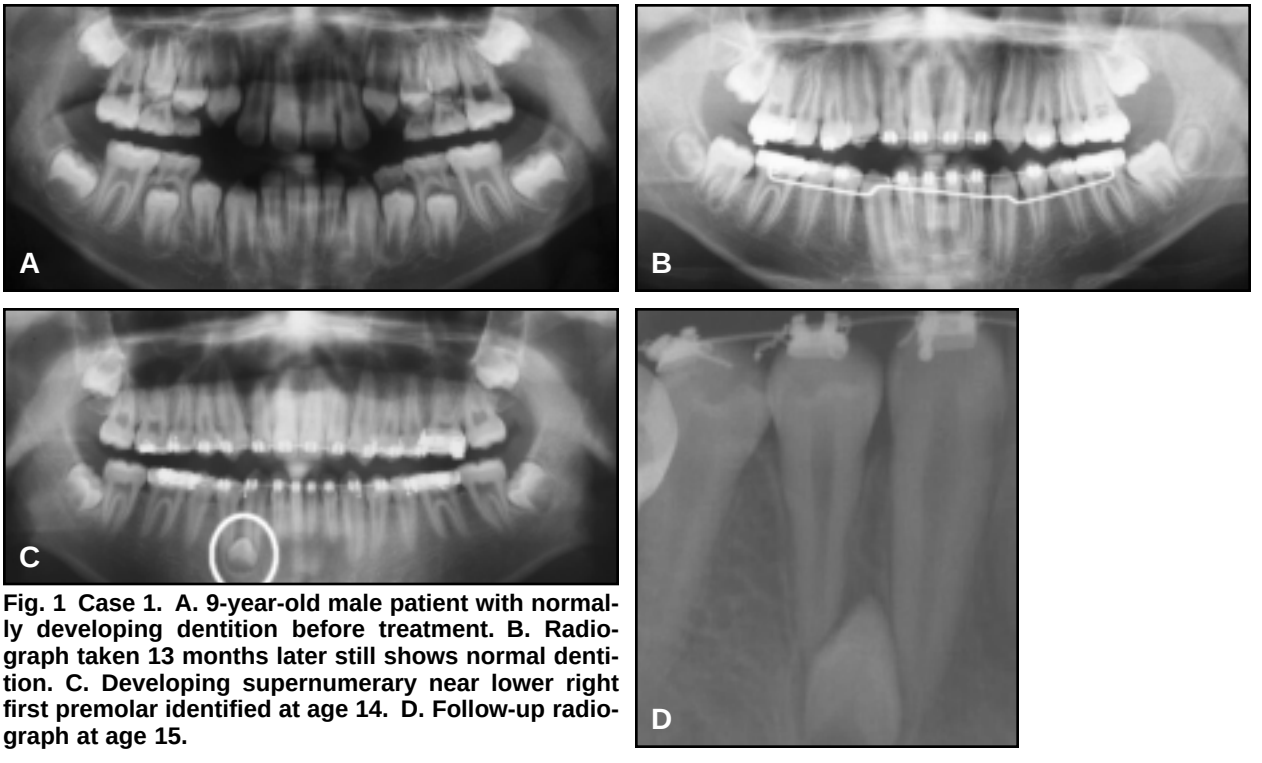

Fig. 1 Case 1. A. 9-year-old male patient with normally developing dentition before treatment. B. Radiograph taken 13 months later still shows normal dentition. C. Developing supernumerary near lower right first premolar identified at age 14. D. Follow-up radiograph at age 15.

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damage. Therefore, it is essential to determine the exact location of the supernumeraries prior to surgery. If the patient shows no adverse effects, it may be advisable simply to follow the supernumerary development radiographically in case intervention is unnecessary.

The following three cases are typical examples of late supernumerary formation.

Case 1

A 9-year-old male in the early mixed dentition presented with a skeletal Class III malocclusion and anterior crossbite. The pretreatment panoramic radiograph showed normal dental development for his age (Fig. 1A). A facemask appliance was prescribed, followed by fixed appliances (Fig. 1B).

When the patient was 14 years old and in the permanent dentition, a follow-up radiograph showed the development of a supernumerary premolar in the area of the lower right first premolar (Fig. 1C). The patient is currently under observation for further tooth development (Fig. 1D). Removal of the supernumerary tooth will be considered before orthodontic treatment is finished.

Case 2

An 8-year-old male presented with an incompletely developed supernumerary in the apical area of the upper right central incisor (Fig. 2A). The supernumerary was extracted, and the patient was treated with a removable appliance

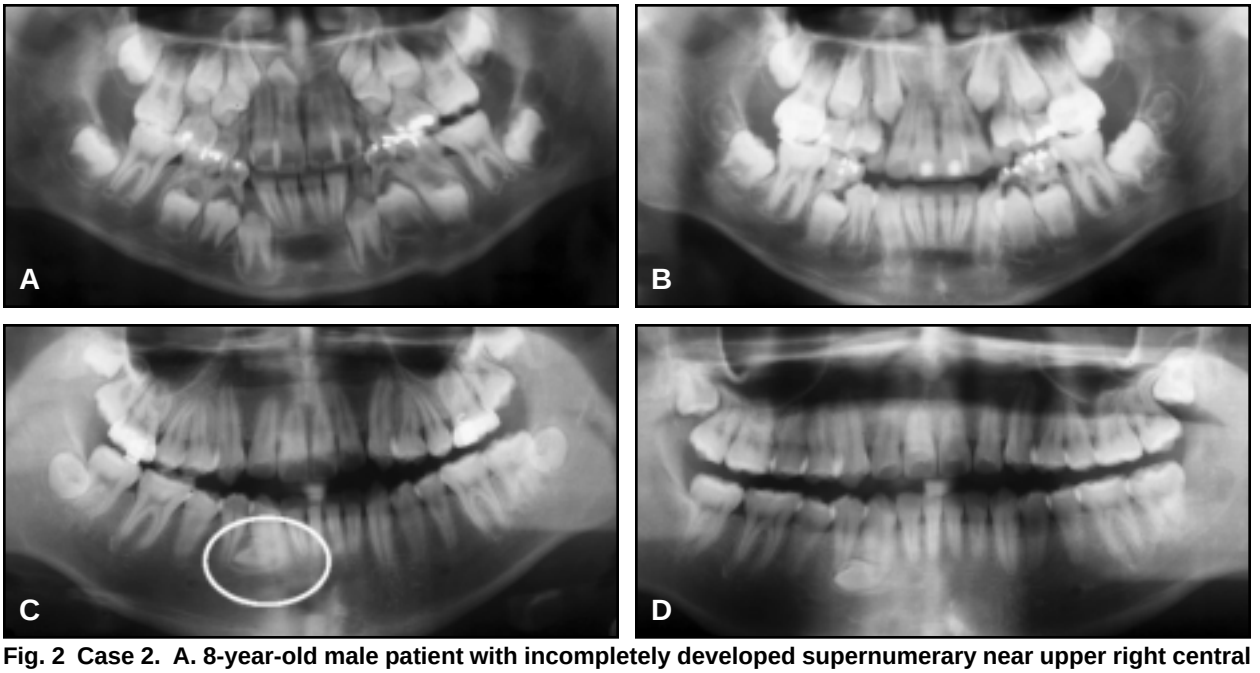

Fig. 2 Case 2. A. 8-year-old male patient with incompletely developed supernumerary near upper right central incisor before treatment. B. Radiograph taken at age 11, after extraction of supernumerary. C. Developing supernumerary premolar between lower right canine and first premolar identified at age 14. D. Follow-up radiograph at age 19.

for the correction of anterior crowding (Fig. 2B).

A follow-up radiograph, taken at age 14 before the placement of fixed appliances, showed the development of a supernumerary premolar between the roots of the lower right canine and first premolar (Fig. 2C). The patient was reluctant to have the tooth removed because of the potential hazard to the adjacent roots. Currently under observation, he has remained problem-free, with no space opening between the lower right canine and first premolar (Fig. 2D).

Case 3

A 9-year-old male in the early mixed dentition presented with a skeletal Class II malocclusion and anterior open bite. The pretreatment panoramic radiograph showed normal dental development for his age (Fig. 3A). A removable appliance was prescribed (Fig. 3B); two years later, fixed appliances were placed.

When the patient was 12 years old and still in the mixed dentition, a panoramic radiograph showed the presence of supernumerary lower premolars (Fig. 3C). Three years later, six supernumeraries were identified, four in the lower right and two in the lower left posterior quadrant (Fig. 3D). An occlusal radiograph and CT scan showed that the supernumeraries were located on the lingual side of the permanent teeth (Figs. 3E,F). Because of the proximity of the buds to the apices of the adjacent teeth and the mandibular nerve, we agreed to monitor the condition radiographically and to intervene if any problems developed. The patient is still under observation.

Conclusion

Late-forming supernumerary teeth, although rare, can be easily detected with periodic radiographic exams. In this way, the adverse effects of supernumerary development can be prevented early, and complications of surgical removal can be avoided if possible.

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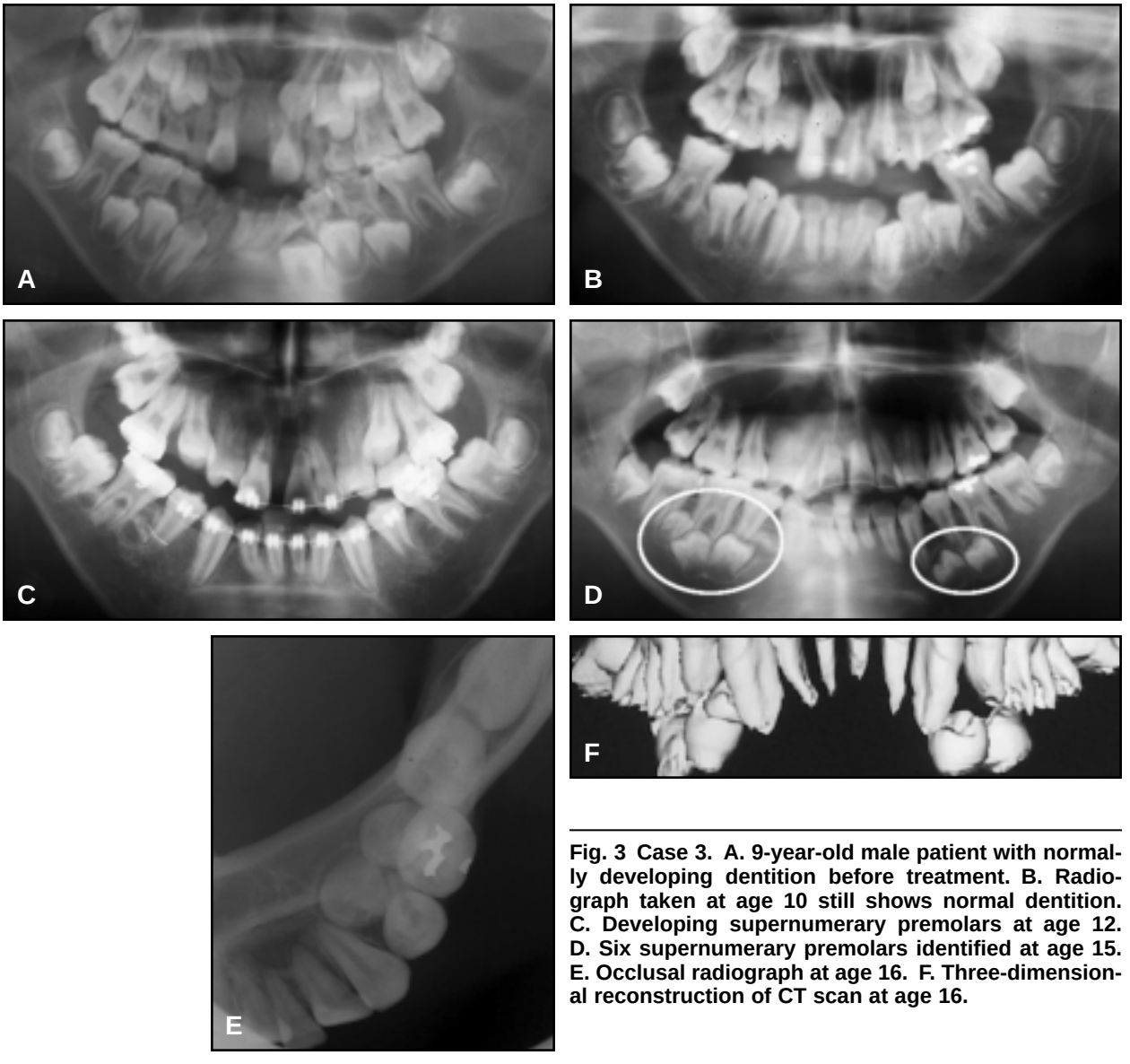

Fig. 3 Case 3. A. 9-year-old male patient with normally developing dentition before treatment. B. Radiograph taken at age 10 still shows normal dentition. C. Developing supernumerary premolars at age 12. D. Six supernumerary premolars identified at age 15. E. Occlusal radiograph at age 16. F. Three-dimensional reconstruction of CT scan at age 16.