



## Cemento-Osseous Lesion with an Impacted Tooth - A Rare Case Report

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**Ankita Sahni., et al.****Abstract**

Cemento-osseous dysplasia is the most common form of benign fibro-osseous lesions. Focal cemento-osseous dysplasia is usually seen in females in the fourth to fifth decade of life located in the mandibular posterior region. Based on the stage of the lesion, it can appear radiolucent, mixed, or radiopaque on a radiograph. In order to efficiently manage the case, it is important to rule out other similar lesions and choose an appropriate treatment plan. We are presenting a rare case of focal cemento-osseous dysplasia associated with an impacted mandibular canine. A thorough review of literature has revealed that no such case has been reported so far.

**Keywords:** Fibro-Osseous Lesions (FOL); World Health Organization (WHO); Cemento-Osseous Dysplasia (COD)**Introduction**

The fibro-osseous lesions (FOL) are usually benign and are formed when the normal bone is replaced with a fibrous connective tissue matrix containing either abnormal bone or cementum. In 2017, the World Health Organization (WHO) classified benign fibro-osseous lesions into ossifying fibroma, cemento-osseous dysplasia, and fibrous dysplasia based on their clinical, radiographic, and pathological features [1].

Cemento-osseous dysplasia (COD) encompasses three subgroups, namely periapical, focal and florid. Periapical COD, as the name suggests, are associated with the apex of a vital tooth. They are usually seen in association with the mandibular anterior while

focal COD are found in the mandibular molar region. Florid COD are multifocal, bilateral and are usually seen simultaneously in the posterior regions of the maxilla and mandible [2].

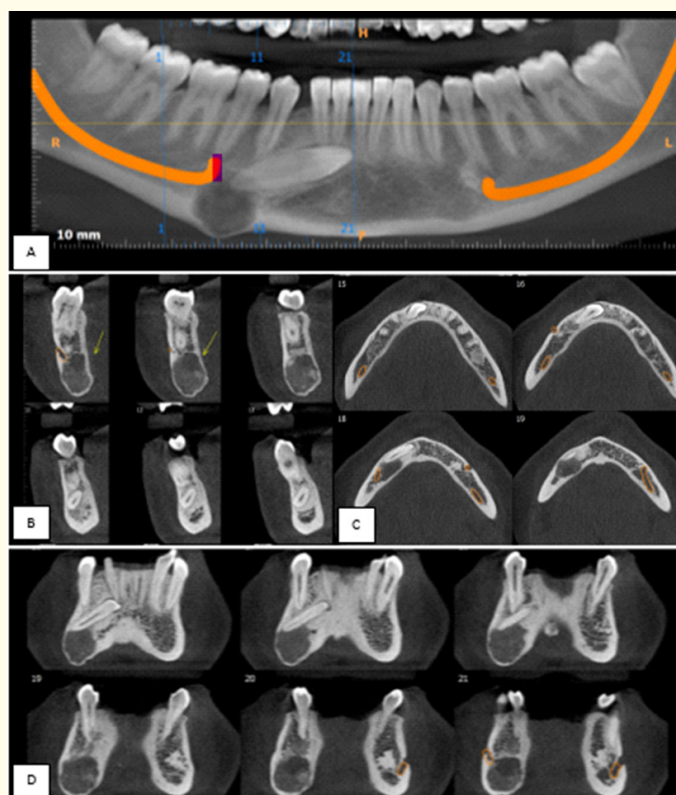
Focal cemento-osseous dysplasia (FCOD) is usually asymptomatic, self-limiting to an average size of 1.5 cm, detected in the fourth decade and found more commonly in females. It occurs commonly in regions of extractions in the mandible [2,3]. Pathogenesis of FCOD remains unclarified but it is believed to occur from the periodontal ligament because of the reparative process and cemento-osseous remodelling [3]. Trauma from occlusion, hormonal changes, caries, periodontal disease, infection, or systemic diseases are also considered as causative factors [4].

It is of vital important to rule out the differentials. This will prevent misdiagnosis and avoid unnecessary dental procedures thereby preserving the oral health of the patient. Depending on the radiographic stage of the lesion, the differential diagnosis can range from periodontal lesions to odontogenic tumors [5]. A confirmatory diagnosis is reached after histopathological evaluation [2]. Management of FCOD is subjective as it may not be required if the patient is asymptomatic. On the other hand, surgical removal of the lesion is indicated if presents with symptoms or signs of further damage [1].

### Case Report

A 30-year-old female patient reported to the dental out-patient department of a hospital with a complaint of spacing in between her mandibular anterior teeth. She had no pain or overt swelling in the region of the complaint. Extraoral examination failed to reveal any significant finding. However, on clinical intra-oral examination the right mandibular canine was found to be missing.

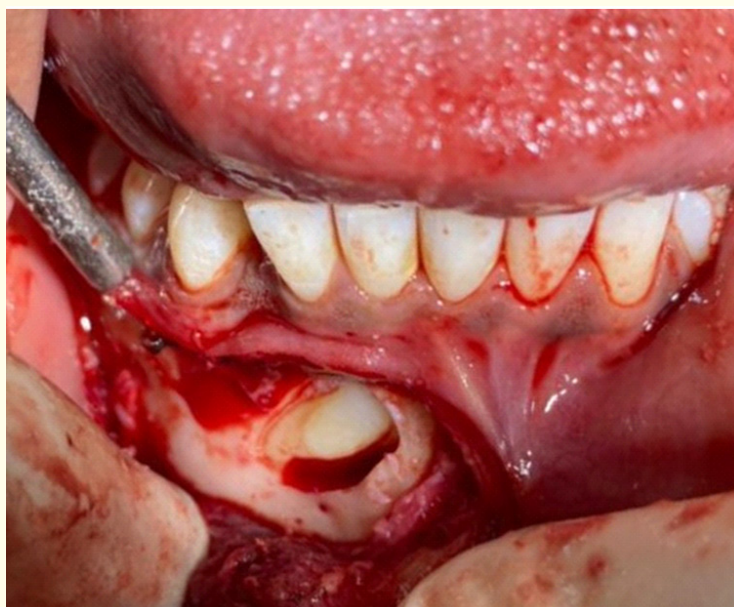
Orthopantomography revealed horizontally impacted right mandibular canine in the right para-symphysis region of the mandible. Further evaluation with a cone beam computed tomography (CBCT) scan of the mandible revealed the impacted tooth with a periapical mixed density lesion. The impacted tooth extended antero-posteriorly with the crown in the region of right mandibular incisors to the root till the region of right mandibular premolars. Analysis of axial, coronal and sagittal sections demonstrated a mixed lesion measuring about 2.5 cm superior-inferiorly x 1.3 cm antero-posteriorly x 1 cm labio-lingually. The lesion was contiguous with the lamina dura of the impacted tooth. Margins of the lesion were well-defined and corticated causing thinning and scalloping of the adjoining cortices. The internal structure of the lesion consisted of haphazardly arranged radiodensities in a radiolucent matrix (Figure 1: Radiographic analysis with cone beam computed tomography).



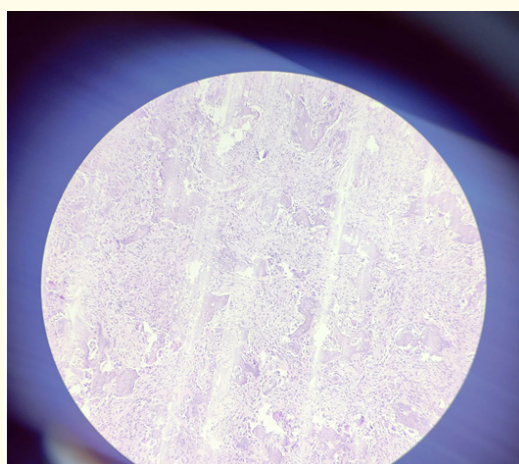
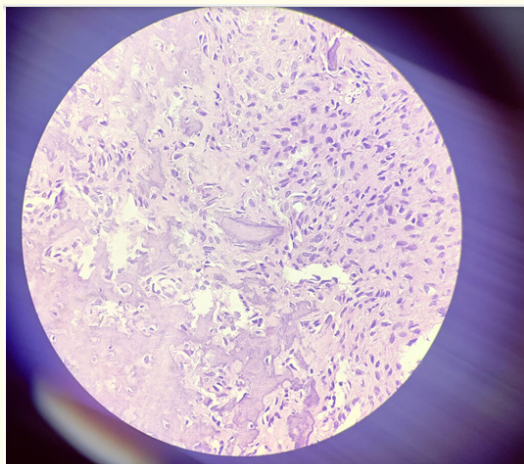
**Figure 1:** A. 3D curved multiplanar reconstruction showing the impacted right mandibular canine, mixed density lesion and thinning of lower cortex of mandible; B: Sagittal sections; C: Axial sections; and D: Coronal sections.

In view of radiological findings, a provisional diagnosis of "Cemento-osseous dysplastic lesion (intermediate stage) with impacted right mandibular canine" was given. The lesion was excised along with the impacted tooth under local anesthesia and was subjected to histopathological analysis (Figure 2: Surgical excision).

Microscopic examination revealed cellular fibrous tissue composed of spindle cells. Irregularly shaped bony trabeculae were scattered within the fibrous tissue along with few calcified spherules of cementum like material. Final diagnosis was consistent with cement-osseous lesion. Based on the histopathological findings and



**Figure 2:** Surgical excision. The lesion was surgically excised along with the impacted tooth under local anaesthesia.



**Figure 3:** Histopathological features. Microscopic examination revealed cellular fibrous matrix with interspersed bony trabeculae.

correlating with clinical and radiographic features, a final diagnosis of "Focal cemento-osseous dysplasia" was made (Figure 3 Histopathological features).

## Discussion

A recent study focusing on the clinical, radiographic and pathological diagnosis of fibro-osseous lesions established that COD is the most common FOL representing 45% of all cases [6]. The currently presented case demonstrates characteristic demographic features of a FCOD. Much like the current case, FCOD is most commonly diagnosed as a mixed density lesion of less than 1.5cm in the mandible of female patients in fourth or fifth decade of life [2,4]. FCOD is known to develop in extraction spaces but the present case is unique as it was found in association with an impacted canine [2]. Salvi AS., *et al.* and Prodromidis GI., *et al.* reported FCOD cases in association with an impacted mandibular third molar, without and with a complex odontoma, respectively [4,7]. In 2022, Mark Mintline., *et al.* reported a case of Cementoosseous dysplastic lesion with an impacted mandibular canine inferior to a compound odontoma [8]. However, to the best of our knowledge there has been no report of solely an FCOD lesion associated with an impacted mandibular canine.

Usually, biopsy is not a mandate for asymptomatic FCOD cases, but the present case required surgical excision of the lesion as well as the impacted tooth to halt the advancing bone destruction as evident on CBCT images. CBCT demonstrates the three-dimensional extent of the lesion, its impact on surrounding structures and aids in proper diagnosis. It has been established as the diagnostic imaging technique of choice in 68% cases of FOL [2,5,6].

An early-stage COD appears as an oval shaped periapical radiolucency with well-defined radiopaque margin. In the intermediate/mixed stage, some sclerotic masses are also formed within the radiolucent matrix. A late-stage COD appears mature with radiolucency only in the periphery while the lesion appears radiopaque [4]. Local jaw expansion and mild discomfort is also reported in about one-third of the patients [2].

As the lesion in the current case was composed of a radiolucent matrix containing radiopaque masses, it should be differentiated from other mixed density lesions such as fibrous dysplasia, ossifying fibroma, sclerosing osteomyelitis [4]. Radiologically, most cases of fibrous dysplasia occur in maxilla, and it is seen as a characteristic ground-glass appearance with poorly defined peripheral border [6,9]. Ossifying fibroma demonstrates centrifugal growth, buccolingual expansion, tooth displacement and root resorption [9,10]. Osteomyelitis is usually associated with a tooth infection, is poorly circumscribed and blends into the surrounding bone [9,10]. Therefore, these lesions were ruled out radiographically in the current case.

## Summary/Conclusion

This case is unique in the occurrence of a focal COD with an impacted mandibular canine. It also highlights the importance of three-dimensional radiographic imaging of bone lesions and the value of histological presentation in confirmatory diagnosis.

It is vital to analyze all the factors associated with a case to arrive at the final diagnosis. A correct diagnosis prevents any undue compromise with health or economic loss as a result of less-than-worthy treatment. Therefore, comprehensive consideration of the case history, clinical features, radiographic presentation, and histological findings is the key to accurate diagnosis and management.

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