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COMPARISON OF THE INTRAORAL AND TRANSCERVICAL APPROACH IN SUBMANDIBULAR GLAND EXCISION OUR EXPERIENCE

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ABSTRACT **Objective:** The purpose of this study is to evaluate the benefits of the intraoral approach for removal of the submandibular gland (SMG) by comparing it with transcervical approach. **Methods:** Sixteen patients who required SMG excision for benign disorders were divided into two groups who underwent surgery via the intraoral or transcervical approach. The intraoral approach (IOA) consisted of an incision on the floor of mouth while the transcervical approach (TCA) consisted of an incision along the natural skin crease overlying the gland. The operation time, hospital stay, complications, and cosmetic appearance were compared between groups. **Results:** The number of females (n=6) was higher than males (n=2) in the IOA group. The average operative time of IOA group (85.3 +/- 17.8 minutes) was significantly longer than the TCA group (40.8+/-7.3 minutes). Most patients (88 %) of the IOA group experienced sensory defects of the lingual nerve, but these symptoms were temporary. No lasting complications were noted in the IOA group; however, one patient of the TCA group had permanent paralysis of the marginal mandibular branch of the facial nerve. The incision scars were invisible in the IOA group, whereas they were apparent in the TCA group. **Conclusion:** SMG can be removed safely by IOA. In IOA, there is no external scar and less risk of injury to the marginal mandibular nerve. We suggest that the IOA is safe procedure for removal of the SMG in suitably selected patients.

KEYWORDS : Serum calcium levels, hemithyroidectomy surgery, Postoperative transient hypocalcemia.

INTRODUCTION

Various diseases of submandibular salivary gland like chronic sialadenitis and sialolithiasis and benign or malignant tumors of the gland require surgical excision of the submandibular gland (SMG).[1]

Surgical incisions to access to head neck lesions have rapidly evolved from traditional incisions along natural skin creases to more cosmetically acceptable incisions. In the recent past, there have been several articles discussing novel approaches to excise the submandibular gland (SMG). SMG excision is performed traditionally by cervical incision. This is a safe procedure, but some complications such as aesthetic scarring and nerve injury can occur. The postoperative scar is visible and is cosmetically undesirable, especially in young females. The intraoral approach, has been developed to avoid visible scar and injury to marginal mandibular nerve. However this approach may cause other complications such as lingual nerve paresis and limitation of tongue movement.

The aim of this study was to evaluate the results of the IOA for SMG excision and to compare those with the results of TCA.

MATERIALS AND METHODS

This is a prospective study on patients undergoing submandibular gland excision at tertiary care hospital from June 2022 to February 2023. 16 patients were included in the study. All patients were informed of their right to abstain from participation in the study. The patients were allowed to choose one of the two surgical techniques, and they were divided into two groups based on their decisions.

The study's aim, two surgical techniques, all possible complications, and potential risks and benefits were written down in the consent form and explained to each patient, and written informed consent to their participation was obtained.

Group 1 comprised patients undergoing SMG excision via the intraoral approach (IOA) and Group 2 consisted of patients in whom the gland was excised via the transcervical approach (TCA).

The following data for each patient were gathered: age, sex, surgical approach, duration of surgery, length of stay, pathology, and postoperative complications.

Differences in operation time, hospital stay, tumor size between the two groups were compared by the Mann–Whitney test using SPSS 17.0 for Windows (SPSS Inc., Chicago, IL, USA). P values lower than 0.05 were considered statistically significant.

RESULTS

It is a prospective study conducted in tertiary care hospital in Eastern India. Study comprised of 16 patients, with Female preponderance in IOA (6 patients were female) and no gender predisposition in TCA group. The mean age was 30.3 years (range 18–40 years) in the IOA group and 42.7 years (range 6–76 years) in the TCA group (Table 1).

Table 1: Clinical Data Of The Patients.

	IOA	TCA
Number of patients	8	8
Age range	18-40 (30.3)	6-76 (42.7)
Male	2	4
Female	6	4

Table 2: Operating Time And Hospital Stay In Our Study

	IOA	TCA	p value
Operating Time (min)	93.50 +/-19.98	78 +/-9.9	0.023
Hospital stay (Days)	3.13 +/- 0.35	4.38+/-0.74	0.001

Table 3: Complications Seen In Both Groups

Complications	IOA	TCA
Infection	0	1
Hematoma	0	1
Asymmetry of lower lip	0	3
Tongue movement restriction	3	0
Anesthesia of tongue	7	0
MMN injury	0	2
Hypoglossal nerve injury	0	0

The men operating time in the IOA group was significantly longer than that in the TCA group (93.50 ± 19.98 vs. 78.00 ± 9.90 min, P = 0.023). The mean hospital stay in the IOA group was 3.13 days and 4.38 days in the TCA group (P = 0.001, Table 2).

The postoperative complications are detailed in Table 3. No operation was converted to a conventional external approach, and all wounds healed well without problems in the IOA group.

A case of hematoma and a case of wound infection were observed in the TCA group. Marginal mandibular nerve injury developed in two patients of the TCA group, in one the palsy was permanent. However, facial nerve injury did not occur in the IOA group. No hypoglossal nerve injury was noted in either group. The incision scars were invisible because they were located on the mouth floor in all patients of the IOA group, whereas they were apparent even on the natural skin crease of the neck in most patients of the TCA group.

DISCUSSION

Submandibular gland excision is usually performed because of chronic inflammatory disease and tumors of the salivary gland, and

surgical excision is usually performed via a TCA which requires an externally visible skin incision just below the mandible. Currently, TCA is a widely adopted method of SMG excision worldwide.[2] Although TCA is a relatively simple and fast technique compared to IOA, MMN injury risk and visible scarring are the main disadvantages of TCA[3-5].

The intraoral approach, in which an incision is made in a potentially invisible area (the floor of mouth), can eliminate this problem and improve cosmetic satisfaction as compared with the standard transcervical approach.

In the IOA group, 88 % of the patients complained of an abnormal tongue sensation due to compression or stretch injury of the lingual nerve during traction of the floor of the mouth and the tongue; however, the symptom was temporary in all patients and resolved spontaneously within one month. The incidence of lingual nerve injury in our IOA group was significantly higher than the 25 % reported by Kauffman et al.[6] and 43 % reported by Weber et al.[7] A potential disadvantage of the IOA is the longer operation time as compared with the TCA group, which resulted from unfamiliarity of the anatomy in a different surgical course. However, with increasing surgical experience and a good understanding of the anatomic relationships, the operation time became shorter, apart from two patients in which the operation time exceeded 2 hrs.

Trismus or other conditions that limit mouth- opening or floor-of-mouth exposure, a short neck, obesity or a large tumor size can be considered as relative contraindications of the IOA.[8]

In comparison with the TCA, another possible disadvantage of the IOA is the greater difficulty in identifying and ligating the vessels to the SMG because the working space is relatively narrow and the facial artery and vein are located at the posterior aspect of the gland[9].

The IOA resulted in significantly shorter hospital stays with no lasting complications compared to the TCA. In addition, no drain needed to be placed in the IOA because postoperative drainage occurred spontaneously through the intraoral incision without causing much attention to the patient. Our results demonstrated that the IOA for SMG excision is a safe, reliable, and cost-effective approach that is a valid alternative to the TCA in properly selected patients.

CONCLUSION

In selected patients with benign pathology, the SMG can be removed safely and effectively via the IOA without serious or permanent complications. The IOA for SMG excision has several advantages over the TCA in terms of cosmetic outcome, marginal mandibular nerve injury, and hospital stay. We therefore recommend that the IOA might be able to replace the TCA as the primary procedure for the removal of the SMG in properly selected patients with the appropriate pathology and with the necessary mouth opening and floor-of-mouth exposure in order to increase the surgical satisfaction about cosmesis.

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