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Salient Visionary Publications

Conservative Treatment of Mandibular Odontogenic Myxoma: Literature Review

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ABSTRACT

Odontogenic myxoma is a rare benign odontogenic tumor with locally aggressive behavior. There is currently no evidence-based surgical strategy for odontogenic myxoma, and various treatments have been applied. This report reviews the literature focusing on the surgical management of mandibular odontogenic myxoma with conservative treatment, specifically enucleation and curettage. To the best of our knowledge, 29 cases published after 2000 describe mandibular odontogenic myxoma treated conservatively with enucleation and/or curettage. This study recommends odontogenic myxoma be initially treated conservatively. However, as the disease may recur, patients should be followed up for at least 2.5 years.

Keywords: Odontogenic myxoma; Enucleation; Odontogenic Tumors; Surgical Management; Benign Jaw Tumor

INTRODUCTION

Odontogenic myxoma is a rare benign odontogenic tumor with a high recurrence rate.[1] The average age of occurrence is 28.8 years.[2] However, it is especially rare in pediatric patients. There is no known sex predilection.[3] Additionally, because the tumor grows invasively into surrounding tissue, normal tissue adjacent to the tumor is often removed as well.[4] There is currently no evidence-based surgical strategy for odontogenic myxoma, and various treatments have been applied.[5] Recently, reports have described conservative treatment approaches, such as enucleation and curettage.[6-10] Here, this study reviews various reports on treatment strategies for mandibular odontogenic myxoma.

DISCUSSION

According to the 4th edition of the World Health Organization (WHO) Classification of Head and Neck Tumors (2017), odontogenic myxoma was reclassified from mesenchyme and/or odontogenic ectomesenchyme with or without odontogenic epithelium (as described in the 3rd edition of the WHO classification, 2005) to benign mesenchymal odontogenic tumors.[11] In the latest 5th edition of the WHO classification (2022), this classification remained unchanged.[12] Odontogenic myxomas can occur in almost any region of the jaws, with the mandible being more commonly affected than the maxilla.[13] The tumor accounts for 3.3%–15.7% of all odontogenic tumors in adult patients[14-21] and 8.5%–11.6% in pediatric patients.22,23 Smaller odontogenic myxomas are typically asymptomatic

and are often detected incidentally on radiographic examination, where they appear as soap-bubble, honeycomb, or tennis-racket-like radiolucencies. Larger lesions may be associated with painless expansion of the affected bone.[5] Dental displacement is more common than root resorption.[24,25] Moreover, Kaffe et al. reported that most multilocular lesions exceed 4.0cm,[24] whereas Peltola et al. noted that unilocular lesions are generally smaller.[26]
Odontogenic myxomas are locally invasive and aggressive, contributing to their high recurrence rate.[27,28] Reported recurrence rates range from 10% to 43%, with a mean of 25%.[29] Due to their locally invasive nature, segmental resection with a safety margin is generally recommended.[3] Troda et al. suggested a surgical margin of 1.0–1.5 cm 25 to reduce the risk of recurrence.

There are differing opinions regarding the selection of treatment methods for odontogenic myxoma. Treatment approaches are generally categorized as conservative or radical. However, the definitions of these surgical methods remain ambiguous. For instance, Koga et al. defined conservative treatment as enucleation, curettage, and marginal resection, whereas radical treatment was classified as segmental or block resection and hemimandibulectomy, which requires subsequent reconstruction.[5] Conversely, Harada et al. described conservative treatment as including enucleation and/or curettage, liquid nitrogen cryosurgery, combined enucleation and cauterization with Carnoy's solution, the dredging technique, or marsupialization, while radical treatment encompassed subtotal mandibulectomy, hemimandibulectomy, or marginal mandibulectomy.[30]

Boffano et al. recommended that for lesions smaller than 3.0 cm, conservative surgery involving enucleation and curettage should be performed, whereas segmental resection with reconstruction is preferred for larger tumors.[6] However, some reports suggest that tumor size alone is not a reliable determinant for selecting the appropriate treatment method.[13,29] Saalim et al. reported cases where recurrence occurred even after conservative treatment of small lesions, whereas some slightly larger lesions treated conservatively did not exhibit recurrence.[29] Similarly, Leite-Lima et al. found no statistically significant difference in recurrence rates between conservative and radical treatment.[31] Regarding treatment selection, factors such as the relationship between the tumor and surrounding structures, including adjacent teeth, nerves, and residual cortical bone, are considered critical.[30]

Table1 presents 29 patients who underwent conservative treatment.[1,2,4-9,30,32-40] In the present study, conservative treatment was defined as enucleation and/or curettage, combined enucleation and cauterization with Carnoy's solution, or combined enucleation/curettage and cryotherapy. Although some reports include marginal resection and peripheral osteotomy under conservative treatment,[5,31,32] we classified these procedures as radical treatments and thus excluded them from Table 1. In this study, only cases in which enucleation or curettage was performed were re-evaluated. The mean age of patients was 27.3 ± 15.5 years (range: 6–56 years). Among them, 17 patients were female, 12 were male, and 1 was of unknown gender. The mean follow-up period was 68.6 ± 54.6 months (range: 6–196 months). The overall recurrence rate was 13.3%, with a mean recurrence interval of 20.3 ± 6.2 months (range: 14–27 months).

In this study, no significant differences were observed between adult and pediatric patients.[4] Tumor size was found to be unrelated to recurrence, and the follow-up period varied widely. Furthermore, the recurrence rate was 13.3%, which was lower than previously reported rates, despite treatment being limited to enucleation and curettage.[29] The longest reported recurrence interval was 27 months. These findings suggest that tooth extraction may not always be

necessary.[5,8,9,30,33,39] Similarly, excessive bone removal may not always be required. Odontogenic myxomas lack a true capsule and are poorly demarcated, allowing them to infiltrate surrounding bone and soft tissues by expansion rather than through cellular proliferation.[6,41]

Based on these findings, this report recommends that the first-line treatment for odontogenic myxoma should be conservative management, specifically enucleation and curettage, while preserving teeth whenever possible, regardless of patient age or tumor size. However, as recurrence remains a possibility, patients with mandibular odontogenic myxoma should be monitored for at least 2.5 years. Given the limited number of cases, further research with a larger sample size is required to establish standardized treatment protocols.

Table 1: Summary of mandibular odontogenic myxoma cases managed with conservative treatment published since 2000

No	Author	Year	Age	Sex	Size(mm)	Treatment	Follow-up period(months)	Recurrence	Recurrence period(months)
1	Harada et al(30)	2022	37	F	40x19x12	E+C	120	None	
2	Sato et al(32)	2019	56	M	39x19x11	E+C	100	None	
3	Oliveira et al(33)	2018	9	F	5	E+C	6	None	
4	Takahashi et al(34)	2018	37	F	40x19x12	E+C	73	None	
5	Shivashankara et al(1)	2017	13	M	40x20	E+C	12	None	
6	Faracisco et al(35)	2017	27	F	NA	E+C	117	None	
7	Faracisco et al(35)	2017	30	F	NA	E+C	34	None	
8	Faracisco et al(35)	2017	9	F	NA	E+C	196	Recurrence	14
9	Faracisco et al(35)	2017	11	F	NA	E+C	98	None	
10	Faracisco et al(35)	2017	7	F	NA	E+C	26	None	
11	Faracisco et al(35)	2017	12	F	NA	E+C	105	Recurrence	16
12	Faracisco et al(35)	2017	15	F	NA	E+C	196	Recurrence	27
13	Faracisco et al(35)	2017	17	M	NA	E+C	85	None	
14	Mittal et al (36)	2016	48	F	25x20	E+C	36	Recurrence	24
15	Subramaniam et al(4)	2016	18	–	NA	E+Carnoy's solution	12	None	
16	Kawase-Koga et al(5)	2014	40	M	40x30x15	E+C	120	None	
17	Miranda Rius et al(7)	2013	55	M	33x28	E+C	12	None	
18	Mauro et al(9)	2013	6	M	18	E+C	6	None	
19	Albanese et al(8)	2012	25	F	47.6x21.2	E+C	6	None	

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20	Boffano et al(6)	2011	20	M	20	E+C	42	None	
21	Boffano et al(6)	2011	38	M	25	E+C	38	None	
22	Boffano et al(6)	2011	42	F	30	E+C	40	None	
23	Lin et al(37)	2010	25	F	NA	E	24	None	
24	Rocha et al(38)	2009	47	F	NA	E+C+cryotherapy	120	None	
25	Li et al(2)	2006	32	M	NA	E+C	84	None	
26	Li et al(2)	2006	7	M	NA	E+C	84	None	
27	Li et al(2)	2006	37	M	NA	C	132	None	
28	Sumi et al(39)	2000	48	M	70x25x15	E+C	22	None	
29	Andrews et al(40)	2000	38	F	50	E	NA	None	

M:male, F:female, E:enucleation, C:curettage, and NA:not available

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