CLINICAL CASE - TEST YOURSELF Head neck

Assessment of Pain and Swelling in the Edentulous Maxillary Jaw of Geriatric Person

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PART A

A 65-year-old female patient complained of pain and swelling in the front part of the edentulous upper jaw for 15 days. The sudden onset followed a trauma incident a month prior. Despite receiving antibiotics and pain medication at other clinics, the persistent swelling persisted for a week. Clinical examinations revealed a hard, tender, oval-shaped swelling, measuring 1x1.5cm, extending from the midline to the right lateral incisor region and into the sulcus. The intraoral periapical radiograph reveals radiopacity. Routine blood tests and cardiorespiratory status were normal. Under local anaesthesia, the biopsy specimen was placed in formalin, and sent for histopathological examination.

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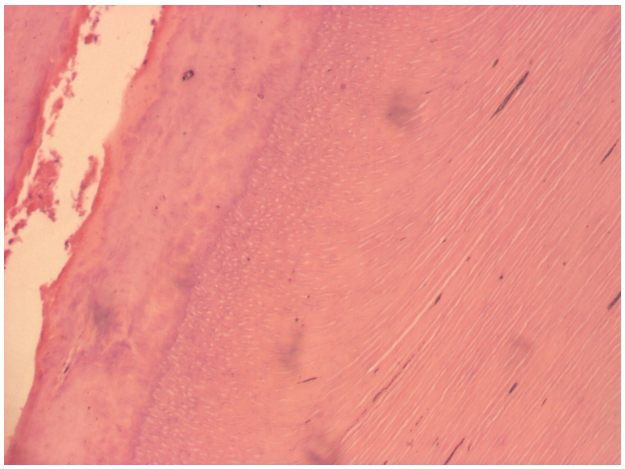

Figure 1: *Intraoral periapical radiograph.*

Figure 2: *Decalcified Haematoxylin and Eosin-stained section.*

PART B

Diagnosis: Impacted Dilacerated Maxillary Central Incisor in Geriatric Person

Maxillary central incisor impaction is the third most frequent type of impaction, with a prevalence of 0.03–2.1%. This is less common than third molar impaction (24.4%) and upper permanent canine impaction (2%). Although relatively rare, the impaction of maxillary central incisors can present significant challenges for both patients and dental professionals. Due to their prominent location, the absence of these teeth can significantly affect a person's appearance, function, speech, and mental well-being. [1-3]

Before the invention of radiography, dentists relied solely on a patient's history and clinical examination to assess the condition of their denture foundation. Nowadays, radiographic examination is a crucial aspect of dental diagnosis and treatment planning. However, not all edentulous patients undergo radiographic exams before receiving complete dentures. Studies have shown that radiography is often beneficial for edentulous patients, discovering positive findings in a high percentage of cases. Radiography also helps to document pathologic changes that might not be visible during a clinical exam. [4] Radiographic examination is crucial in verifying the existence of impacted teeth, determining their position and orientation, and assessing the potential resorption of surrounding teeth roots, and bones. The preoperative assessment of the shape of unerupted teeth is also a significant factor in diagnosing and planning treatment for edentulous patients. [3] Based on radiographic findings, the differential diagnosis of odontogenic tumors like odontoma, supernumerary tooth, osteosclerosis, and osteoma was made. [5,6] In our case, the intraoral periapical radiograph, shows that there was evidence of an impacted anterior left maxillary incisor. (Fig. 1).

These conditions are often caused by a combination of genetic factors and other factors that occur during prenatal and postnatal development, leading to anomalies in tooth size, shape, position, number, and structure. [6] The causes of central incisor impaction are multi-factorial, with the main contributing factors being supernumerary teeth, odontomas, and trauma. Supernumerary teeth and odontomas are the most frequent reasons for the delayed eruption of the maxillary incisors, with 56-60% of supernumerary teeth impeding eruption by blocking them directly. Another cause of failed eruptions is tooth malformation or curvature, often resulting from trauma to the primary tooth, which affects the developing permanent tooth bud close by and results in root curvature in the labial-lingual or mesiodistal direction. The position of the root curvature in the permanent central incisor depends on the stage of tooth development at the time of injury. In some cases of curvature, there are no signs of traumatic origin, leading to the suggestion that the anomaly may result from the ectopic development of the tooth buds. [3]

Clinical examination and radiographic imaging can be used to support the treatment plan. The diagnosis of impacted or non-erupted teeth is generally based on these clinical and radiographic findings. Asymptomatic completely impacted teeth may be left in place, as noted by Huang and Mercier, if the covering tissues are intact. In elderly individuals, exposed impacted teeth may occur due to the loss of alveolar height caused by periodontal or systemic diseases. [6] Impacted incisors are more commonly found on the front side of the dental arch. The failure of the eruption of the maxillary central incisor is a rare occurrence, and there are several possible causes for this. Most surgeons agree that the reasons can include suspected pathological conditions, interference from infections or prosthetic devices, disruption of the existing teeth, ectopic eruption, retention of the primary tooth, lack of space in the area of an unerupted tooth, delayed eruption, and raised soft tissue in the palatal or labial mucosa. Although most impacted teeth are painless, some can cause chronic infections, fistulas, and symptoms like pain and swelling. Therefore, surgical removal is considered the best treatment option for impacted incisor patients. [7] In our patient, the radiograph shows that horizontally impacted incisor in the labial side of the anterior maxilla, which was asymptomatic before the trauma of the patient. But now the patient showed all the clinical symptoms inconsistent with the literature. In the present case, we have done the surgical removal of the dilacerated maxillary central incisor. Under local anaesthesia, a crystal incision was made over the edentulous ridge with 11-12 regions. The mucoperiosteal flap was reflected and bone over the impacted tooth was trimmed with a surgical bur. Once the impacted incisor was exposed, it was sectioned into crown and root separately. The socket was irrigated with saline, adequate wound debridement, and sutured with 3-0 black silk suture.

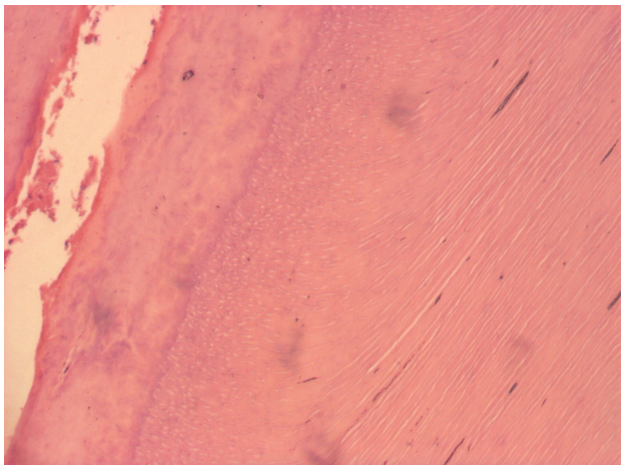

Figure 1: *Intraoral periapical radiograph shows an impacted dilacerated anterior left maxillary incisor.*

Figure 2: *The Decalcified HE-stained section shows a structured aggregation of enamel, dentin, and pulp.*

The suture was removed after 7 days and postoperative healing was satisfactory. The obtained specimen was kept in formalin solution and sent for histopathological examination (Fig.2). In the decalcified histopathologic examination, the HE-stained tissue section showed pulp tissue and dentinal tubules, which is indicative of a dilacerated maxillary central incisor tooth.

A proper diagnosis of an impacted tooth cannot be established without a clinical and radiological evaluation. A collection of different treatments for impacted teeth has been compiled to aid dentists in explaining the potential outcomes of impacted teeth and the risks involved in each treatment option to their patients. As expected, after the completely impacted incisor is removed, there is an increasing postoperative infection accompanied by bone resorption, intraoperative fractures, alveolar osteitis, and nerve injury. [2,8]

The key conclusion is that panoramic radiography should be used judiciously in edentulous patients requiring dentures, and only, when necessary, as determined through a thorough clinical examination and patient history. Avoiding routine use of orthopanoramic radiography (OPG) in these geriatric patients will reduce radiation exposure and help ease the financial burden on both the patients and healthcare facilities.[9]

An OPG exam should only be conducted on edentulous patients if deemed necessary through a medical history evaluation or oral examination. While radiography provides valuable information for dental professionals, the routine use of panoramic radiographs should not be encouraged for patients with regular complete dentures or seeking replacement dentures. This paper highlights the panoramic radiographic examination that must be performed selectively for edentulous patients who need a new set of complete dentures. **R**

Conflicting Interest

All authors declare that they have no conflict of interest.

Acknowledgment

Not applicable

KEY WORDS

Geriatric, Impaction, Central incisor, Surgical removal, Dilacerated tooth

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