Introduction

Oral cysts are defined as pathological cavities and closed sacs that may include gaseous content, semi-solid, soft material, or fluid which originated from the epithelium that covered the cavity.\(^1\),\(^2\)

Residual cysts (RCs) are considered one of the most common radicular cysts which commonly appear as asymptomatic lesions with the most occurrence at the teeth extraction sites or sometimes after an incomplete surgical removal.\(^3\)

Inflammatory cysts formation such as RC is primarily based on the stimulation of remnant of odontogenic epithelial in soft or hard tissues of the jaw by an immunological or inflammatory process\(^2\),\(^4\) and is radiographically illustrated as a well-defined, round-to-oval radiolucency that may vary in size with dystrophic calcification in degenerated cellular contents with radiography changes, as the patient ages.\(^5\),\(^6\)

Selective treatment methods for these lesions and other cysts include enucleation, curettage (endoscopic or marginal surgery), marsupialization, or decompression.\(^7\),\(^8\)

To speak more specifically, the best treatment for this type of cyst is surgical enucleation as the rate of recurrence has shown to be lower.\(^9\) Although marsupialization is considered an effective method but has not been recommended in some situations because of the possibility of pathologic material may be left in situ, however, its advantage as being a minimally invasive treatment and a well-accepted way to reduce the size of RC and to decrease the pressure of the
A cystic lesion to keep the adjacent teeth or the inferior alveolar nerve safe, especially in some age-specific suffering and patient at high risk should not be waived.10,11

In this report, we intend to introduce a new concept for designing a custom-made denture to have denture that plays the role of an obturator simultaneously so that the patient would not need any extra treatment.

2 | CASE REPORT

A 50-year-old edentulous female patient attended to a periodontist with a chief complaint of swelling in the anterior right part of the mandible. Patient history and clinical examination revealed a slowly progressing lesion, swelling of the right side of the mandible with a duration of the last year, obliterating the buccal ridge. The swelling was hard in consistency and mildly tender on palpation. The patient also reported occasional mild pain, especially during mastication forces.

The detailed head and neck examination did not reveal any significant findings. After investigation of clinical findings and history analysis, glandular odontogenic cyst, RC, or odontogenic keratocyst were considered as differential diagnoses.

The panoramic radiography (Figure 1) revealed a unicocular well-defined and scalloped radiolucency which was extended from the right posterior section of the mandible into the anterior section and passed from the midline. Figure 2 shows cone beam tomography radiography of the region. The lesion had caused swelling and buccal ridge thinning in the alveolar crest area. There was no evidence of root stumps in both the mandible and maxilla.

The patient was finally referred to an oral and maxillofacial surgeon in the department of oral and maxillofacial surgery, Kashani hospital.

As the first step, when the defect was aspirated, the derivation of an amber yellow liquid was considered an indicator for a cystic lesion, therefore, marsupialization started as the treatment of choice for the patient. Briefly, a mucoperiosteal flap was elevated and the fenestrated cyst membrane was sutured to the oral mucosa to create a window. The following pathology result of the cyst epithelium specimen which was taken during the operation revealed a RC lesion. A novel technique was implied to keep the window open. A conventional alginate impression was performed to initiate a functional denture with an acrylic obturator. During the impression, the clinician impressed the opened window of the lesion with less thick alginate to have a final acrylic obturator locating and keeping the window open and prevent secondary re-epithelization.

The cystic cavity was then filled with iodoform gauze that was changed after 7 days following washing and disinfecting the wound. A week later, a functionally removable acrylic denture with an obturator was delivered to the patient (Figure 3). This method not only helped the patient to have a well-eating function during the treatment and provided ideal stability of denture but also helped to keep the window opened and discharge the inner cyst pressure. The patient was informed to irrigate the place with normal saline three times a day and take out her denture every night before sleeping. She was also suggested to avoid applying heavy mastication forces and take a soft food diet due to extensive bone degeneration and the possible risk of mandible pathologic fracture. The treatment took 12 months, and the patient was recalled every 4 months to be evaluated for cystic degeneration and bone formation by panoramic radiography. The inferior alveolar nerve was preserved and the patient did not have any anesthesia or paresthesia after the treatment period. In each recall session, the acrylic obturator was cut and shaved circumferentially to achieve better contact, as the opened window was getting tighter. The final treatment radiography (Figure 4) shows sufficient osseous consolidation and cyst degeneration after 12 months. The remaining cyst was finally enucleated in the operating room (Figure 5) and the patient was recalled every 6 months. After 18 months no recurrence or malignancy was observed.

3 | DISCUSSION

Although RCs can occur in the second to eighth decades of life, they involve middle-aged patients.12 Kambalimath et al. have reported that the incidence of RCs is 3.5 times more in males.13

Most RCs are <1 cm in size, although in our case the size of the lesion was more than 3 cm.14

In edentulous patients, the consequent expansion of RCs in the alveolar ridge can prevent the prosthetic restoration of the involved areas which may decrease their quality of life significantly.15

Most of the lesions are usually planned to be enucleated while some due to their extensive size may be
initially marsupialized. Enucleation is performed at the time of biopsy and is considered the ideal treatment, however in some cases such as large lesions, proximity to adjacent structures, and patients at higher ages, enucleation is not the choice, and individuals at higher risk should be managed with minimally invasive procedures and marsupialization is considered. This lets the lesion heal periodically and new bone forms simultaneously. Marsupialization has got some limitations such as a long healing period and the discomfort of the patient in which the treatment can only be performed on a compliant patient.
The irrigation of the cystic cavity twice a day is mandatory, and the obturator used to maintain the opening of the cyst window, may need to be changed several times during the treatment. All of these express the success of the treatment is highly based on the cooperation of the patient. In this report, the surgery was completed with no complications and the synthesized denture was delivered to the patient a week later. Implying the new method not only does not interfere with the patient function and esthetic features, but have the advantage of providing better denture retention, especially in edentulous patients with atrophic ridge, due to insufficient buccal and lingual plate, providing better obturator hygiene due to acrylic material, and there is no need to be changed and this may maintain to the last of the treatment. Having a higher technique sensitivity of initial impression and denture fabrication introduces a disadvantage of the treatment method.

Residual cysts are not known to be recurrent (1.6% recurrence rate) but they have a very high rate of malignant change of their epithelium between all other odontogenic cysts (60% of all odontogenic cysts). For this reason, a 1-year follow-up is recommended to investigate any malignant formation.

4 | CONCLUSION

- Marsupialization has been shown to be a promising technique, especially in cases we intend to perform a conservative treatment.
- Using a precisely fitted synthesized acrylic obturator have several advantages especially in edentulous patients due to providing a stable and retentive denture rehabilitation.
- Scheduled follow-up sessions and giving the proper suggestions to the patient are mandatory to prevent any complications during the treatment period.

AUTHOR CONTRIBUTIONS

M.M.A. participated in data gathering, manuscript writing, and agreed to be accountable for all aspects of work. M.E. performed the patient surgery, treatment and approved the final manuscript. A.N. and S.S. participated in manuscript writing. P.R. revised and finalized the manuscript.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

CONSENT

Written informed consent was obtained from the patient prior to submission of this report in accordance with the journal’s patient consent policy.

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