

# Fusion of a maxillary third molar with a supernumerary fourth molar: a case report

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## **Fusion of a maxillary third molar with a supernumerary fourth molar: a case report**

### Case Image

A 20-year-old Caucasian male consulted the Department of Dentoalveolar Surgery, School of Dentistry in February 2023 due to intermittent pain in the left side of maxilla and face. Intraoral examination revealed probing pocket depth distally to left maxillary second molar 7mm and bleeding on probing. No health problem arises from medical history. Panoramic radiograph revealed impacted mandibular third molar, mesially angulated, with medium impaction depth, abnormal shape and size in close proximity with maxillary sinus floor (Figure 1).

Preoperatively 2gr of Amoxicillin were prescribed. Surgical extraction took place under local anesthesia. Infiltration anesthesia with Lidocaine 2% with 1:80000 epinephrine. A full thickness mucoperiosteal flap was prepared and raised, and then osteotomy was performed using surgical handpiece and sterile saline irrigation. Tooth extraction was performed using straight and Warwick-James elevators. Valsalva maneuver was negative. Extraction socket was flushed with saline and flap was repositioned and sutured. Niflumic acid 250mg was prescribed for 3-5 days. Ex vivo examination of the tooth confirmed “double” tooth diagnosis. In order to obtain as much information as possible regarding dental anatomy, photos of all aspects of the tooth were taken and ex vivo CBCT of the tooth was carried out (Figure 2, Figure 3). Additionally, tooth was submerged in epoxy resin. After setting, three sections of the tooth were cut with a low-speed precision sectioning machine (Isomet 11-1180 Buehler, Lake Bluff, IL, USA) with water cooling. The cut surface of each tooth specimen was ground on a polishing machine (Jean Wirtz TG 250, Dusseldorf, Germany) with 200 rpm under water cooling (50 mL/min) using gradually 600-, 800-, and 1000-grit silicon carbide abrasive papers (Apex S system, Buehler, Lake Bluff, IL, USA) for 20s each. Final tooth sections were <1mm. Tooth specimen was placed between two liner polarization filters. Afterwards flash (Speedlight SB-700, Nikon, Japan) with softbox (Godox, China) was held from one side and DSLR camera (D7200, Nikon, Japan) with macro lens (Micro Nikkor 105mm, Nikon, Japan) from the other side. Filters were crossed in different directions until intended result was obtained (Figure 4, 5, 6). Sutures were removed after one week, healing was unproblematic. Oral examination after six months revealed complete healing of soft tissues.

Differential diagnosis between different subcategories of “double” tooth is difficult. The supposition that gemination displays a single root canal and fusion displays several root canals is controversial. Fusion of a normal tooth with supernumeraries will still result in a normal tooth count. Given the presence of features suggestive of both diagnoses, this case, actually, presented a diagnostic dilemma.

Fusion of two impacted teeth apparently results in a larger dental structure that makes extraction more invasive and inevitably raises the possibility of complications. Close proximity of maxillary third molar with maxillary sinus floor has to be appreciated. Fracture of maxillary tuberosity may occur in cases with

extensive ostectomy.

Alterations in tooth size and shape during initial radiographic examination may be a primary sign of dental abnormalities. Utilizing contemporary imaging techniques, including CBCT and dental photography, may showcase such special dental anatomies and complement dentists' education in this field. Dentists' awareness will result in a meticulous treatment planning and ensure a successful outcome.

#### Figure legends

Figure 1: Initial panoramic radiograph. White arrow shows impacted third molar with small changes in size and shape

Figure 2: Images of the extracted “double” tooth from different aspects

Figure 3: Images exported from ex vivo CBCT of extracted “double tooth”. Shared pulp canal system is noticed.

Figure 4: Image of the first tooth section, using polarization filters, DSLR, macro lens and flash

Figure 5: Image of the second tooth section, using polarization filters, DSLR, macro lens and flash

Figure 6: Image of the third tooth section, using polarization filters, DSLR, macro lens and flash











