



ISSN Print: 2394-7489
ISSN Online: 2394-7497
IJADS 2018; 4(2): 315-317
© 2018 IJADS
www.oraljournal.com
Received: 22-02-2018
Accepted: 30-03-2018

Saima Tariq
Post Graduate Student,
Department of Oral Medicine
and Radiology, GDC,
Srinagar, Jammu and Kashmir,
India

Rizwan Hamid
Post Graduate Student,
Department of Oral Medicine
and Radiology, GDC,
Srinagar, Jammu and Kashmir,
India

Shazia Maqbool
Post Graduate Student,
Department of Oral Medicine
and Radiology, GDC,
Srinagar, Jammu and Kashmir,
India

Correspondence
Saima Tariq
Post Graduate Student,
Department of Oral Medicine
and Radiology, GDC,
Srinagar, Jammu and Kashmir,
India

Odontomas: A radiographic study

Saima Tariq, Rizwan Hamid and Shazia Maqbool

Abstract

The aim of this study was to evaluate the cases diagnosed with odontoma according to age, gender, localization and types. A total of 27 patients were included in this study that were diagnosed with odontomas radiologically. On the panoramic radiographs, odontomas were identified as involving upper and lower jaw according to their localizations, and according to their types -complex and compound odontoma. When odontomas were evaluated according to their localizations, it was seen that 17 cases involved maxilla (62.9%) and 10 of them involved mandible (37.1%). When evaluated according to their type, 20 of the 27 cases (74.1%) were found to be compound odontoma and 7 (25.9%) were found to be complex odontoma. When the types were evaluated according to their localizations; three cases in the maxilla were found to be complex (21.4%), and 14 of them were compound (78.6%); 4 of the cases in the mandible were found as complex (40%) and 6 of them were found as compound (60 %) odontoma. Odontomas are more common in the upper jaws and compound types are more common than complex types.

Keywords: complex, compound, odontoma

Introduction

Odontomas are considered to be developmental anomalies resulting from the growth of completely differentiated epithelial and mesenchymal cells that give rise to ameloblasts and odontoblasts. These tumors are basically formed of enamel and dentin but they can also have variable amounts of cement and pulp tissue [1]. During the development of the tumor, enamel and dentin can be deposited in such a way that the resulting structures show an anatomic similarity to normal teeth, in which case the lesion is classified as a compound odontoma. However, when the dental tissues form a simple irregular mass occurring in a disorderly pattern, it is described as a complex odontoma [2]. Compound odontomas appear more frequently than complex odontomas [3, 4]. These odontogenic tumors can be found anywhere in the dental arches. The majority of odontomas which are located in the anterior region of the maxilla are compound, while the great majority of odontomas located in the posterior areas, especially in the mandible, are complex odontomas [1, 5, 6]. The etiology of the odontoma is unknown [7]. However, it has been suggested that trauma and infection at the place of the lesion can offer ideal conditions for its appearance [7, 8]. In general they are asymptomatic, have slow growth [1], and seldom exceed the size of a tooth, but when large can cause expansion of the cortical bone [1, 2]. Odontomas may be diagnosed at any age but they are usually detected during the first two decades of life [1, 3]. One study analyzed 396 cases and showed that diagnosis usually happens between ages 11 and 15 years [4]. Another study comprising 149 cases concluded that the lesions are detected most often during the second decade of life [6]. Many times odontomas are found associated with unerupted teeth [1, 6, 9, 10, 14]. The canines, followed by upper central incisors and third molars, are the most frequent teeth impacted by odontomas [4]. In a very few instances odontomas are related to missing teeth [8]. Generally these malformations are intraosseous, but occasionally they may erupt into the oral cavity [8, 14]. Radiographic aspects of odontoma are characteristic. The complex odontoma appears as an irregular mass of calcified material surrounded by a thin radiolucent area with smooth periphery, and the compound type shows calcified structures resembling teeth in the center of a well-defined radiolucent lesion. A periodontal and pericorony space characteristic of unerupted teeth is seen around each tooth [3, 7]. A developing odontoma can be discovered by routine radiography, but may cause difficulty in identification due to lack of calcification [7].

The histological examination of odontomas often shows the presence of enamel matrix, dentin, pulp tissue, and cementum that can, but need not, exhibit a normal relationship [1, 7]. Compound odontomas are formed by tooth-like structures which resemble pulp tissue in the central portion surrounded by a dentin shell and partially covered by enamel. Complex odontomas are conglomerates without orientation of dentin, enamel, enamel matrix, cementum, and areas of pulp tissue. The capsule of connective tissue that surrounds an odontoma is similar to the follicle that covers a normal tooth [7]. Odontomas are treated by conservative surgical removal and there is little probability of recurrence [1, 8].

Material and Method

A total of 27 patients who were diagnosed as odontoma were included in this study. The cases were analysed in terms of age, gender, localization, region and types. On the panoramic radiographs, the localizations of the odontomas on the lower or upper jaw and complex or compounds type were determined. Localizations were also identified as anterior and posterior regions. The was tabulated and analysed statistically.

Results

Out of 27 subjects, 15 were females, (55.6%) and 12 were males (44.4%) (Fig. 1). The age of the patients ranged from 8 to 66 and the mean age was 21.24 ± 11.5 . The ages of the women were minimum 8 and maximum 44 (mean 21.23 ± 8.8), while the ages of the men were minimum 9 and maximum 67 (mean 21.26 ± 14.6).

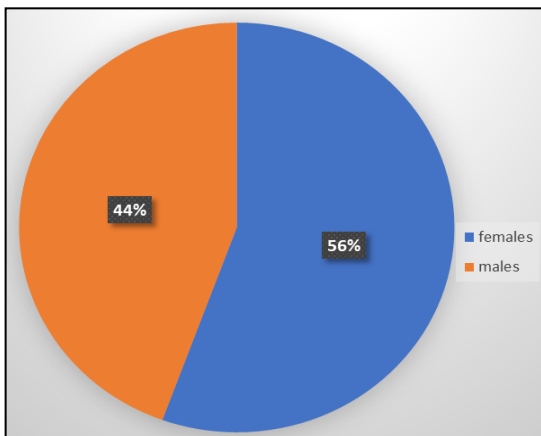


Fig 1: Distribution according to gender

When evaluated according to the localizations, 17 cases were seen in the maxilla (62.9%) and 10 cases were seen in the mandible (37.1%) (Fig. 2).

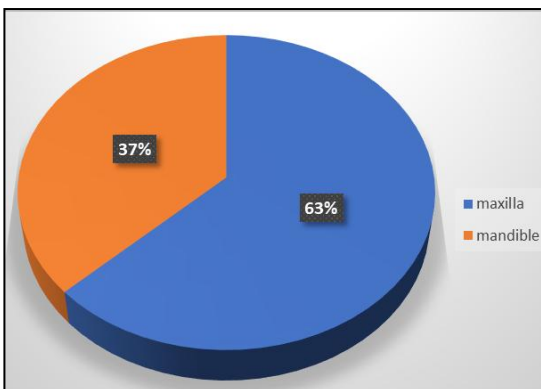


Fig 2: Distribution according to localizations

When evaluated according to type, it was seen that 20 of the 27 cases (74.1%) were compound and 7 (25.9%) were the complex type (Fig. 3).

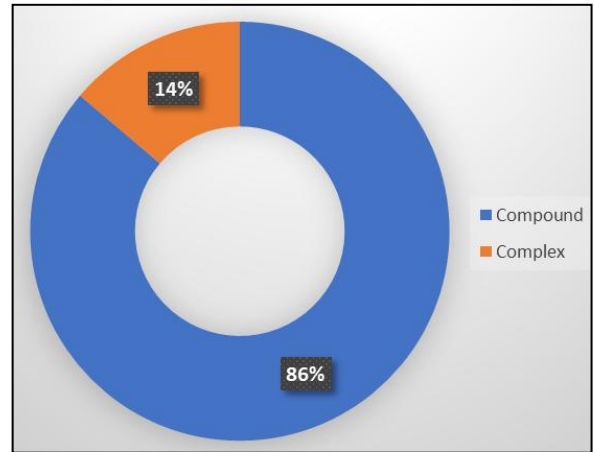


Fig 3: Distribution according to type

When the types are evaluated according to their localizations; in total of 17 cases of odontomas were seen in the maxilla, 3 complex (21.4%) and 14 compound odontoma (78.6%) were found; 10 of the cases of odontomas were seen in the mandible, 4 complex (40%) and 6 compound (60%) odontomas were found.

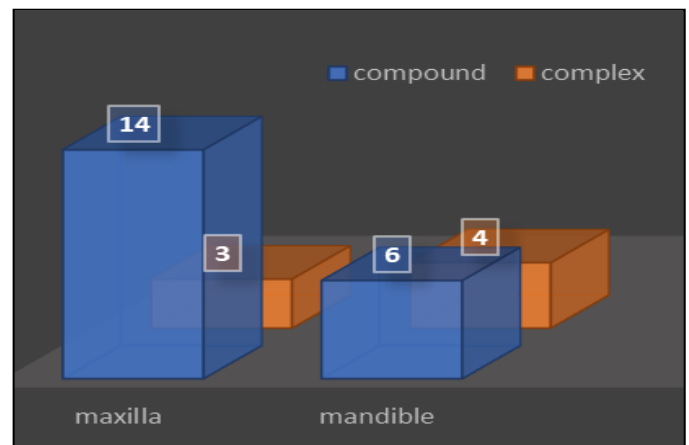


Fig 4: Distribution of the types according to localizations

Discussion

Odontomas are usually non-aggressive benign odontogenic tumors with no symptoms [15]. Various factors have been associated with the pathogenesis of the odontomas. These factors are; trauma at primary dentin period, inherited anomalies such as Gardner's syndrome, hyperactivity of odontoblasts or changes in genetic components responsible for tooth development [16]. More than half of the odontoma cases (57%) are diagnosed during routine radiological examination [15]. Differential diagnosis of odontomas; ameloblastic fibroma, ameloblastic fibro-odontoma, odonto-ameloblastoma, focal residual osteitis, cementoma, calcific epithelial odontogenic tumor, adenomatoid odontogenic tumor and benign osteoblastoma [1, 2, 3, 4]. Odontomas have been reported to be diagnosed before the age of 20, although it can be diagnosed at any age [17].

When our study was evaluated in terms of age in 27 cases; it was observed that the minimum age was 8 years and maximum age was 66 and the mean was 21.24 ± 11.5 , which was in agreement with the literature. The male / female ratio

of complex odontomas ranges from 1.6: 1 to 1: 0.8 and the male / female ratio of compound odontomas ranges from 1.2: 1 to 1: 1. Although there are some differences in the male / female ratio reported in the literature, there is a general consensus that there is an equal gender incidence^[18]. In this study, Out of 27 subjects, 15 were females, (55.6%) and 12 were males (44.4%); it was more prevalent in females.

The most commonly reported localizations of odontomas are the anterior region maxilla, followed by the mandibular anterior region and the posterior mandible^[19, 20]. When evaluated according to the localizations of odontomas, 17 cases (62.9 %) were seen in the maxilla and 10 cases (37.1%) were seen in the mandible in current study. When odontomas were evaluated in terms of the regions where they were seen, it was found that the most common complaint was seen in the anterior maxilla, followed by the anterior mandible, posterior mandible and posterior maxilla in accordance with the literature.

Odontomas are classified as complex or compound type. In complex odontomas; enamel dentin and cement are scattered, while compound odontomas have various numbers dental-like structures^[1, 2, 3, 4, 6, 17, 19]. Compound odontoma is more common than complex odontoma^[19, 20]. When the types are evaluated according to their localizations; in total of 17 cases of odontomas were seen in the maxilla, 3 complex (21.4%) and 14 compound odontoma (78.6%) were found; 10 of the cases of odontomas were seen in the mandible, 4 complex (40 %) and 6 compound (60 %) odontomas were found. When we compared the data obtained with the literature, it was found that compound odontomas were seen more frequently in the anterior region and complex odontomas were seen more frequently in the posterior region.

Conclusion

Odontoma is the most common odontogenic tumor of the oral cavity and most of them are asymptomatic and are discovered during routine radiographic investigations. They can give rise complications like delayed eruption, deflection or impaction. An early detection of odontoma is more likely an accidental radiological finding, hence the need for routine radiographic analysis should be emphasized. Early detection in primary dentition is crucial in order to prevent later complications like delayed eruption, deflection or impaction.

References

- Neville BW, Damm DD, Allen CM, Bouquot JE. Oral and Maxillofacial Pathology. Philadelphia: Saunders, 1995, 531-33.
- Cawson RA, Binnie WH, Eveson JW. Color Atlas of Oral Disease. Clinical and Pathological Correlations. Hong Kong: Mosby-Wolfe, 1993, 6-19.
- Owens BM, Schuman NJ, Mincer HH, Turner JE, Oliver FM. Dental odontomas: a retrospective study of 104 cases. J Clin Pediatr Dent. 1997; 21:261-64.
- Katz RW. An analysis of compound and complex odontomas. ASDC J Dent Child, 1989; 56:445-49.
- Bengston AL, Bengston NG, Benassi, LRDC. Odontomas em pacientes pediátricos. Revista de Odontopediatria. 1993; 2:25-33.
- Budnick SD. Compound and complex odontomas. Oral Surg Oral Med Oral Path. 1976; 42:501-506.
- Shafer WG, Hine MK, Levy BM. A Textbook of Oral Pathology, 4th Ed. Philadelphia: Saunders, 1983, 308-11.
- Areal-Lopez L, Silvestre DF, Gil LJ. Compound odontoma erupting in the mouth: 4 year follow-up of a clinical case. J Oral Pathol. 1992; 21:285-88.
- Shulman E, Corio RL. Delayed eruption associated with an odontoma. ASDC J Dent Child. 1987; 54:205-207.
- Brunetto AR, Turley PK, Brunetto AP, Regattieri LR, Nicolau GV. Impaction of a primary maxillary canine by an odontoma: surgical and orthodontic management. Pediatr Dent. 1991; 13:301-302.
- Gallien GS, Schuman NJ, Sharp HK, McIlveen LP. Odontoma of a maxillary central incisor in a 10-year-old black male. J Pedod. 1986; 10:352-55.
- Oliver RG, Hodges CGL. Delayed eruption of a maxillary central incisor associated with an odontome: report of case. ASDC J Dent Child. 1988; 55:368-71.
- Thwaites MS, Camacho JL. Complex odontoma: report of case. ASDC J Dent Child. 1987; 54:286-88.
- Giunta JL, Kaplan MA. Peripheral, soft tissues odontomas. Oral Surg Oral Med Oral Pathol. 1990; 69:406-11.
- Hidalgo-Sanchez O, MI Leco-Berrocual, JM Martinez-Gonzalez. Metaanalysis of the epidemiology and clinical manifestations of odontomas. Medicina oral, patologia oral y cirugia bucal. 2008; 13(11):730-4.
- Iatrou I, *et al.* A retrospective analysis of the characteristics, treatment and follow-up of 26 odontomas in Greek children. Journal of oral science. 2010; 52(3):439-47.
- Nelson BL, LD Thompson. Compound odontoma. Head and neck pathology, 2010; 4(4):290-1.
- Sciubba JJ, FJ, Kahn LB. Tumors and cysts of the jaws, fascicle 29, in Atlas of tumor pathology, R. J, Editor, 2001. AFIP. Washington.
- Fernandes AM, *et al.* Odontogenic tumors: a study of 340 cases in a Brazilian population. Journal of oral pathology & medicine: official publication of the International Association of Oral Pathologists and the American Academy of Oral Pathology. 2005; 34(10):583-7.
- Mosqueda-Taylor A, *et al.* Odontogenic tumors in Mexico: a collaborative retrospective study of 349 cases. Oral surgery, oral medicine, oral pathology, oral radiology, and endodontics. 1997; 84(6):672-5.