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Relict root left in the mandible after extraction of the teeth 35 as a causative agent of the inflammation process in the region of mental foramen of the mandible

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Abstract

We present a case of iatrogenic complication after extraction of the teeth 35 in 63-years old women. There was a root of the teeth left in the bone. It was a causative agent of pain sensations and inflammation of the surrounding tissues. Due to the close distance between the root, mandible canal and mental foramen of mandible the removal of relict root was burden with high risk of parasthesis.

Key words: iatrogenic complications, relict root, paresthesis, mental foramen of mandible

Introduction:

Root of the teeth fully surrounded by costal structures, not visible and without contact with oral cavity , unavailable in physical examination is described by a Latin name of radix relicta.

Surrounding bone is usually coated with mucosa unchanged by inflammation. Teeth or their fragments may be also found in the regional soft tissues and then should be qualified as corpus alienum. The causative agent may be trauma as well as iatrogenic failure during teeth extraction [1,2]. Teeth fragment may reside in the tissues for many years without any clinical symptoms and could be found incidentally during radiological examination [3]. Often the residues of the teeth trigger inflammation and pain sensation that are hard to identify. The easiest way to diagnose the residing roots is by using intraoral x-ray, bitewing x-ray or orthopantomogram. In order to precisely localize the pathology, a very useful tool is CB-CT whereas to detect the residues in the soft tissues, ultrasonography is recommended.

Aim:

The aim of the study is to present the case of a 63-years-old women that due to the iatrogenic complication was left with a fragment of the root after the extraction of the teeth 35.

Case presentation:

A 63-years-old women was referred to the Department of Dental Surgery, Medical University of Łódź due to the pain sensation and swelling in the dental part of the mandible, near the region of the teeth 35. The symptoms appeared 3 weeks ago. Patient was burden with hypertension and Hashimoto. During the appointment patient remained under the control of her doctor.

In extra oral examination there was an asymmetry of the face present, swollen left submandibular region, enlarged submandibular lymph nodes (group B and C). In intraoral examination there was an inflammation present in the vestibular part of the oral cavity in the region of teeth 35. The distention of the alveolar part of the mandible was also seen. Patient reported pain sensation during palpative examination.

Patient was referred for partial orthopantomogram. It did reveal the opacification that was suspected to be a fragment of the root in the region 35 and also the dilution of the costal structure in its area (Fig. 1).

Patient did inform that the teeth was removed about 11 years ago. Due to the close proximity to the mental foramen and inferior alveolar nerve canal patient was referred for CB-CT scan to better localize the root fragment (Fig.2). To silence the inflammatory process, the antibiotic therapy was introduced: clindamycin 600mg, 1 pill every 8 hours.

Patient did inform the decrease of the pain sensation in the second day after introducing the antibiotic therapy. The removal of the root fragment was performer at the fourth day after starting the antibiotic therapy. Patient read the treatment plan and the written consent was obtained. Under regional anesthesia (left inferior alveolar nerve block) with 2% lignocaine + noradrenalin the procedure was performed. A mucoperisteral flap was incised. The incision was performer on the top of the alveolar part of the mandible starting from the region of the teeth 37 up to the teeth 34. Then, the incision was performed in the teeth's 33 and 34 socket. Full thickness flap was peeled (Fig.3) and the bone lamella was removed. Carefully the neurovascular bundle was moved and the relict root was removed (Fig.4). Purulent content was evacuated. Bone loss was rinsed with 0.5% metronidasole. Wound was sutured with nylon sutures 3.0. Hemostasis was obtained. Aftercare recommendations were given to the patient. Antibiotic therapy was recommended for the next 7 days. Also the steroids and painkillers were administered.

One day after the operation, patient came to the Department due to the swelling in the operated region and paresthesis of the mental nerve. Sutures were removed after 7 days (Fig.5). Vitamin B was administered to the patient to help the regeneration of the inferior alveolar nerve.

Due to the persistent numbness in this region, a series of physiotherapeutic procedures using micro currency were planned. A protocol of 10 procedures was performed (5min of stimulation, 5ms, 3Hz, 300uA).

After physiotherapy and administration of high doses of vitamin B patient reported improvement.

Discussion:

Inferior alveolar nerve is the biggest branch of the mandibular nerve that is responsible for innervating mandible, periodontum, lower lip and mandibular teeth [4]. It enters the mandible through mandibular foramen and the it runs down and forward in the mandibular canal under the apices of the teeth [5]. Inferior alveolar nerve is in the mandibular nerve with inferior alveolar artery, veins and lymphatic vessels forming neurovascular bundle [6]. Very often the roots that are left and integrated with bone are not giving any symptoms and are found incidentally during the X-ray [6,7]. At this time, the necessity of the surgery should be reconsidered. In some cases the possible advantages of performing such procedures are disproportionately lesser than the risk of the surgery. In the presented case, the main premise of performing the procedure was the inflammation in that region.

Many cases of iatrogenic leaving the root fragments during the extraction could be avoided by thoroughly planning the procedure, using proper surgical tools and technique. Indispensable method to confirm the correctness of the extraction is to perform another x-ray. Due to the radiation protection of the patients that method should be treated only as incidental. Nowadays more commonly used cone beam computed tomography (CB-CT) may facilitate localization of the pathologies and anatomical structures e.g. maxillary sinus, mandibular canal or mental foramen. Unfortunately, with the help of CB-CT it is not easy to visualize small size structures inside the mandible. Very often small branches of inferior alveolar nerve and accessory mental foramens are hard to be seen on the CB-CT [8]. Inflammatory lesions and surgical procedures performed in the region of nerves and their area may lead to their disturbance. Those include paresthesis, pseudoneuralgia or hypoaesthesia [9]. The diagnostics may be difficult when the obvious causative agent is not visible. In case of presence of *radix relicta* in the direct neighborhood of the nerve it always should be at first considered as a causative agent of neural disturbances. That situation was present in our patient.

Depending on the time lapse from the rise of the cause of the neural disturbances, the intensification of the inflammation process in the surrounding tissues, the causal treatment may be insufficient. At this time the supportive treatment should be considered that include pharmacotherapy and later on – physiotherapy to increase the possibility of full recovering. That protocol was performed in our case.

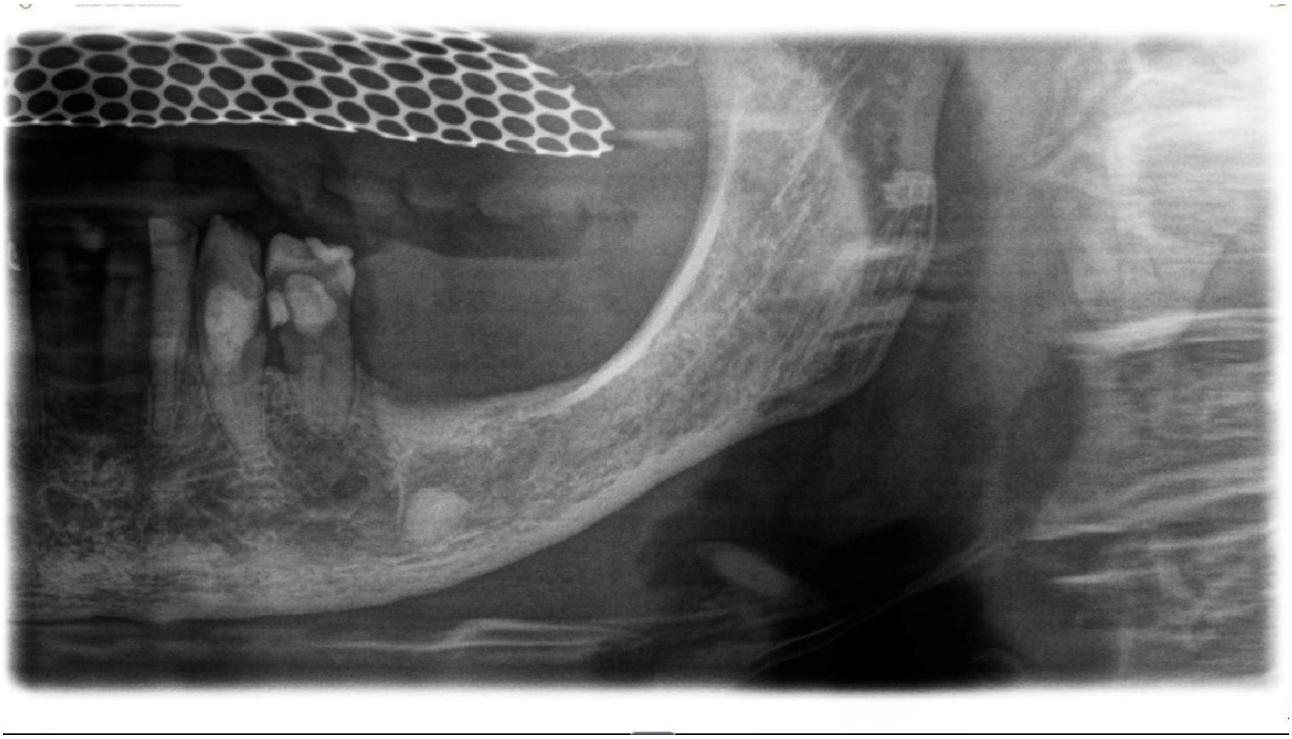

Fig. 1. Orthopantomogram presenting the suspicion of the relict Root in the region of the left mandibular foramen

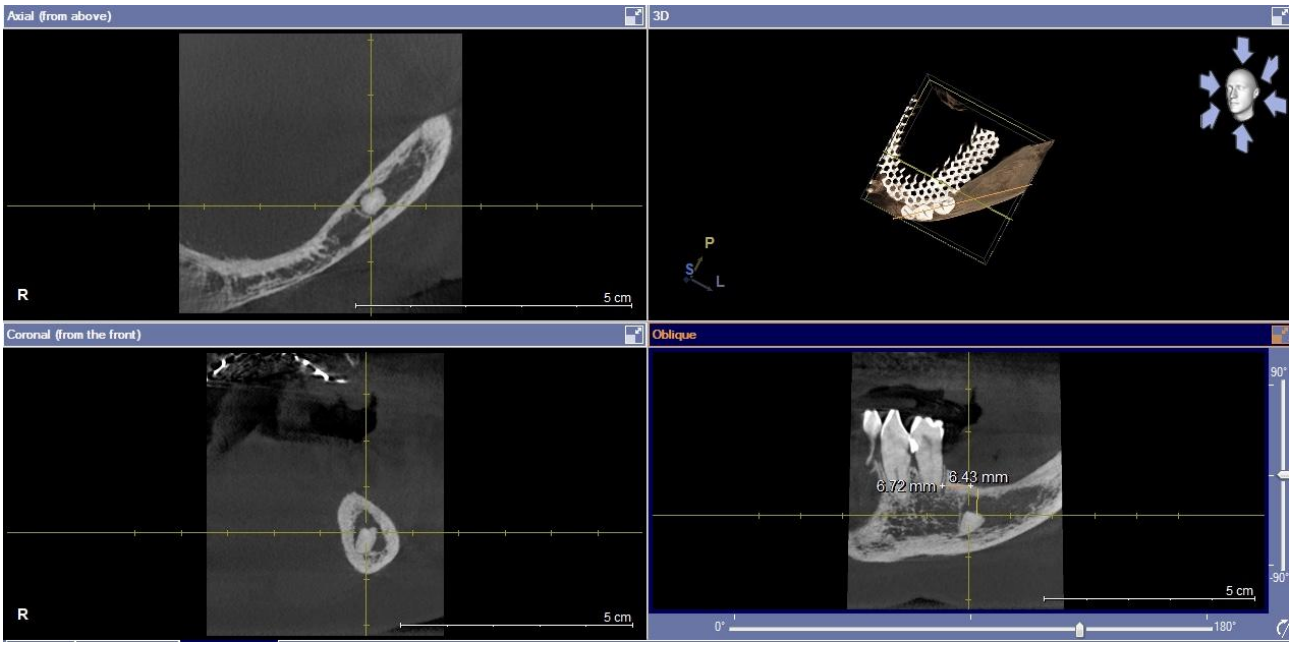

Fig. 2. Computed tomography (CT) was performed to reveal the topography of the suspected structure.

Fig. 3. Intra operative picture. Full thickness flap was performed.

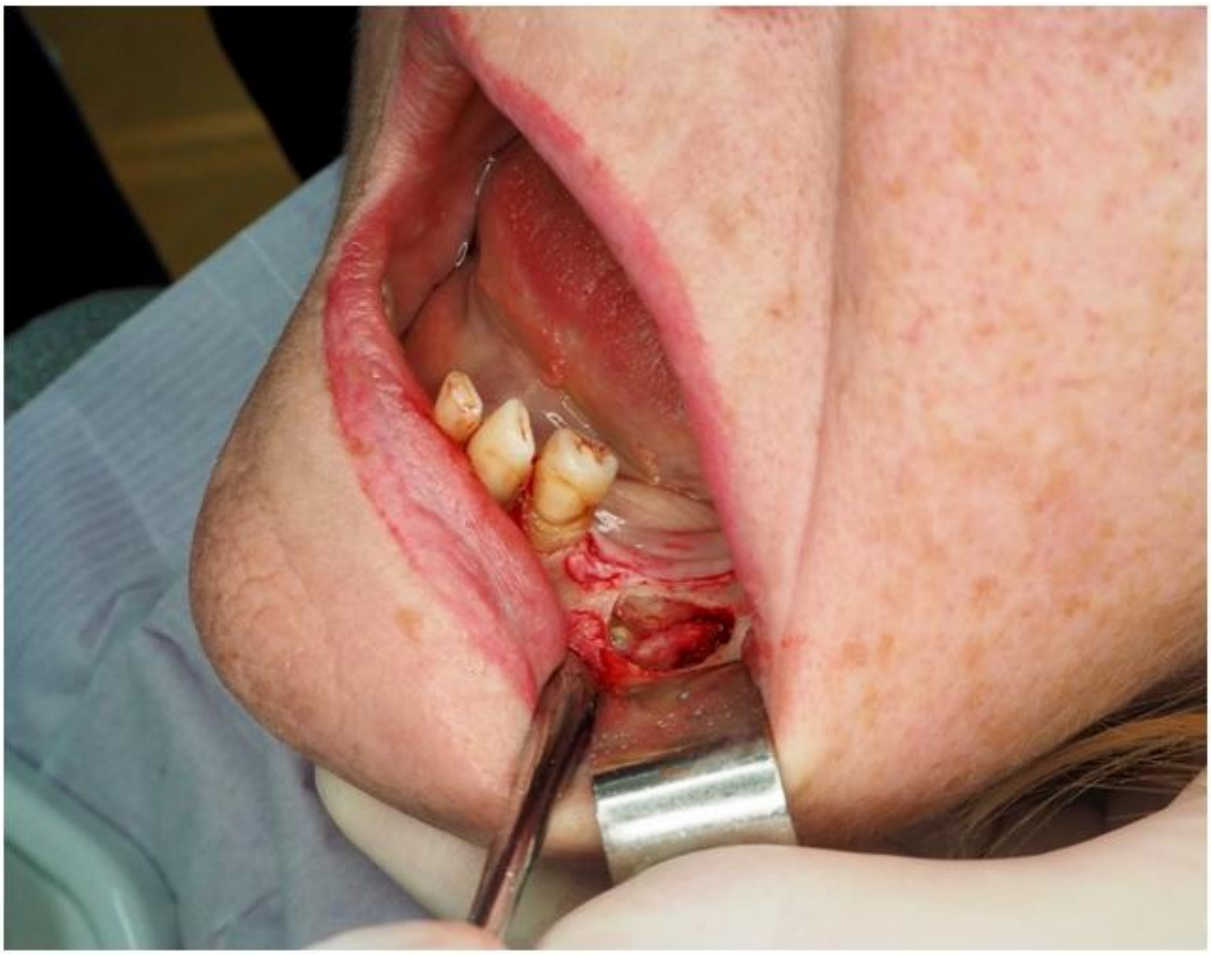

Fig. 4. Intra operative picture. Neurovascular bundle repositioned to remove the relict root.

Fig. 5. Post operative picture. Sutures removal, mucosa fully healed.

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