

# Odontome, Cyst, Impacted Tooth, and Space Infection in a Single Patient: All-in-One Diagnostic Dilemma

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## Abstract

This case report analyzes the clinical and radiographic features of odontogenic infection with underlying pathology. Systematic approach leads to narrow the differential diagnosis on the basis of exclusion. This results in correct diagnosis, proper treatment, and avoiding unnecessary treatment. This case report highlighted an unusual case of odontogenic infection involving adjacent fascial spaces with underlying pathology which was mimicking a cyst, tumor, and odontome. Systematic approach helped us achieve accurate diagnosis, treatment, and avoiding complications.

**Keywords:** Cyst, odontogenic infection, odontoma, tumor

## INTRODUCTION

The important step in successful therapeutic management of a patient with disease in the oral and maxillofacial region depends on creating a differential diagnosis.<sup>[1]</sup>

Clinical differential diagnosis is the cognitive process of applying logic and knowledge in a series of step-by-step decisions to create a list of possible diagnosis. Differential diagnosis should be approached on the basis of exclusion to narrow the diagnosis. A thorough inspection of the oral cavity should be a part of clinical examination.<sup>[2]</sup>

Oral tissue biopsy may be necessary for lesions that cannot be diagnosed on the basis of the history and clinical findings alone and also some additional information can be gained to guide any indicated surgical procedure.<sup>[3]</sup> Oral and maxillofacial surgery deals with various pathologies in the facial region. It poses dilemma in diagnosis if it arises altogether. There is no evidence in literature of simultaneous presentation of pathology, fascial space infection, and dentoalveolar impaction in a single patient. Systematic approach is needed to diagnose it correctly and for proper surgical management.

We present an interesting case which had possibilities of multiple pathologies in one. Systematic approach helped us diagnose it correctly and helped in proper surgical management.

## CASE REPORT

A 16-year-old female patient reported to the Department of Oral and Maxillofacial Surgery, Dr. D. Y. Patil Vidyapeeth's Dr. D. Y. Patil Dental College and Hospital, with a chief complaint of pain, swelling in the right side of face for 5 days and inability to open the mouth for 2 days [Figure 1]. The patient was apparently alright 5 days back when she felt pain in the right side of lower jaw. Pain gradually increased in severity and swelling was noticed. Initially, swelling was small, which gradually increased and attained present size (dumbbell shaped 6 cm × 3 cm). Mouth opening was restricted.

On clinical examination, on the right side, swelling in the cheek and temporal region was palpated. Anteroposteriorly, extending from the commissure of lip till the angle of the mandible and Superoinferiorly, extending from the temporal fossa region till the lower border of mandible. Swelling had typical dumbbell-shaped appearance due to interposition of zygomatic arch. Swelling was hard, tender, and nonfluctuant. Mouth opening was restricted to 8 mm.

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On the basis of clinical findings, provisional diagnosis of right buccal, submassetric, and superficial temporal space infection was made.

Radiological investigations revealed a radiolucent lesion with radiopaque mass in the right posterior region of the mandible [Figure 2]. First mandibular molar of the right side was impacted with resorption of roots. This radiographic picture was mimicking various pathological lesions. Based on clinical and radiologic examination, a differential diagnosis of dentigerous cyst, calcifying epithelial odontogenic tumor, keratinizing cystic odontogenic tumor, unicystic ameloblastoma, complex odontome, and impacted mandibular first molar of the right side was considered.

### Treatment

In the first phase, incision and drainage of abscess after empirical antibiotic therapy was done under conscious sedation [Figures 3 and 4].

In the second phase, calcified lesion along with soft tissue lining and impacted molar was removed under general anesthesia [Figures 5-7]. Histopathological report showed the evidence of complex odontome associated with dentigerous cyst posterior to the odontome [Figure 8].

Final diagnosis was made as buccal, superficial temporal, and submassetric space infection due to complex odontome

with impacted mandibular first molar of the right side with resorption of roots.

### DISCUSSION

Complex odontoma is most prevalent in the dental field superceded in frequency only by compound odontoma.<sup>[4]</sup> These nonaggressive hamartomatous malformations consist of mixed lesions with epithelial and mesenchymal tissues, which show differentiation into odontogenic tissues such as enamel, dentin, cementum, and pulp. Two types of odontomas recognized are compound and complex composite. Compound odontomas consist of encapsulated, discrete, small tooth-like structures or denticles in a fibrous connective tissue stroma, mostly located in the anterior maxilla. Complex odontomas on the other hand consist of an irregular mixture or mass of mature hard and soft dental tissues, which has no resemblance to teeth.

Despite their unknown etiology, odontomas are usually discovered during the second and third decades of life as an incidental finding as they are asymptomatic. Sometimes, it may present as bone expansion, pain, and tooth displacement or show association of unerupted normal teeth. Intraoral radiographs usually show well-defined borders of a similar density of calcified dental tissue, having a ground-glass



Figure 1: Restricted mouth opening



Figure 2: Preoperative orthopantomography showing a multitude of pathologies



Figure 3: Incision and drainage under sedation



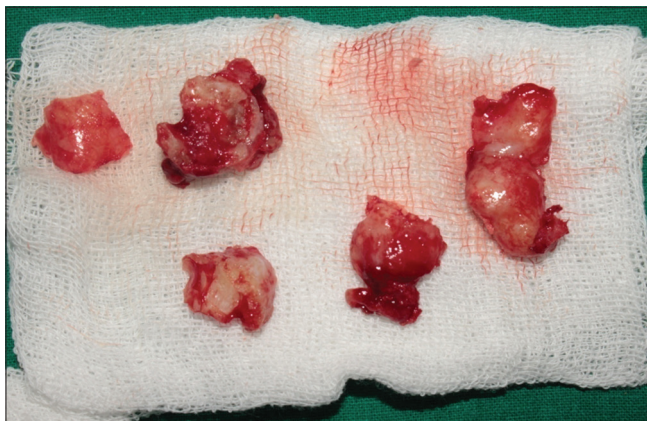
Figure 4: Placement of corrugated drain postdrainage



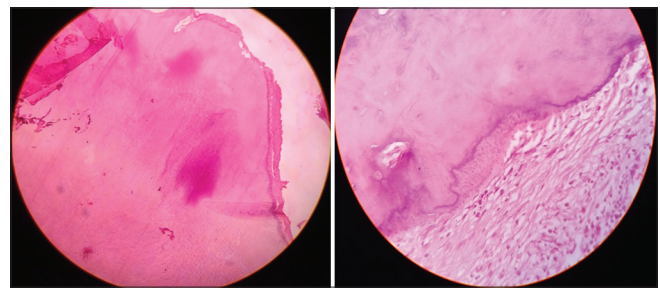
**Figure 5:** Exposure of the underlying pathology



**Figure 6:** Exposure of impacted tooth



**Figure 7:** Specimen excised



**Figure 8:** Histopathological examination suggestive of complex odontome

appearance, and a radiopaque mass occupying the affected region, surrounded by a thin radiolucent halo. Although they are usually tooth-sized or smaller, the complex variant can occasionally exhibit considerable size and can attain diameter up to 6 cm.

Odontogenic infections are known to involve various adjacent fascial spaces.<sup>[5]</sup> Infection from mandibular molars may spread to primary spaces such as buccal space and submandibular space, and further, it can spread to secondary spaces such as superficial temporal space and pterygomandibular space.<sup>[6]</sup> Clinical diagnosis and treatment of these lesions are not always simple, due to anatomical complexity and sometimes involvement of multiple pathologies.<sup>[7]</sup>

The patient reported with swelling in the right side of face with trismus. This was suggestive of buccal, superficial temporal, and masticator space involvement.<sup>[8]</sup> Intraorally, mandibular molars of right side were missing. Radiographically, though all types of pathologies were suspected as mentioned in the differential diagnosis, it was looking like odontome rather than any other pathological entity. As it was a case of infected odontome with impacted mandibular molar, we had systematic approach to treat the case. In the first phase, incision and drainage of abscess was

done, and in the second phase, lesion was surgically removed, avoiding the overtreatment unnecessarily.

There were missing mandibular molars on the right side of the arch which was not considered significant by the guardians signifying negligence of their part. The patient reported to us only because of the space infection and swelling. We also emphasize the need of routine periodic dental checkup. This would have been detected the lesion in early stage and prevented the unnecessary patient's morbidity.

## CONCLUSION

Odontoma is a common incidental finding when radiographic evaluation is performed and should be carefully analyzed. Kaugars *et al.* found that roughly half of all odontomas block the eruption of a tooth. Another reason for removing odontomas is their association with the dentigerous cysts in significant number of cases (27.6%).<sup>[8]</sup>

Odontogenic infection with underlying pathology is difficult to differentiate from one another.<sup>[9]</sup> Most of the lesions are benign, but some are locally aggressive with high recurrence rate. Clinical examination, extent and location of the lesion, and its radiographic features help the surgeon achieve accurate diagnosis and proper treatment.<sup>[10]</sup> Conservative surgical management may be an option to reduce recurrence and morbidity and increase the probability of uneventful secondary healing and bone regeneration.<sup>[11,12]</sup>

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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