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The Recurrence Rate of Oral Benign Lesions which Treated with Dredging and Obturator

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ABSTRACT

Successful healing, moreover, the recurrence rate of the benign oral lesion after treatment affected by multiple variables. One variable contribution is procedure treatment including secondary treatment after the principal procedure. There are some optional procedures consisting of simple and sophisticated or radical surgery. Several studies showed probability recurrence higher in simple than complex treatment. However, the complex or radical treatment caused severe complications such as deformity and asymmetry of the jaw. In this article, the author presented combination dredging and obturator as an alternative procedure and evaluated their outcome focus to a recurrence rate of oral benign lesions. This study aimed to determine the recurrence rate of oral benign lesions treated with dredging and obturator. This study is a descriptive observational with a retrospective approach. The sample was oral benign lesions patients who had dredging treatment at Ibnu Sina Hospital, Makassar. Twenty cases had dredging, 15 (75%) cases used obturator after dredging I, recurrence occurred in 2 (40%) of these cases, dredging II then was done, and no recurrence occurred afterward. There were 4 (15%) cases that did not use obturator after dredging I. Recurrence occurred in 4 cases, 3 cases then had dredging II and use obturator, no recurrence afterward, while one evidence that did not use obturator after dredging II showed recurrence. Then dredging III and obturator insertion was done in this case, follow up showed no recurrence. Dredging with an obturator can reduce the recurrence rate of oral benign lesions.

Keywords: Dredging; Oral benign lesions; Obturator; Recurrence rate.

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INTRODUCTION

Oral benign lesions may appear as tumor lesions, reactive hyperplastic lesions, and cysts. Tumor lesions are swelling, or mass caused by excessive and continuous cell growth, uncoordinated with normal tissue growth, and continue to develop even though the stimulus has been removed. Reactive hyperplastic lesions are overgrowth, a manifestation of granulation tissue with endothelial cells, chronic inflammatory cells, and proliferation of fibroblasts resulting from inflammation caused by chronic trauma. At the same time, an oral cyst is a pathological lesion that generally occurs in the jaw bone. Cyst lesions are often benign but can be malignant or turn into malignant in some very rare cases.[1] Untreated oral benign lesions can cause extensive tissue damage and deformity, some can interfere with the masticatory function and secondary infection due to mastication trauma.

There are several treatment options to treat oral benign lesions. Still, the possibility of local invasion and persistent growth lesions recurrence is high if only treated with simple enucleation and curettage. In such cases, additional surgical treatments such as marginal resection or segmental resection should be considered. Still, resection has some complications, such as loss of jaw support, deformity, dysfunction, and psychological pressure even after reconstruction. Alternative treatments to altogether remove oral benign lesions and restore the jaw and its normal function now has been developed, that is through an invasive method using dredging method.[2] Dredging method is an operative procedure performed after the enucleation and curettage or only enucleation to remove all scar tissue in a bone cavity, thereby reducing the risk of lesions recurrence.[2-8]

Obturator is a prosthetic component used to cover the defect formed after the surgical procedure, restore the function and aesthetic of the oral cavity.[9] It allows the bone cavity to remain open, allowing repeated dredging to remove the remaining scar tissue and direct the bone growth. Therefore, the purpose of this study is to determine whether the dredging method and apply obturator after dredging procedure can provide better outcomes and reduce recurrence rates. Our data reveal that the benign oral lesion's recurrence rate after dredging procedure and used obturator after its procedure was reduced, suggesting that the dredging procedure and combination of obturator might be a desirable strategy to treat benign oral lesion unusually benign tumor of the jaw.

MATERIAL AND METHOD

Observational research with a descriptive approach was carried out at the medical record installation of Ibnu Sina Hospital Makassar, Indonesia, in September 2018. The sample was all medical records of patients from 2012 to 2018, with oral benign lesions treated with dredging and used obturator

RESULTS

There were 300 cases of oral benign lesions in the Ibnu Sina Hospital, with 35 cases (11.67%) received incisional biopsy and excisional biopsy procedures, and 265 cases (88.33%) received different surgical treatment procedures. Case details of oral benign lesions can be seen in table 1.

Based on the table below, most cases of oral benign lesions were ameloblastoma, followed by epulis, radicular cysts, dentigerous cysts, fibroma, etc. Whereas 62 cases

were only identified as other tumors because the medical record was only written as the maxillary tumor, mandibular tumor, tongue tumor, and sublingual tumor, the exact diagnosis was not written. Similarly, 23 cases of oral cysts were identified as other cysts due to the absence of a definite diagnosis in the patient's medical record.

A total of 265 cases of oral benign lesions have received several different types of surgical treatments, including excision, dredging, extraction, odontectomy, enucleation, and others. Details of the case treatment method can be seen in table 2. Excision is a commonly used treatment method in 188 (70.94%) cases of oral benign lesions followed by dredging and extirpation.

As shown in table 2, there were 20 (7.55%) cases of oral benign lesions treated with dredging; 19 cases were diagnosed with ameloblastoma, and 1 case was diagnosed with mandibular osteoma. Based on data of oral benign lesions which treated with dredging and obturator from 2010-2018 in Ibnu Sina Hospital Makassar, 1 case was treated in 2012, 4 cases in 2013, 2 cases in 2014, 7 cases in 2015, 1 case in 2016, 3 cases in 2017, and 2 cases in 2018. This study shows that there were 15 cases of oral benign lesions that used obturator after first dredging, while four examples use the obturator after second dredging and 1 case used obturator after the third dredging

DISCUSSION

Based on a study at Ibnu Sina hospital Makassar, there were 19 cases of ameloblastoma that received dredging treatment. Ameloblastoma is an odontogenic tumor originating from the remnants of dental lamina epithelium.[3] Ameloblastoma is known to be locally aggressive, benign and rarely undergo malignant transformation, but ameloblastoma is known to be very aggressive and has a high rate of recurrence.[1] Ameloblastoma recurrence rate is more significant in patients with advanced age and patients with multilocular lesions, which is around 23% and about 14% in unilocular lesions.[3]

The high recurrences of ameloblastoma occur because this tumor has satellite cells that can invade. Multilocular ameloblastoma can infiltrate the surrounding structure microscopically, so it is hard to be detected and may not be removed during surgical procedure.[6]

There are two kinds of common treatment to manage this lesion, which consist of radical and conservative methods. Management of ameloblastoma with an original method known as jaw resection can be performed on the maxilla or mandible, depending on its location. The recurrence rate of ameloblastoma post radical method is known to be lower than the conservative surgical method, which is about 15-25% after radical surgical treatment and 75-90% after conventional surgical treatment.[10] The surgical resection method with an expansion of margin (1 cm from the radiological margin) was considered the principal treatment for ameloblastoma. Total removal of ameloblastoma tumor mass by including healthy bone tissue around it will provide optimal treatment results. If the removal is inadequate, this tumor often recurrences, so that ameloblastoma requires radical management.[11]

The jaw resection method is indeed proven to reduce the recurrence rate of ameloblastoma. Nevertheless, jaw resection can cause several complications such as loss of supporting jawbones, deformity, functional and psychological disorders even after reconstruction.[11.]

Dredging is a conservative surgical procedure performed after deflation and enucleation or enucleation only, and repeated curettage is done to accelerate osteogenesis by removing scar tissue from the bone cavity.[12] Dredging and obturator may be more recommended than surgical resection. It can reduce the recurrence rate of oral benign lesions by removing lesions and restoring normal jaw bone contour and function. Several previous studies have been conducted to prove the effectiveness of dredging as a conservative surgical approach to remove oral benign lesions. Dredging may remove all remnants of epithelial and scar tissue and direct bone growth, thereby reducing the recurrence risk .[7,8,11,13]

Obturator is a prosthetic component used to close defects in the oral cavity or other parts of the body.[14] Besides replacing the loss of soft and hard tissue after surgery, obturator allows the patient to swallow, chew, and frequently speak, resulting in more facial aesthetics. This prosthesis supports facial muscles and forms a barrier between nasal and oral cavity if there is a maxillary defect. Also, the obturator is removable so that it may facilitate early detection of lesions recurrence16. It is also used as temporary prostheses during the surgical correction period, such as after dredging procedure so that the bone cavity may be left open to facilitate repeated dredging procedures. Dental impression and obturator insertion can be made two weeks after dredging.[14,15]

The advantages of dredging and obturator may be proven through the study results in Ibnu Sina Hospital Makassar. Based on the present study, there were 20 cases of oral benign lesions that had dredging treatment in 19 cases of ameloblastoma and 1 case of osteoma. The patient's medical record showed that there was 1 case that could not be followed up after dredging treatment. From 19 cases of follow-up post-dredging, 4 cases did not use an obturator. The patient's medical record shows that lesions recurrence occurred in 4 of these cases after 1-2 years after treatment. Of these 4 cases, 3 cases then had dredging II, followed by obturator insertion. Post-treatment follow-up in all three cases showed no recurrence of lesions. Whereas, in one other case, the patient still did not use obturator after dredging II; recurrence occurred two years later. Dredging III was then done in this case, followed by dental impression and obturator insertion. The patient made several controls after treatment, and there was no recurrence until the last follow up.

This study supports the hypothesis that oral benign lesions treatment through dredging and obturator may reduce the recurrence rate post-treatment of lesions. Based on this study, there were 15 cases of oral benign lesions used obturator after one dredging treatment, with 13 out of 15 cases not having recurrence after one dredging. Follow up in the other 2 cases showed that there were scar tissue remnants in the bone cavity, so that dredging II was carried out to remove the remaining tissue. Treatment was continued with dental impression and obturator insertion 1-2 weeks after dredging II. Post-treatment follow-up results showed no lesion recurrence in either case.

A good prognosis of treatment of these cases proves that dredging and obturator can remove oral benign lesions and reduce recurrence rate after treatment so that dredging does not have to be repeated many times as previous studies.[5] Study at Ibnu Sina Hospital Makassar showed that dredging and obturator might reduce the recurrence rate of oral benign lesions better than

dredging without obturator, which requires repeated dredging within 2-3 months. The obturator used after dredging allows the bone cavity to be left open. It can direct the formation of new tissue and bone by carrying out repeated control of obturator and tissue healing.

In their study, Zhou H et al. stated that the space formed after lesions removal should be carried out by further management or secondary wound healing to direct tissue healing and avoid postoperative secondary infection. Zhou stated that primary closure or direct closure of tissue after removal of lesions through suturing methods could result in infections originating from dead space.[16] Dead space or space formed by suturing post-dredging may become a nest of anaerobic microorganisms that cause infection, lead to postoperative secondary infections which inhibit the healing process and increase the recurrence risk of lesions.[17]

The study at Ibnu Sina Hospital proved to be in line with these above studies. The use of obturator after dredging may be the recommended reconstruction option because it can reduce the recurrence rate of oral benign lesions. Also, with one or two dredgings, the obturator can reduce the recurrence rate of oral benign lesions. Besides being able to restore masticatory function, swallowing, articulation and speech, and facial contours, rehabilitation with an obturator may also reduce the recurrence rate of oral benign lesions after dredging because it can reduce dead space and direct the formation of new bone tissue. Repeated control of the obturator also allows early detection of recurrent tissue lesions so that repeated dredging can be performed.

CONCLUSION

This study proves that dredging and obturator can be one of the conservative surgical approaches, which may reduce the recurrence rate of oral benign lesions. Obturator may suppress and direct bone and new tissue formation.

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Table 1. Number of Cases of Oral Benign Lesions

Diagnosis	n	%
Ameloblastoma	55	20.75
Epulis	33	12.45
Radicular cyst	25	8.309.43
Dentigerous cyst	22	6.41
Fibroma	17	3.40
Osteoma	9	2.64
Gingival Hyperplasia	7	2.26
Fibrous Dysplasia	6	0.75
Papilloma	2	0.37
Adenoma Fibrous	1	0.37
Granuloma Pyogenic	1	0.37
Odontogenic Keratocyst	1	0.37
Nasolateral Cyst	1	0.37
Other tumors	62	23.40
Other cysts	23	8.68
Total	265	100

Table 2. Number of Cases Based on Lesion Treatment Method

Diagnosis	n	%
Excision	188	70.94
Dredging	20	7.55
Extirpation	14	5.28
Jaw resection	8	3.02
Odontectomy	8	3.02
Marginal resection	7	2.64
Teeth extraction	4	1.51
Enucleation	4	1.51
Mandibulectomy	3	1.13
Maxillectomy	3	1.13
Vestibular	3	1.13
Cystbullectomy	2	0.75
Gingivectomy	1	0.38
Total	265	100