Case Reports

Double Mandibular Canals: Report of a case

Ryousuke ZEZE, D.D.S., Toyohiro KAGAWA, D.D.S.,
Kazuhisu OGAWA, M.S, Ph.D. and Shin-ichiro MORI, D.D.S., Ph.D.

Department of Dental Radiology, Fukuoka Dental College, Fukuoka, Japan
(Director: Prof. Shin-ichiro MORI)

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We report a forensic case in which bilateral double mental foramina with double mandibular foramina, and double mandibular canals on the left side of the lower jaw were noted in the bleached white skull of an unidentified Japanese male of the estimated age of 50 years.

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Introduction

Recently, surgical correction of jaw deformities and implant surgery for dental defects have become common procedures. For these procedures, knowledge about the position of the mandibular canal, especially its route near the mental foramen, is clinically important.

The mandibular canal generally begins at the mandibular foramen near the middle of the interior mandibular ramus, extends antero-inferiorly, and then extends horizontally under the root apex of the molars. Under the root apices of the premolars, the mandibular canal bifurcates, forming a larger canal with an orifice at the mental foramen of the mandibular body and a smaller canal which extends medially. The mandibular canal contains the inferior alveolar nerve and inferior alveolar artery. The course of the mandibular canal lies between the mandibular and mental foramina on each side of the lower jaw.

The presence of two canals, which is known as duplication of the mandibular canal, is observed with comparatively low frequency. The radiological features of duplication of the mandibular canal have been described by Kato, Carter and Keen, Kiersch, Nortje et al., Suzuki et al., Grover and Lorton, and Shiratsuchi and Kono.

We herein present a detailed forensic study of the skeletal remains of an unidentified person brought to our attention by the Fukuoka Prefectural Police authorities.
Bilateral double mental foramina, and double mandibular foramina were noted, and double canals on the left side of the lower jaw were observed on the panoramic radiograph.

Materials and methods

The materials examined were the skull bones from the skeletal remains of an unidentified person which were brought to the Second Department of Oral Anatomy by the Fukuoka Prefectural Police authorities, to estimate the age and sex by analyzing tooth and skull morphology. Using a PANEX-E (MORITA), we obtained panoramic X-ray images along the occlusal plane with the material resting level on a horizontal plane before and after insertion of two 10-mA fuse wires, one each into the mental foramen and mandibular foramen, respectively. The film used was Kodak XRP, and the exposure conditions were 90kVp, 4mA, and 15sec. Regarding the gender and age of the subject, the Second Department of Oral Anatomy determined that the skeletal remains were male and estimated the age to be 50 years.

Results

The distance between the condyles (Kondylenbreite) was 126 mm, and between the angles (Winkelbreite) was 101 mm. The mental height (Kinnhohe) of the mandible was 36 mm. No abnormalities were found in the contour (Figs. 1 and 2). However, there were two mental foramina including an accessory mental foramen, on each side. The right accessory mental foramina were quite large while those on the left were small (Figs. 3 and 4). Two mandibular foramina were observed on the left side (Fig. 5).

The panoramic radiograph (Fig. 6) revealed two radiolucent findings which were deduced to be left mandibular canals. Between the bony wall inferior to the upper mandibular canal and the bony wall superior to the lower mandibular canal, a radiopaque shadow resembling a common bony wall was observed. The radiopaque shadow formed a clearly visible solid line extending from the mandibular foramen to near the distal portion of the second molar. However, from the distal portion of the second molar to near the mental foramen, a portion of the line was indistinct.

The bony wall superior to the upper mandibular canal could be observed only as lateral as the third molar.

Figure 7 shows a panoramic radiograph of the fuse wires inserted into the right mandibular canal and the left lower mandibular canal. Since the left upper mandibular foramen curved steeply antero-inferiorly, it was impossible to completely insert the fuse wire. Around the wire edge, the bone wall was quite radiopaque.

Discussion

The stoma of the human mandible was described by Sutton, and double mental foramina was discussed from an anthropological perspective by Simonton, Hori, Akabori, Montagu, Riesenfeld, Sekigu-