A 34-year-old male patient visited to the department of conservative dentistry and endodontics with a chief complaint of pain in the upper right back region of jaw. The pain was aggravated on mastication.

The occurrence of second Mesio Buccal canal is very usual, but presence of second palatal canal is very rare. Christie et al reported maxillary palatal root with two canals for the first time and found 16 cases of maxillary molars with 2 palatal roots during 40 years of clinical practice. Incidence of two separate palatal canals in maxillary first molar is less than 1%. According to Stone and Stroner et al, the variations of the palatal root of maxillary molars and found that maxillary molar has superior complex anatomies. Variations in the number and canal configuration have been reported in the literature till the date; the most common variation being the presence of a second Mesio Buccal canal having incidence of more than 90%. More than one canal in the distobuccal root is rarely found.

The present case report highlights the endodontic management of maxillary first molar with the unusual morphology of three roots and five root canals – two palatal, two Mesio Buccal and one distobuccal canals.

CASE REPORT

After administering 3 ml of local anaesthesia (Lignox 2% A), tooth coloured restoration removed and the caries was excavated from the proximal walls. Mesial wall reconstruction was done with composite so as to obtain a good isolation. The tooth was isolated with rubber dam and a conventional endodontic access cavity was prepared. After extirpating the pulp tissues, three principle orifices were located with DG 16 explorer (Hu - Friedy). An unusual pattern of developmental root fusion line (DRFL) was observed within the pulp chamber floor. The conventional triangular access was modified to a rectangular shape to uncover the dentine over the DRFL which revealed an additional canal in the palatal aspect and second mesiobuccal canal (Fig 2). The working length of each canal was estimated by means of Ingle's method using K – files [Mani Inc. files] (Fig 3).
In the next appointment, the canals were initially instrumented with #15 K file [Mani Inc. Files] under copious irrigation with 3% sodium hypochlorite and 17% EDTA.

Cleaning and shaping of the canals was done by using protaper gold rotary files. The canals were obturated with F1 protaper gutta-percha using single cone obturating technique. The access cavity was then restored with posterior composites. All metal crown prosthesis done.

**DISCUSSION**

The literature is full of case reports, a testimony to the anatomical variation in the human maxillary molar. For the successful endodontic treatment relies on proper diagnosis, disinfection and three-dimensional seal. Diagnostic radiograph at different angulation, careful exploration of pulp chamber, magnification aids in detection of extra hidden canal. Weller and Hartwell reported that modification of the access cavity from a conventional triangular to rhomboidal shape, exploration of the groove running from the MB to palatal enhances the chances of locating the additional canals. In recent years, this percentage has been greatly increasing, mainly due to advanced diagnostic tools such as CBCT analysis, operating microscope with enhanced clinician knowledge and urge in detecting various hidden canals. In the present case maxillary molar, palatal root had type 2 canal anatomy according to Weine as well as Vertucci Type 2 separate canals from the pulp chamber converging to single canal at the apex, which is very rare in maxillary palatal root. While Mesio buccal canal showed, type 4 Vertucci configuration. Two canals in palatal root was also found by shetty et.al with the help of operating microscope. Preoperatively, availability of two angled X-rays should be mandatory in the case of maxillary molars, there is superimposition of roots on one another, making radiographic assessment of additional canals impossible on a single projection. The presence of a palatogingival groove can also be a clue towards the presence of extra palatal canals or two palatal roots. This article demonstrates the successful management of a five canal maxillary first molar with MB2 canal and two palatal canals. It also highlights the need for the clinician to look for anatomical variations.

**CONCLUSION**

Maxillary first molar presents complex root canal anatomy and hence difficulty in location. Through knowledge of pulp chamber, ultrasonic devices, magnification and CBCT helps in detection of hidden treasures in endodontics. Good documentation provides awareness within clinician about various unusual anatomy and guide for proper treatment outcome.

**REFERENCES**


**Fig 3:** - IOPA revealing the working length determination

**Fig 4:** - Master cone selection using single cone obturating technique. The access cavity was then restored with posterior composites. All metal crown prosthesis done.

**Fig 5:** - Post-Occlusion IOPA

**Fig 6:** - Prosthetic rehabilitation