


LETTER TO THE EDITOR

In Reference to Treatment Outcomes of Intralesional Steroid Injection for Refractory Vocal Process Granuloma

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Dear Editor,

We read the article entitled: ‘Treatment Outcomes of Intralesional Steroid Injection for Refractory Vocal Process Granuloma’ [1]. In this retrospective chart review, the authors suggested that intralesional steroid injections are an effective treatment for vocal cord granuloma, which did not respond to a 3-month proton pump inhibitor (PPI) therapy. In addition, the authors observed that alcohol consumption and longer symptom duration were associated with poor therapeutic responses. The longer symptom history was suggested to be associated with habitual throat clearing, hyperfunctional voice use, refractory laryngopharyngeal reflux (LPR), or oesophageal motility disorders, while the association between recalcitrant granuloma and alcohol overuse was linked to gastroesophageal reflux disease. We congratulate the authors for this interesting study. In this letter, we would like to draw attention to many points.

First, for patients without a history of intubation, LPR remains the primary potential aetiology of recalcitrant granuloma [2]. In most LPR cases, the pharyngeal reflux events occur daytime, upright, and they are weakly acid or alkaline [3, 4]. Accordingly, reflux disease can be controlled by considering diet, lifestyle changes, alginate, or antacids rather than PPI therapy, which only reduces the pH of events without changing the number, and duration of events [4, 5]. Previous studies suggested a higher effectiveness of alginates or antacids compared to PPI in these patients [4]. In this context, it is not surprising to have a low effectiveness of PPI therapy. The development of granuloma in LPR patients can be related to chronic inflammation and

abnormal mucosa healing [6]. In this context, the irritation of the laryngeal mucosa in patients with or without PPI therapy may continue through the backflow of bile salts, trypsin, elastase, and other gastroduodenal enzymes that are activated in alkaline pH [7]. Interestingly, pepsin is activated in an acidic pH but it can be reactivated into the Golgi apparatus (pH \cong 5) while an extracellular alkaline pH, escaping to the effect of PPIs that only increase the pH of reflux events in the extracellular compartment [8]. The lack of reduction of the activity of enzymes activated in weakly acid or alkaline environments through PPIs can support the association between a long history of (uncontrolled) LPR, and the development of healing abnormalities such as granuloma [1].

Second, the authors adequately suggested that alcohol is a trigger of reflux events and, consequently, can lead to the persistence of LPR and related granuloma [1]. However, alcohol is also associated with the development of an aspecific laryngopharyngitis, related inflammation, and throat mucus and clearing [9]. In this way, the injection of corticosteroids can just reduce the inflammation underlying the mucosa healing abnormalities without treating the origin of the granuloma.

Future studies can find responses to these important questions considering the use of hypopharyngeal-oesophageal multichannel intraluminal impedance-pH monitoring, and alginate or antacid therapies rather than PPIs. In addition, the reduction of tobacco, and alcohol consumption, and the adherence to a standardised antireflux diet [10] can be additional valuable

recommendations to control mucosa healing and the occurrence of granuloma in the long term without requiring corticosteroid injections.

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The authors have nothing to report.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

Peer Review

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References

1. P. J. Yu, W. C. Hung, and C. T. Wang, "Treatment Outcomes of IntraleSIONal Steroid Injection for Refractory Vocal Process Granuloma," *Clinical Otolaryngology* 49, no. 6 (2024): 822–826, <https://doi.org/10.1111/coa.14210>.
2. P. D. Karkos, D. Thorley, S. Kaptanis, and W. J. Issing, "Transnasal Oesophagoscopy, Laryngopharyngeal Reflux (LPR) and Oesophageal Pathology: The Vocal Fold Granuloma Example and 'the Granulomas, LPR and Barrett's Triad'," *Clinical Otolaryngology* 36, no. 5 (2011): 516–517, <https://doi.org/10.1111/j.1749-4486.2011.02369.x>.
3. J. R. Lechien, J. M. Bock, T. L. Carroll, and L. M. Akst, "Is Empirical Treatment a Reasonable Strategy for Laryngopharyngeal Reflux? A Contemporary Review," *Clinical Otolaryngology* 45, no. 4 (2020): 450–458, <https://doi.org/10.1111/coa.13518>.
4. J. R. Lechien, F. Bobin, V. Muls, et al., "The Efficacy of a Personalised Treatment Depending on the Characteristics of Reflux at Multichannel Intraluminal Impedance-pH Monitoring in Patients With Acid, Non-Acid and Mixed Laryngopharyngeal Reflux," *Clinical Otolaryngology* 46, no. 3 (2021): 602–613, <https://doi.org/10.1111/coa.13722>.
5. J. R. Lechien, V. Muls, G. Dapri, et al., "The Management of Suspected or Confirmed Laryngopharyngeal Reflux Patients With Recalcitrant Symptoms: A Contemporary Review," *Clinical Otolaryngology* 44, no. 5 (2019): 784–800, <https://doi.org/10.1111/coa.13395>.
6. J. R. Lechien, S. Saussez, B. Harmegnies, C. Finck, and J. A. Burns, "Laryngopharyngeal Reflux and Voice Disorders: A Multifactorial Model of Etiology and Pathophysiology," *Journal of Voice* 31, no. 6 (2017): 733–752, <https://doi.org/10.1016/j.jvoice.2017.03.015>.
7. J. R. Lechien, L. G. De Marrez, S. Hans, et al., "Digestive Biomarkers of Laryngopharyngeal Reflux: A Preliminary Prospective Controlled Study," *Otolaryngology and Head and Neck Surgery* 170, no. 5 (2024): 1364–1371, <https://doi.org/10.1002/ohn.674>.
8. T. L. Samuels and N. Johnston, "Pepsin as a Causal Agent of Inflammation During Nonacidic Reflux," *Otolaryngology and Head and Neck Surgery* 141, no. 5 (November 2009): 559–563, <https://doi.org/10.1016/j.otohns.2009.08.022>.

9. X. Wang, Y. Bi, G. Liu, W. Wang, and H. Cui, "Smoking and Alcohol Consumption With the Risk of 11 Common Otolaryngological Diseases: A Bidirectional Mendelian Randomization," *European Archives of Oto-Rhino-Laryngology* 280, no. 12 (2023): 5615–5623, <https://doi.org/10.1007/s00405-023-08246-9>.

10. J. R. Lechien, K. Huet, M. Khalife, et al., "Alkaline, Protein, Low-Fat and Low-Acid Diet in Laryngopharyngeal Reflux Disease: Our Experience on 65 Patients," *Clinical Otolaryngology* 44, no. 3 (2019): 379–384, <https://doi.org/10.1111/coa.13269>.