

## Comparative Evaluation Of Treatment Protocol Of Complex & Compound Odontoma A Retrospective Study

Dr Ramita Sood\*, Dr Samhita Joshi\*\*, Dr Akshay Langalia\*\*\*, Dr Hu Wei Hsin\*\*\*\*,  
Dr. Kailash Attur<sup>#</sup>, Malhar Khamar<sup>##</sup>

\*Professor and HOD, \*\*Intern, \*\*\*\*Reader Department of Oral and Maxillofacial Surgery, \*\*\*Senior Lecturer, Department of Conservative Dentistry and Endodontics, ## Intern, AMC Dental College, Khokhra, Ahmedabad, Gujarat, India, #Reader, , Department of Conservative Dentistry and Endodontics, Nootan Dental College, Visnagar, Gujarat.

**Abstract:** Background & Objective: To document and discuss clinical features, evaluation for need of treatment of 30 radiographically and histopathologically proven cases of compound and complex odontomes of the jaw bones monitored and operated by single surgeon during 5 years. Methodology: A retrospective investigation of 30 cases of compound composite and complex composite odontomes was done. The study was performed using medical records, panoramic radiographs and pathological reports. Data gathered included age/gender, location, chief complaints, effect on dentition and treatment rendered. Results: 16 cases of compound odontoma detected in 1st & 2nd decades of life had 6 accidentally discovered on radiographs and 10 complaining of missing permanent teeth. 14 cases of complex odontoma discovered during 3rd -6th decades, 8 with complaint of the pain & paraesthesia of the affected region and 6 discovered accidentally on radiographs. None of the odontomes showed gender predilection. Considering the state of presentation, associated complaints and possible complications surgical treatment was done in symptomatic patients & asymptomatic patients were kept on follow up. Chi-square test performed was statistically insignificant (Chi Sq=0.089, df=1, p-Value >0.1). Conclusion: Odontoma, a benign odontogenic tumor usually has least propensity towards aggressiveness or malignant transformation. Treatment protocol of individual cases should be customized by considering the presenting complaints, symptoms & natural progression of the concerned lesion. Considering the above factors, all cases of odontomes need not be surgically removed unless it grows to a potential large size causing gross facial deformities, pain & paraesthesia of affected facial region or impaction of multiple permanent teeth. [Langalia A NJIRM 2015; 6(6):70-73]

**Key Words:** Benign, Odontoma, Compound Odontoma, Complex Odontoma

**Author for correspondence:** Dr. Akshay Langalia, Department of Conservative Dentistry and Endodontics, AMC Dental College, Khokhra, Ahmedabad- 380027, Gujarat, India . Email : akshaylangalia@gmail.com .

**Introduction:** Odontoma is a benign odontogenic tumor.<sup>1</sup> However, their potentially slow, limited growth and presence of all dental tissues shows them hamartomatous malformations than true benign neoplasms<sup>1</sup>. According to their radiographic & histological appearance they are sub-classified as 1) compound composite odontoma( nearly orderly arrangement of enamel, dentin & pulp, resembling small teeth-like structures) and 2) complex composite odontoma( haphazard agglomeration of enamel, dentin & pulp tissue).<sup>1</sup> Similar to teeth, once fully calcified they usually do not develop further in size<sup>1</sup>. Overall, they constitute 22% of all odontogenic tumors.<sup>1</sup> The exact etiology is still unknown but genetic factors, family history & environmental causes like trauma, infection, etc. have been suggested<sup>2</sup>. Their radiographic appearance depends on their developmental stage and degree of mineralization. Initial stages show radiolucent appearance- lack of mineralization.<sup>2</sup> Intermediate stage reveals partial calcification & some little appreciation of structure can be seen in the.<sup>2</sup> Whilst in 3<sup>rd</sup> stage it appears well mineralized resembling tooth-like structures in case of compound odontoma and

fully calcified radio-opaque mass surrounded by radiolucent area due to a soft tissue capsule in a complex odontoma. Many studies have been carried on odontomas dealing with clinical appearances, radiographic interpretations and treatment planning, however very few have been conducted on the retrospective evaluation of the treatment protocol adopted. Hence the aim of the study was to document clinical features & treatment rendered based on evaluation of the need for treatment.

**Material and Methods:** Retrospective investigation of 30 cases of patients of odontoma was done. Their medical records, features on periapical & panoramic radiographs as well as their pathological reports were investigated. The diagnoses had been confirmed by radiographic & histological examination of the lesion. Patients' data gathered included age, gender, location, chief complaint at presentation & effects on the surrounding dental & vital structures. Taking into consideration, patient's age, state of presentation, associated complaints & possible complications evaluation of the need for the treatment was done & accordingly the treatment modality was decided as

well as Chi-square test was done to statistically check the significance of the of the requirement of treatment in all the detected cases of complex and compound odontoma.

**Results:** 30 cases of odontoma including both compound & complex odontoma were studied. Age & gender distribution of odontoma is presented in Table 1.

**Table 1: Age and gender distribution of odontoma**

Age Group	Compound Odontoma			Complex Odontoma		
	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
10-19	12.5	12.5	25.0	12.5	0.0	12.5
20-29	12.5	0.0	12.5	0.0	12.5	12.5
30-39	25.0	12.5	37.5	12.5	0.0	12.5
40-49	0.0	12.5	12.5	0.0	25.0	25.0
50-59	0.0	12.5	12.5	25.0	12.5	37.5
Total(%)	50.0	50.0	100.0	50.0	50.0	100.0
Total No of Cases	7.0	7.0	14.0	8.0	8.0	16.0

There were 16 cases of compound odontoma (53%) & 14 cases of complex odontoma(46%). Neither of the 2 varieties showed any gender predilection. Most of the compound odontoma (8 out of 16) (50%) were found in maxillary anterior region. Most of the complex odontoma (10 out of 14) (75%) showed predilection for the mandibular posterior region. Complex odontoma were being differentiated from benign cementoblastoma & osteoma of jaw bones based on location as well as radiographic & histologic presentation. Out of 16, 6 of the compound odontoma (37.5%) & out of 14, 4 (28.5%) of the complex odontoma were discovered on routine dental radiographic examinations. Out of 16, 4 (25%) of the patients with compound odontoma presented with the chief complaint of over-retained deciduous teeth along with non –vitality of adjacent permanent teeth & 4 (25%) with multiple unerupted permanent teeth.(table 2)

2 (12.5%) patients presented with pain produced by carious mandibular molar, which was later found to be exacerbated by the pain & paraesthesia produced by

compound odontoma compressing mandibular neurovascular bundle.

**Table 2 : Distribution of Chief complain of different cases of odontome**

Chief Complain	Cases
Pain with or without Paraesthesia	6
Unerupted Permanent Teeth	4
Prolonged retention of deciduous teeth	4
Accidental discovery on examination	12
Facial asymmetry	4

Out of 14, 4 (28.5%) of the patients of complex odontoma presented with facial asymmetry , 4 (28.5%)with pain & paraesthesia of the unilateral mandibular region. Rest 6 (42.8%) cases were discovered accidentally on radiographic examination. In 4 (28.5%) patients with over-retained deciduous teeth, (table 3)

**Table 3 : Distribution of effects of odontome**

Effects	Cases
Impaction of underlying tooth	4
Prolonged retention of deciduous teeth and non-vitality of adjacent permanent teeth	4
No effects	12

Those deciduous teeth were extracted along with underlying odontoma & permanent teeth were allowed to erupt with the monitoring till a period of 3 months (table 4). Among them 2 (14.2%) patient was treated for the orthodontic repositioning of permanent teeth after their eruption and 2 (14.2%) patient was kept on follow up with regular monitoring by radiographs.(table 4)

**Table 4 : Treatment distribution of odontomes**

GROUP A(cases with different types of treatment rendered)	GROUP B(cases with no treatment rendered )
Surgical removal : 4	Total no. of cases: 12
Surgical removal followed by normal eruption of teeth : 2	
Surgical removal followed by bone graft placement: 4	

Surgical removal followed by orthodontic repositioning of teeth : 8	
Total no. of cases : 18	

Out of 14 in 4 (28.5%) patients with large sized complex odontome producing pain & paraesthesia, surgical removal of the offending odontoma was done in posterior mandibular region (table 4). Resulting deformity was corrected by autogenous bone grafting(table 4). The patients were recalled for the follow up after a period of 1 month when they presented to be having no further complaint of pain & paraesthesia. After a period of 1 month, prosthodontic rehabilitation of missing teeth was done. In 2 (14.2%) cases, carious mandibular molar was aggravating the pain produced by underlying odontoma. Since endodontic treatment of the molar did not improve the condition, surgical removal of the underlying odontoma along with the extraction of offending mandibular molar was necessitated. The resulting deformity was corrected with the placement of a mixture of autogenous & allogeneous bone graft.(table 4). After a period of 3 months, patient was recalled for the evaluation for prosthodontic management of missing tooth. In elderly patients surgical enucleation was done after the overall evaluation and pre-operative investigations. Out of 14, 4 (28.5%) of complex & out of 16, 2 (12.5%) compound unoffending odontoma were left untreated & those patients were kept on periodic follow up of 6 months with the options of surgical removal if the symptoms like pain or paraesthesia arises. All impacted teeth associated with odontome were preserved in patients under 30 years of age. In above 40 year of age patients impacted teeth along with odontoma were also removed and prosthodontic management by fixed partial prostheses in posterior missing teeth region was done after a period of 3 months. A Chi Square test was between the cured/ treated and uncured/untreated (asymptomatic precisely) groups (Chi Sq=0.089, df=1, p-Value >0.1) which turned out to be statistically insignificant. It is not always necessary that when we see a large lesion it is indicative of a definitive surgical/invasive protocol, instead we evaluated and observed the development in the lesion along with the symptoms at the time of the presentation of the lesion and during the period of observation and planned our treatment accordingly.

**Discussion:** Odontoma have been recognized as benign odontogenic tumors<sup>1</sup> According to our study they are seen from 2<sup>nd</sup> to 6<sup>th</sup> decades of life.(table 1) No gender predilection is seen in odontoma. Compound odontoma are more common in maxillary anterior region & complex odontoma are more common in mandibular posterior region<sup>1</sup>. Complex odontoma do have a propensity to increase in size, however very large odontomes have rarely been seen.<sup>2</sup> Odontoma rarely involve the primary dentition<sup>2</sup> & in this study no case showed odontoma involving primary dentition. Odontoma usually cause hindrance to tooth eruption if they lie above permanent tooth.<sup>1</sup> If they lie below tooth, they are prone to cause the compression of neurovascular bundle resulting in pain & paraesthesia of the region supplied by that nerve.<sup>3</sup> For well appreciation of the location, presence of 1 or more odontoma & effect on surrounding structures, panoramic radiographs were used.

Compound & complex odontomes are non-aggressive tumors,<sup>4,5,6</sup> hence a proper evaluation as to need for removal is all the more important. Rationale for surgical excision is usually due to odontome preventing eruption of underlying permanent teeth.<sup>1</sup> They also tend to compress the neurovascular bundle causing paraesthesia.<sup>3</sup> In such cases there is no guarantee that removal of odontome is definitely going to reverse the paraesthesia.<sup>7,8,10,11</sup> Hence patients should be made aware of this. Non-vitality of adjacent teeth due to odontome has also been seen.<sup>3</sup> In such cases, removal of odontome is imperative to prevent further damage. In our study, out of 30 cases, 12 cases showed odontome on accidental radiographic examination. Aggressive treatment in such cases will do more damage than good as it can inadvertently lead to pain & paraesthesia which previously did not exist or even make the jaw bone susceptible to the pathologic fracture due to expansion of jaw caused by odontome.<sup>1</sup> Hence those cases were left untreated. Chi-square test was performed to check the significance of the treatment required in all the patients detected with compound composite and complex composite odontoma<sup>9</sup>. Chi-square test performed was statistically insignificant (Chi Sq=0.089, df=1, p-Value >0.1) depicting that treatment is not compulsorily required in all the detected cases of compound composite and complex composite odontoma. We still require bigger sample size to more precisely reach to the conclusion as to till what extent

do we need to render the treatment on asymptomatic cases of odontoma.

**Conclusion:** Odontoma both compound composite & complex composite variety are usually benign in nature & have least propensity for malignant transformation.<sup>1</sup> Common in posterior mandibular (complex) and anterior maxillary (compound) region of the jaws, it was justified that rendering of treatment is not required in all the detected cases of odontomes.<sup>12-17</sup> A very careful consideration of rendering the treatment is required in relatively asymptomatic patients of odontome where removal of odontome is anticipating even bigger post operative problems, thus making it more prudent to leave such cases unoperated we recommend a regular follow up of such asymptomatic cases to prevent complications occurring post-operatively along with with periodic monitoring with radiographs in case symptoms like pain or paraesthesia arise in future. Treatment protocol of individual cases should be customized by considering the presenting complaints, symptoms & natural progression of the concerned lesion.

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