

AN ANALYSIS OF TWENTY FIVE CASES OF RANULA

Minutha Ramalingaiah¹, Sriram Nathan²

¹Associate Professor, Department ENT, MVJ Medical College, Bangalore.

²Senior Consultant, Department ENT, Narayana Hospital, Bangalore.

ABSTRACT

BACKGROUND

Ranula which are cystic lesions seen on the floor of the mouth are slow growing masses, which over a period of time can reach huge size. Though not malignant they usually cause pressure effects and this is the chief reason for consult. We report twenty five such cases who presented with complaints of swelling on the floor of the mouth and no other major complaints over a period of five years.

MATERIALS AND METHODS

In all cases the diagnosis was done pre-operatively and confirmed post excision. In every case, a follow-up of around six months was done. All the cases were managed with surgery.

Study Design- This was a case series done to analyse the treatment protocols of Ranula of the oral cavity done over a period of five years during practice of the authors. A total of twenty five cases were selected for the study. All these had the presenting diagnosis of Ranula.

RESULTS

Ultrasound or Ultrasonography was found to be the preferred mode of investigation and on proper removal recurrence is rare.

CONCLUSION

Ranula is a common cystic lesion of the oral cavity and can be effectively managed by surgical resection.

KEYWORDS

Ranula, Cyst, Plunging Ranula.

HOW TO CITE THIS ARTICLE: Ramalingaiah M, Nathan S. An analysis of twenty five cases of ranula. J. Evolution Med. Dent. Sci. 2017;6(91):6476-6479, DOI: 10.14260/jemds/2017/1407

BACKGROUND

The term Ranula is derived from the Latin word Rana, meaning frog and describes a blue translucent swelling on the floor of the mouth reminiscent of the underbelly of a frog. When these lesions are large and buried deeper into the floor of the oral cavity, then they are called plunging ranula. Most of these lesions are asymptomatic and do not cause any effects other than a feeling of heaviness in the mouth and most of the times the swelling is visible. We describe twenty five such cases, which presented to us with complaints of just swelling on the floor of the mouth of varying duration. The cases were seen and managed by the second author in his practice over a period from the year 2014 to 2016. This was done in the ENT Department of Narayana Health Multispecialty Hospital, Whitefield, Bangalore. We examine the diagnosis and treatment protocols and examine any complications after surgery.

Objectives of the Study

We analysed twenty five cases of Ranula diagnosed and managed over a period of five years with the following objectives-

Financial or Other Competing Interest: None.
Submission 21-08-2017, Peer Review 11-11-2017,
Acceptance 17-11-2017, Published 27-11-2017.
Corresponding Author:
Minutha Ramalingaiah,
No. 301, B5 Tower 5,
AWHO, Seegehalli,
Bangalore-560067.
E-mail: drsriramnathan@gmail.com
DOI: 10.14260/jemds/2017/1407



- Enumerate the common presenting symptoms and signs of Ranula.
- Enumerate the common pre-operative investigative modality that is Ultrasound and its importance in the diagnosis of Ranula.
- Enumerate the operative procedure of complete intraoral excision and to enumerate the complications of the said procedure.
- Enumerate the common post-operative complications.

Study Design

This was a case series done to analyse the treatment protocols of Ranula of the oral cavity done over a period of five years during the practice of the authors. A total of twenty five cases were selected for the study. All these had the presenting diagnosis of Ranula. All were managed with the standard recommended treatment protocol and were under followup of at least six months post surgery.

Inclusion Criteria

1. Presenting symptom of swelling on the floor of the oral cavity.
2. Patients with complete surgical excision.
3. Patients amenable for followup for a minimum period of six months.

Exclusion Criteria

1. Patients whose post excision histopathological diagnosis was not consistent with Ranula.
2. Patients not amenable for followup.

MATERIALS AND METHODS

All the cases had presented at the outpatient department with complaints of swelling in the floor of the mouth. On examination, a cystic swelling was seen in the lateral aspect of the base of the tongue and through the semi-transparent membrane a clear fluid was seen in all the cases. No bleeding or any other symptom including pain was reported by any of the patients. In most of the cases the diagnosis was Ranula; while taking into the more deeper nature of the lesion in five patients, a diagnosis of plunging ranula was made. Our study had sixteen females in the age group of 12 to 38 years and nine males in the age group from 10 to 40 years. Diagnosis was done in the outpatient ward itself and only routine investigations were done including USG and pre-operative investigations. All the patients were subjected to Ultrasound of the neck to evaluate the extent of lesion and to confirm the diagnosis pre-operatively. No other investigations such as CT was deemed necessary, as in all the cases the diagnosis was fairly certain as opined by the radiologist. Even cases of plunging ranula were also diagnosed by Ultrasound only.

Only the patients who had agreed for surgery were included in this review

With the patient under general anaesthesia, the mass was excised by soft dissection taking care not to rupture the cyst which is associated with a high chance of recurrence and incomplete removal. Twenty such lesions were removed without rupture, though five partial ruptures happened all of which was towards the end of the procedure.

Since most of the dissections was superficial none of the cases had any injury to the underlying nerves, especially the Lingual nerve.

Post-operative period was uneventful in most of the patients with nominal complaints of pain and mild swelling, which was managed with oral medications only.

Histopathological examination of the mass revealed mucous lined cystic mass with clear fluid, which was consistent with a diagnosis of Ranula.

Post-operative followup of around six months was done in all the cases and none showed any recurrence or residual lesion.

RESULTS

The Study had the following Results and Observations as Enumerated in the Figures-

- Ranula was more common with 20 cases, while a deeper swelling or plunging ranula was rare (5 cases).
- There was a slight preponderance in females in our study, that is 16 females vs 9 males.
- Ultrasound is the most preferred modality of investigation in the diagnosis of Ranula, especially in the case of plunging ranula.
- Complete intraoral excision is the modality of treatment.
- Bleeding, slight numbness and pain are the common post-operative symptoms seen in almost all the cases.
- Histopathological examination is a must for confirmation of diagnosis post excision.
- Lingual nerve injury though reported was not seen in any of our cases indicating that a meticulous dissection with an awareness of the surrounding structure is the key for treatment.



Figure 1. Post-operative



Figure 2. Pre-operative

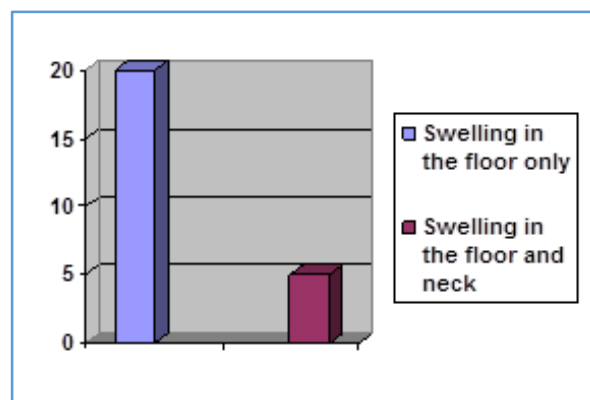


Figure 3. Symptoms/ Presenting Complaint



Figure 4. Pre-operative

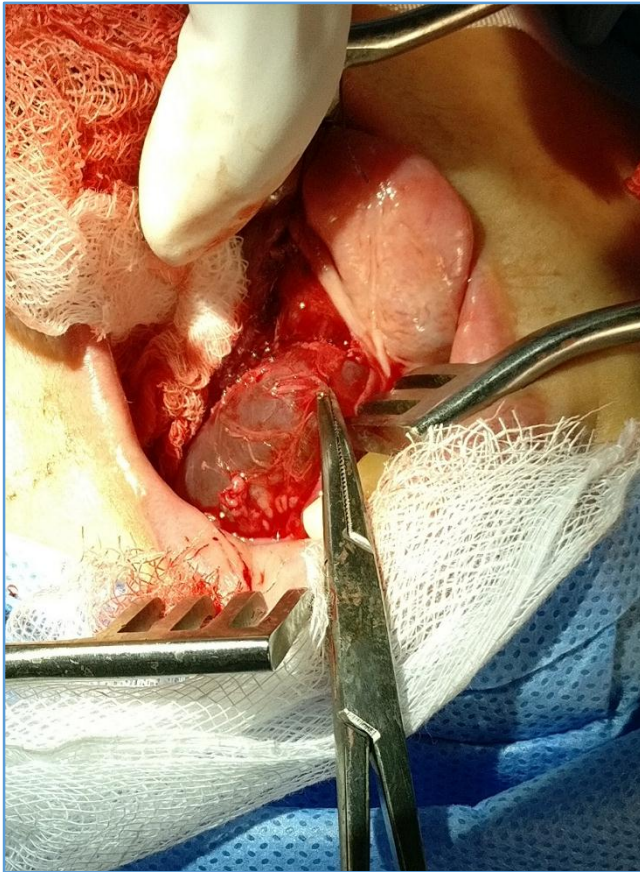


Figure 5. Intra-operative



Figure 6. The Removed Specimen

DISCUSSION

Ranulas have a prevalence of about 0.2 cases per 1000 persons and accounts for 6% of all oral sialocysts. The number of ranulas that represent a true retention cyst ranges from less than 1% to 10%. Ranulas usually occur in children and young adults with a peak frequency in the second decade.¹

Ultrasound performed with a high-resolution linear-array transducer provides excellent soft-tissue resolution allowing clear delineation of the floor of the mouth and its contents. Ultrasound demonstrates the mylohyoid muscle well and

allows detection of tissue herniating through a muscle defect. It can provide high-resolution images showing dilatation of the submandibular gland and duct and depicting obstructive calculi and is therefore useful for evaluating obstructive submandibular sialadenitis. An additional advantage is that it allows the radiologist or sonographer to elicit clinical information from the patient during the imaging examination for correlation with Ultrasound findings. Simultaneous physical inspection of the floor of the mouth is possible and may aid in the diagnosis. In many healthcare institutions in Europe, Ultrasound is the first-line investigation for obstructive submandibular sialadenitis, masses and cysts on the floor of the mouth.²

Clinicians have been using several different methods for the treatment of cervical ranulas. These include excision of the ranula only, cryosurgery, marsupialisation with or without cauterisation of the lesion lining, excision of the oral portion of the ranula with the associated sublingual salivary gland or rarely the submandibular gland, intraoral excision of the sublingual gland and drainage of the lesion and excision of the lesion via a cervical approach, sometimes combined with excision of the sublingual gland. Despite these treatments, many patients have experienced recurrence and sometimes larger lesions have occurred. Excision of the ranula with the associated sublingual salivary gland is the most accepted method with low recurrence rate. Risk for paresis and paralysis of the marginal mandibular nerve is the most common complication following surgical therapy of ranula. A biopsy of the cystic wall is recommended not only for histologic confirmation, but also to rule out presence of squamous cell carcinoma arising from the cyst wall and papillary cystadenocarcinoma of the sublingual gland, which may present as ranula.^{3,4}

Besides surgical management, CO2 laser has been used to vaporise ranulas. In rare cases, radiation therapy is an alternative. Low doses of 20 - 25 gray are effective. Intracystic injection of the streptococcal preparation, OK-432, has been used to treat this lesion in a few reported cases. The use of this sclerosing agent as a treatment approach for the cervical ranula is considered experimental. A recent study found orally administered Nickel Gluconate-Mercurius Heel-Potentised Swine Organ Preparations D10/D30/D200, a homotoxicological agent to be an effective treatment modality for ranulas.⁵⁻⁸

Though many authors consider surgical therapy of paediatric ranula and intraoral mucocele as the election treatment. Recently, an intracystic sclerosing injection with OK-432 has been proposed as a ranula primary treatment. This preliminary study evaluates the effectiveness of the use of Nickel Gluconate-Mercurius Heel-Potentised Swine Organ Preparations as the primary treatment of paediatric ranula and intraoral mucocele.

The study involved Eighteen children (9 ranulas, 9 labial mucoceles, 2 lingual mucoceles). They were treated with oral administration of Nickel Gluconate-Mercurius Heel-Potentised Swine Organ Preparations D10/D30/D200.

The results showed that eighty-nine percent ranulas (8 out of 9), 67% labial mucoceles (6 out of 9) completely responded to the therapy. One ranula that interrupted therapy after only 4 weeks was subjected to marsupialisation in another hospital. A double mucocele case partially responded (one of the two was extinguished), another case

incompletely responded, decreasing the size beyond 50% and just one case changing volume resisted the therapy. Lingual mucocele healed at once. Blandin-Nuhn polypoid congenital mucocele responded to the treatment with gradual reabsorption, permitting surgical excision of the atrophic polypoid remnant without removing glands of origin. No solved case showed recurrence (followup range: 4 - 32 months).

The authors concluded that homotoxicological therapy with Nickel Gluconate-Mercurius Heel-Potentised Swine Organ Preparations D10/D30/D200 is an effective primary treatment of paediatric ranula and intraoral mucocele.⁸

According to Yang et al, the intraoral approach for removal of the plunging ranula is a safe and effective surgical approach as a primary treatment modality for plunging ranula. Although sclerotherapy is applied for plunging ranula, it can be primarily treated with surgery such as marsupialisation, simple excision and transcervical excision. Their study was performed to assess the results of the intraoral approach for the treatment of plunging ranula. Their prospective clinical study comprised a total of 23 patients with plunging ranula treated by the intraoral approach.

All patients had complete removal of the sublingual gland with evacuation of cystic fluid. The cystic wall of the ranula could be dissected completely in only four patients and in eight patients it was only possible to drain the cystic fluid. However, in 11 patients we could not dissect the cystic wall completely. Rupture of ranula developed in all patients during the intraoral dissection. Recurrence was not detected in any of the patients during the median follow-up period of 14 months after the intraoral excision. There were no complications or external scarring. The Authors concluded that Surgical Excision is an effective treatment of Ranula.⁹

The purpose of this extensive review was to compare clinical features among 3 patterns of ranula and the recurrence rates of each when treated by different surgical methods.

A retrospective review of clinical and pathologic records in 580 ranulas was undertaken. Ranulas were classified into 3 clinical types according to sites of the primary swelling: oral ranula, plunging ranula and mixed ranula. Information was collected on age at presentation, sex, history of onset, sites of swelling, surgical methods, histological findings and outcome of treatment.

The authors found that Ranula was most prevalent in the second decade of life and slightly more common in females (male-to-female ratio of 1: 1.2), but a distinct male predilection was noted for the plunging ranula (male-to-female ratio of 1: 0.74). Oral ranula was most commonly involved on the left side (left-to-right ratio of 1: 0.62), while the plunging and mixed ranula were commonly involved on the right side (left-to-right ratio of 1: 1.38, 1: 1.16 respectively). In the plunging ranula group, there were more patients who had the history for more than 6 months. The recurrence rate of ranulas were not related to swelling patterns and surgical approaches, but intimately related to the methods of surgical procedures. The recurrent rates for marsupialisation, excision of ranula and excision of the sublingual gland or gland combined with lesion were 66.67%, 57.69% and 1.20%, respectively.

The conclusion drawn was that the three patterns of ranula have similar clinical and histopathologic findings, although plunging ranula has some different clinical features. Removal of the sublingual gland via an intraoral approach is necessary in the management of various clinical patterns of the ranula. Recurrence rates of ranulas of any type are excessive unless the involved sublingual gland is removed.¹

CONCLUSION

Though the cases of plunging ranula have been documented with moderate frequency, failure to differentiate the clinical features of oral and plunging ranulas may be a diagnostic pitfall. These lesions may be difficult to differentiate from benign and malignant salivary gland tumours, especially cystadenocarcinoma and mucoepidermoid carcinoma. A proper excision taking care not to damage the cyst wall will prevent recurrence to a great extent. Care must also be taken to not damage the lingual nerve, which may lead to alarming complications.

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