Original Article

ODONTOMES– A DESCRIPTIVE CASE SERIES ON 38 PATIENTS

Muslim Khan, Qiam ud Din, Muhammad Ishfaq

Department of Oral and Maxillofacial Surgery, Khyber College of Dentistry, Peshawar - Pakistan

ABSTARCT

Objectives: *The objectives of the study were to evaluate the presentation pattern of odontomes of the jaws and their distribution by gender, age, site and histopathological types.*

Materials and Method: *A descriptive study was under taken in the Department of Oral and Maxillofacial Surgery, Khyber College of Dentistry, Peshawar over a period of 7 years. Information regarding the variables of the study i.e. gender, age, site distribution, histopathological types and clinical features at the time of presentation were recorded.*

Results: *A total of 38 patients were recruited in the study. Males were predominantly affected by the condition with the male to female ratio of 2.8:1. The age range of the patients was from 7-26 years with the mean age of 16.52 ± 5.24 years. The second decade of life was the most common age group affected i.e. 63.16%. Posterior mandible was the predominant site for odontomes of the jaw i.e. 52.63% while anterior maxilla was involved in 34.21% cases. Amongst the two histological types, complex odontomes were more common i.e. 58% while 42% were compound odontomes. The presenting complaint of the patients comprised of extra and intra oral swelling (47.37%), pain (26.32%) and pus discharge (5.26%). While in 21.05% cases of odontomes were a chance radiographic finding.*

Conclsuion: *Majortity of the odontomes were of compound variety, with male predilection. Swelling has been the most common presenting complaint, while in a few patients they were chance radiographic findings.*

Key words*: Odontomes, Odontogenic tumours, Developmental dental malformations.*

INTRODUCTION

Odontogenic tumours develop from ectodermal and ectomesenchymal odontogenic tissues which appear in the jaws independently or in different combinations. They may be soft, calcified and mixed tissues distributed in numerous combinations and different pattern.[1] The term "odontome" by definition refers to any tumour of odontogenic origin, but through usage it has come to mean a growth in which both the epithelial and the mesenchymal cells exhibit complete differentiation, with the result that functional ameloblasts and odontoblasts form enamel and dentine.[2] Paul Broca was the first to coin the term "odontoma" in 1867. He defined odontoma as "tumors formed by the overgrowth of transitory dental tissues". Odontomas are hamartomas i.e. dysmorphic proliferation of cells native to the organ in which they arise, gain a certain size before ceasing their proliferation, composed of various dental tissues. This type of biologic behavior may be expansile and is locally resorptive of bone, but does not invade adjacent tissue which renders them curable by curettage and conservative surgical removal.[3]

Odontomes are classified into two types i.e. complex and compound.[4,5] The distinction between complex and compound odontomes is arbitrary and both are often associated with an unerupted tooth or missing tooth from the dental arch. In complex odontomes all the dental tissues are represented, individual tissues being mainly well formed but occurring in a more or less disorderly pattern. This type is more common in the posterior mandible, presenting as a well-defined radiopacity and surrounded by a radiolucent rim.[6] In compound odontome all the dental tissues are represented in a more orderly pattern than in the complex odontome so that the lesion consists of many teeth like structure. This type is more common in the anterior maxilla. The small tooth-like structures within the

Correspondence:
Dr. Muslim Khan
Assistant Professor of Oral and Maxillofacial Surgery,
Khyber College of Dentistry, Peshawar - Pakistan
Phone No. 091-2561081
Email: muslim177@hotmail.com

lesion have a normal relationship of enamel, dentine and cementum, but do not bear any resemblance to individual teeth from the normal dentition.[7]

Odontomes are often seen in permanent dentition and are rarely associated with primary teeth.[3,8] The etiology of odontomes is still unknown. Some authors believe that traumatic injuries lead to the production of these lesions and they have reported the experimental production of the lesion in a rat by means of traumatic injury.[9] Hitchin[10] has suggested that odontomas are inherited, caused by a mutant gene, or due to some interference, possibly postnatal, with the genetic control of tooth development. Browne[11] in 1970 and Schonberger[12] in 1974 reported familial odontomas, suggesting the involvement of hereditary factors in at least some cases. The objectives of the present study were to evaluate the presentation pattern of odontomes of the jaws and their distribution by gender, age, site and histopathological types.

MATERIALS AND METHODS

The present study is a descriptive case series of 38 patients of odontomes who reported to the Department of Oral and Maxillofacial Surgery, Khyber College of Dentistry, Peshawar, Khyber Pakhtunkhwa Province of Pakistan over a period of 7 years i.e. from January 2004 to December 2010. For this purpose a detail history was taken followed by clinical examination. Data regarding the variables of the study, the clinical features at the time of presentation were recorded. The radiographs used for the exact anatomic location were Periapical view, Orthopantomograme, Postero-anterior view of mandible, Lateral oblique view of the mandible and Paranasal sinus (PNS) view.

RESULTS

A total of 38 patients were recruited in the study. Males (73.7%) were predominantly affected by the condition with the male to female ratio of 2.8:1. The age range of the patients was 7-26 years with the mean age of 16.52 $\pm$ 5.24 years. The second decade of life has been the most common age group affected (63.16%) followed by the third decade (23.68%). The details of age distribution are given in Figure 1. Table 1 shows the site distribution of odontomes. Posterior mandible was involved in 52.63% cases followed by anterior maxilla which was involved in 34.21% cases. Apart from these two sites, posterior maxilla and anterior mandible were less frequently involved. Figure 2 shows the distribution of histological types of odontomes where 58% were complex while 42% were compound odontomes as are illustrated in Figure 3 and Figure 4 respectively. Extra or intra oral swelling was the chief presenting complaint and was found in 47.37% cases. Pain was the presenting complaint in 26.32% cases while pus discharge was the presenting complaint in only 5.26% of the cases. It was interesting to note that in 21.05% cases the odontomes were a chance radiographic finding (Table 2).

DISCUSSION

Odontomes are a rare entity which appear to be more common in males. In the present study, 28 males

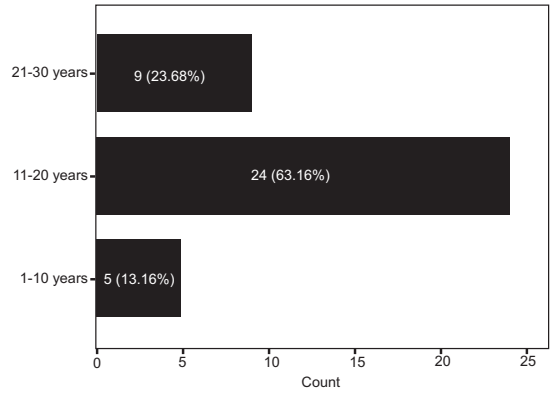

Fig. 1: Age distribution of patients with Odontomes

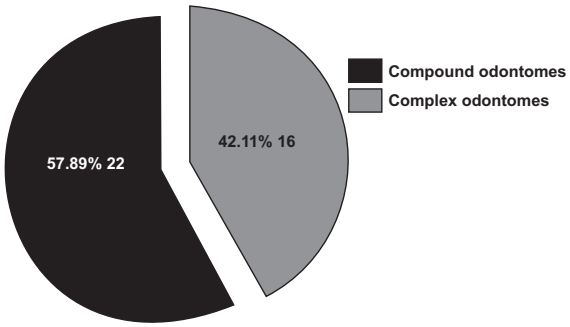

Fig. 2: Histological types of Odontomes

Fig. 3: An OPG showing complex odontome with displaced First mandibular molar tooth

Fig. 4: A Lateral Oblique view showing compound odontome with displaced First mandibular molar tooth

Table 1: Anatomical Site distribution

Site	N	%age
Posterior Mandible	20	52.63
Anterior Maxilla	13	34.21
Posterior Maxilla	03	07.90
Anterior Mandible	02	5.26
Total	38	100

Table 2: Presenting complaints

Presenting complaint	n	%age
Swelling (intra oral or extra oral)	18	47.37
Pain	10	26.32
Chance radiographic finding	8	21.05
Pus Discharge	2	5.26
Total	38	100

(73.68%) and 10 females (26.32%) were recruited with male to female ratio of 2.8:1. In the studies of Or[13] and O Grady[14] the male to female ratios were 1.5: 1 and 8: 1 respectively. In many international studies[15-21] the average age at time of diagnosis was 17.2 years (range 0.5-73 years). The majority of cases (74.3%) appeared before the age of 20 years, with a clear peak in the second decade of life, making the odontome a lesion of childhood/adolescence. The present study is consistent with these findinds with age range of 7-26 years and mean age of 16.52±5.24 years. The peak incidence of 63.16% in this study was also in the second decade of life.

Complex odontomes occur largely in the second decade and may be found as an incidental finding on a radiograph taken for orthodontic reasons or for investigation of unerupted teeth. They are most commonly found in the mandibular premolar/molar region, but can occur anywhere in the jaws. Complex odontomes are often associated with unerupted teeth and may attempt to erupt into the oral cavity, which is congruent with the rapid development of symptoms. Radiographically, a radiopaque mass, often with a 'radiating' structure and a pronounced radiolucent rim, is present.[13] With special reference to the most common site of the two types of odontomes, it has been observed that the anterior maxilla has the tendency for being the predilection site for the compound odontoma while posterior mandible is the common site for the complex odontoma.[6] The present study supports these findings.

The most frequent presenting complaint in this study was extra or intra oral swelling which was noted in 47.37% of the cases. While in 26.32% of the cases, pain was the presenting complaint of patients with odontomes. It is uncharacterized, though not uncommon for the odontomes to form between the roots of the deciduous teeth thus preventing the eruption of their permanent successors. This feature was noted on clinical examination of all patients in the present study but in not one of the patients was it a chief complaint. Simillar presenting complaints were reported by Haishima[22] and Owens.[23] Occasional eruption of odontoma itself has also been reported in the literature.[24,25] Interestingly in 21.05% of the cases of the present study, odontomes were a chance finding on radiographic examination.

In a clinical scenario, an odontoma should be removed because it contains various tooth formulation that has the tendency to predispose to cystic change, interfere with tooth eruption and causes considerable bone expansion. Usually, surgical treatment of odontoma is conservative and curative with no possibility of recurrence, if the lining epithelium is removed.[26] But one case of recurrent odontoma has been reported and the reasons stated for recurrence includes repeated episodes of infection in same region, multiple schizodontia due to dental lamina activity and lastly due to odontogenic removed incompletely.[27]

CONCLUSIONS

1- Odontomes are common in males as compared to females.

2- Majority of the patients were in the second decade of life.

3- Complex odontomes were more common than compound odontomes.

4- Swellings have been the most common presenting complaint, while in a few patients they were chance radiographic findings.

Recommendation

It is recommended to screen individuals in the second decade of life with plane x-rays like OPG for the early detection and management of odontomes.

Acknowledgement

The authors are very thankful to the entire Department of Oral and Maxillofacial Surgery Khyber College of Dentistry for their help regarding the completion of this paper.

REFERENCE

1. Kneaevie G, Sokler K, Kneaevie KA. A two stage surgical approach in the treatment of a large complex odontoma of the mandible. Acta Stomat Croat 2005; 221-3.
2. Din QU, Sherani AS. Complex odontomes-Two case reports. JPMI 1997; 2(2): 218-23.
3. John JB, John RR, Punithavathy, Elango I. Compound Odontoma Associated with Maxillary Primary Tooth – A Case Report". JIADS 2010; 1(1): 49-51.
4. Bordini J Jr, Contar CM, Sarot JR, Fernandes A, Machado MA. Multiple compound odontomas in the jaw: case report and analysis of the literature. J Oral Maxillofac Surg. 2008; 66(12): 2617-20.
5. Yoda T, Ishii Y, Honma Y, Sakai E, Enomoto S: Multiple macrodonts with odontoma in a mother and son avariant of Ekman-Westborg-Julin syndrome. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1998; 85: 301-3.
6. Philipsen HP, Reichart PA and Praetorius F. Mixed Odontogenic Tumours and Odontomas. Considerations on Interrelationship. Review of the Literature and Presentation of 134 New Cases of Odontomas. Oral Oncology. 1997; 33(2): 86-99.
7. Bagic IC, Macan, D, Dumanc J. Dilated odontome in the mandibular third molar region Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2010; 109: 109-13.
8. Sharma U, Sharma R, Gulati A, Yadav R, Gauba K. Compound composite odontoma with unusual number of denticles –A rare entity. Saudi Dent. J. 2010; 22: 145-9.
9. Levy BA. Effects of experimental trauma on developing first molar teeth in rats. J Dent Res 1968; 47: 323-7.
10. Hitchin AD. The etiology of the calcified composite odontomes. Br Dent J. 1971; 130: 475-82.
11. Browne WG. Familial compound odontomes. Oral Surg Oral Med Oral Pathol. 1970; 29: 428-30.
12. Schonberger W. Multiple odontomas (Odontomatosis) and dysphagia in father and son — a syndromic connection? Zeitschrift fur Kinderheitkunde 1974; 117: 101-8.
13. Or S and Yiicetas, S. Compound and complex odontomas. International Journal Oral Maxillofacial Surgery. 1987; 16: 596-9.
14. O'Grady JF. Radden BG and Reade PC. Odontomes in an Australian population. Australian Dental Journal. 1987; 32: 196-9.
15. Slootweg PJ. An analysis of the interrelationship of the mixed odontogenic tumors-ameloblastic fibroma, ameloblastic fibro-odontoma, and the odontomas. Oral Surgery, Oral Medicine. Oral Pathology. 1981; 51: 266-76.
16. Nolan, LE and Kennedy CL. Review of odontoma, with case report. Journal of the American Dental Association. 1947; 29: 389-95.
17. Amies ABP. Compound composite odontoma in a child aged four years. Australian Journal of Dentistry. 1947; 51: 160-61.
18. Jurgens, PE. An interesting odontoma: report of case. Journal of Oral Surgery. 1962; 20: 516-20.
19. Browne, WG. Familial compound composite odontomes. Oral Surgery, Oral Medicine, Oral Pathology. 1970; 29: 428-30.
20. Giunta, JL and Kaplan MA. Peripheral, soft tissue odontomas. Oral Surgery, Oral Medicine, Oral Pathology. 1990; 69: 406-11.
21. Castro GW, Houston G, Weyrauch C. Peripheral Odontoma: report of case and review of literature. ASDC J Dent Child.1994; 61: 209-13.
22. Haishima K, Haishima H, Yamada Y, Tomizawa M, Noda T, Suzuki M. Compound odontoma associated with impacted maxillary primary central incisor report of 2 cases. Int J Paediatr Dent! 994; 4: 251-6.
23. Owens BM, Schuman NJ, Pliske TA, Cullery W L. Compound compositodontoma associated with an impacted cuspid. J Clin Paediatr Dent 1995; 19: 293-5.
24. Lopez Z, Areal L, Silverstre D F, Gil L, Ozano J. compound odontoma erupting in the mouth; 4 years follow up of a clinical case. J Oral Pathol Med 1992; 21: 285-8.
25. Husseni N, Majid ZA. Erupted compound odontoma. Ann Dent 1993; 52: 9-11.
26. Cildir. SK, Sencift K, Olgac V, Sandalli. N. Delayed eruption of a mandibular primary cuspid associated with compound odontoma. J Contemp. Dent. Prac., 2005; 6: 152-9.
27. Bhaskar S.N. Odontogenic Tumours of the Jaws. Synopsis of Oral Pathology, 7th Edition. CBS Publishers & Distributors, 1990; 260-308.