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OUTCOME OF INTRALESIONAL STEROID INJECTION FOR BENIGN VOCAL CORD LESIONS

ABSTRACT

Aims and Objectives: The study aims to find out the outcome of intralesional steroid injection in benign lesions of vocal cords.

Methods: This prospective, longitudinal, interventional comparative hospital-based study was conducted at Otorhinolaryngology and Head & Neck Surgery Department of Bir hospital, National Academy of Medical Sciences, Kathmandu, Nepal from March 2022 to March 2023. The pre and post treatment status documented and compared with videolaryngoscopy, voice handicap index (VHI)-10 and maximum phonation (MPT) time after 1 month. Thirty patients fulfilled the inclusion criteria.

Results: Sixteen out of 30 patients showed improvement on videolaryngoscopy, mean VHI-10 reduced and mean MPT increased. The results were statistically not significant ($P > 0.05$).

Conclusion: In selected patients, those who are resistant to conventional voice therapy and those who are unfit for general anaesthesia, intralesional steroid injection is a good alternative non-surgical for the management of patients with benign vocal cord lesion.

Keywords: Benign vocal cord lesion, intralesional steroid, Maximum Phonation Time, Voice Handicap Index-10

INTRODUCTION

It has been shown that almost one in three individuals have at least one lifetime voice disorders and 7.2% miss one or more working days.¹ Vocal nodules and polyps account for the majority of benign structural vocal lesions which are usually associated with overuse and abuse of voice. The treatment modalities for these benign vocal fold diseases often include a multidisciplinary approach with a spectrum from vocal hygiene education through phonosurgery. When conservative therapy is ineffective, resection by microlaryngeal surgery is performed under general anesthesia. The complication of microlaryngeal surgery include damage to teeth, tongue, cervical spine and sometimes even cause scarring of vocal cords leading to dysphonia. Furthermore, some patients are unfit for general anaesthesia as well. With advances in office-based laryngeal procedures, intralesional steroid injection has become an alternative, nonsurgical management option for benign vocal lesions with minimal adverse effects.² Direct steroid injections for benign vocal lesions might fulfill the therapeutic gap between conservative treatment and conventional microlaryngeal surgery. Corticosteroid can be injected into vocal cords as an office procedure through a transoral or percutaneous route. The complications of vocal cord injection are rare and self-limiting.³ It would be a cost-effective procedure which can be done in OPD basis.

Objective outcome measures such as maximal phonation time (MPT) and videolaryngoscopic findings can be used. Similarly, modified voice handicap index (VHI-10) is widely used as subjective measure for the assessment of voice.^{4,5,6} This would be the first study of its kind in our institution and country. The aim of the study is to identify the efficacy of intralesional steroid in treating benign vocal cords lesion in our setup.

METHODS

This prospective, longitudinal, interventional comparative hospital-based study was conducted at Otorhinolaryngology and Head & Neck Surgery Department of Bir Hospital, National Academy of Medical Sciences, Kathmandu, Nepal from March 2022 to March 2023. Ethical approval was taken from Institutional Review Board of the institute. Thirty patients with benign vocal cord lesion were enrolled in the study with informed consent.

Inclusion criteria were patients with vocal cord nodules, polyp and cyst not responding to conventional speech therapy with symptoms for at least 3 months and vocal cord nodules/polyps/cyst patients not fit for general anaesthesia.

Exclusion criteria were age less than 18 years and above 70 years, patient unwilling to give informed consent, recurrent cases who underwent surgical intervention in the past, non-

compliant patients and patients lost to follow up after 1 month.

Patient's pre interventional Videolaryngoscopy recorded and was given a questionnaire, Voice Handicap Index-10, to be filled and taken as pre interventional status. Patient Maximum Phonation Time (MPT) is also recorded as pre interventional status.

Patients fulfilling inclusion criteria were injected with 1ml of Dexamethasone(4mg/ml) via transcutaneous transcricothyroid membrane route with 24g needle,4.5cm long. The needle is directed upwards and visualized in the lumen through videolaryngoscope. Under videolaryngoscopic guidance, needle inserted to lamina propria of affected vocal cord. No major complication noted after the procedure.

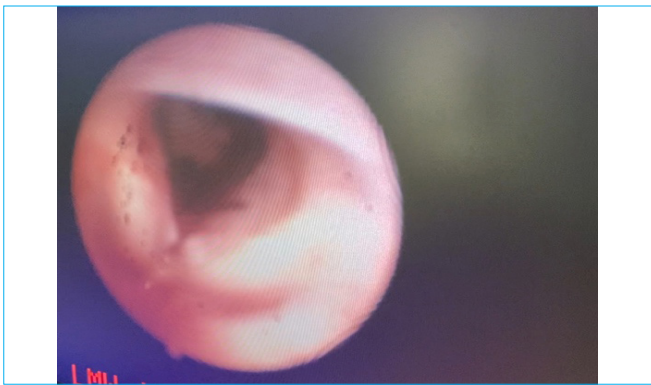


Figure 1: Bilateral vocal cord nodules with needle being visualized injecting left true vocal cord

Patients were followed up after 1 month. Videolaryngoscopic findings documented, post interventional VHI-10 and MPT were recorded at the same visit.

Data analysis was done using Statistical Package for Social Science (SPSS-20). Chi Square test was used for the nominal data. Student paired t-test was used for the ordinal data. P value calculated and value less than 0.05 was taken as statistically significant.

RESULTS

Out of 30 patients, 20 patients were female and 10 patients were male (Figure 2). The average age of the patient included in the study was 32 years. Maximum patient had vocal cord nodule (20) followed by vocal cord polyp (6) and vocal cord cyst (4) as in table 1.

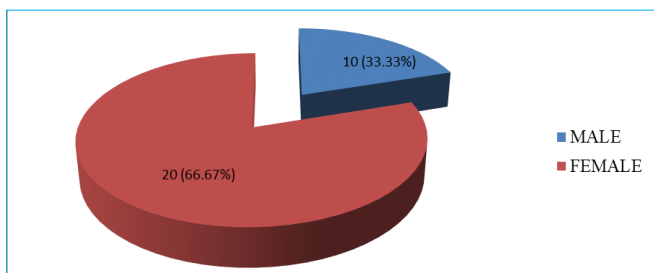


Figure 2: Graph showing gender distribution

Table 1: Frequency of Benign Vocal Cord Lesions

Vocal Cord Nodule	20
Vocal Cord Polyp	6
Vocal Cord Cyst	4

Sixteen patients showed improvement on videolaryngoscopic finding, 12 patients had no change in their finding and 2 patients had deterioration (Table 2). Both patients had vocal cord polyp. The improvement was statistically not significant.

Mean pre intervention VHI-10 score was 24 and post intervention VHI-10 score was 20. P value was >0.05 and thus statistically not significant (Table 3). Mean pre intervention MPT was 14s and post intervention MPT was 18s. The difference was statistically not significant, P>0.05(Table 3).

Table 2: Outcome of Videolaryngoscopic finding

	Improved	Static	Deteriorated	P value
Outcome of VLS	16	12	2	>0.05

Table 3: Comparison of mean VHI-10 score and MPT between pre and post treatment

	Mean VHI-10	Mean MPT
Pre treatment	24	14
Post treatment	20	18
P value	>0.05	>0.05

DISCUSSION

Benign vocal cord lesions are one of the common problems encountered in any voice clinic. They are more common in professional voice users like teachers, singers, shopkeepers and politicians. Most patients belonged to middle aged group as mean age is 32 years in our study. Young patients are more vulnerable as they are more active and use their voice more often than other age groups. Vocal cord nodules are by far the most common pathology among all benign lesions. In our study 20 out of 30 patients (66.67%) had vocal cord nodules.

Out of 30 patients 16 patients (53%) had regression of the lesion on videolaryngoscopic finding. Reduction in Mean VHI_10 with increment in mean MPT (Table 2) were encouraging results. Tateya et al in 2003 highlighted the use of steroid in vocal cord. Out of 27 patients' disappearance of nodules were noted in 17 patients (62%) and partial reduction of size 10 patients.⁷ Though the improvement was statistically not significant in our study, our findings were encouraging and comparable to other studies.

A prospective multicenter study done by Woo et al in 2011 injected triamcinolone in 130 patients having benign vocal cord lesions including vocal cord nodules, polyps, Reinke oedema and scarring. The study showed 35% complete remission, 50 % partial remission with 1.6% hematoma.⁸

A prospective study done by Hsu et al in 2009 had better result with intralesional steroid injection. Though the study was done only in 24 patients, 91% showed remission on injection of Triamcinolone at 3 months.⁹

A prospective study to find the long term efficacy of steroid injection for benign vocal cord lesions was carried out by Lee et al in 2016. Of the 84 patients, 37 (44.0%) showed complete remission, 22 (26.2%) showed partial remission, five (6%) had no response and 20 (23.8%) developed recurrences.¹⁰

We had limitations in the study. The sample size was small. The duration of follow up was shorter and couldn't predict the long-term results. Similarly, use of more objective test like voice analysis by software and would minimize the biasness. Use of stroboscopy instead of videolaryngoscopy would depict finer details of the lesion.

CONCLUSION

Intralesional steroid injection in a vocal cord is an office procedure with less invasiveness in nature and negligible side effects. In selected patients, those who are resistant to conventional voice therapy and those who are unfit for general anaesthesia, intralesional steroid injection is a good alternative non-surgical for the management of patients with benign vocal cord lesion.

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