

Complete response of laryngeal papillomatosis after HPV vaccination

Alberto Paderno¹, Isabelle Matilde Dohin^{2,3}, Francesca Gennarini^{2,3}

¹ Otorhinolaryngology Unit, IRCCS Humanitas Research Hospital, Rozzano, Milan, Italy; ² Unit of Otorhinolaryngology – Head and Neck Surgery, ASST Spedali Civili, Brescia, Italy; ³ Department of Surgical and Radiological Sciences and Public Health, University of Brescia, Brescia, Italy

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Dear Editor,

Laryngeal papillomatosis, also known as recurrent respiratory papillomatosis, is a rare and debilitating disease characterised by benign, wart-like growths in the respiratory tract, especially on the vocal cords. The aetiology of laryngeal papillomatosis has been linked to human papillomavirus (HPV) infection, specifically types 6 and 11¹.

Recently, the development and implementation of HPV vaccines has been essential in the prevention of various HPV-associated conditions. As our understanding of HPV-related diseases continues to expand, there is growing interest in exploring the potential benefits of HPV vaccination in preventing and treating laryngeal papillomatosis^{2,3}.

Herein, we present the clinical characteristics and outcomes of 2 patients with laryngeal papillomatosis that were exclusively treated with HPV vaccination at the Unit of Otorhinolaryngology – Head and Neck Surgery of the ASST Spedali Civili, University of Brescia, Italy.

A 44-year-old male professional singer was referred to our attention for dysphonia. Biopsy under general anaesthesia had been previously performed at another Institution with diagnosis of HPV-related squamous papilloma with mild-moderate dysplasia (genotype 6). Videolaryngoscopy with narrow band imaging (NBI) showed an exophytic lesion involving the entire left vocal fold and superficially spreading to the anterior commissure (Fig. 1A). The typical NBI vascular pattern of laryngeal papillomatosis was visible, with diffused thick dark spots corresponding to enlarged intrapapillary capillary loops⁴.

A recombinant HPV quadrivalent vaccine (Gardasil, Sanofi Pasteur MSD, Lyon, France) was administered. After the first dose, patient reported resolution of dysphonia (Fig. 1B). After the second dose, NBI showed complete regression of the lesion (Fig. 1C). The patient is free of disease at 29 months after treatment.

A 40-year-old female lawyer presented to our clinic with worsening dysphonia. Fibrolaryngoscopy revealed multiple papillomatous lesions on the left vocal cord (Fig. 2D). A biopsy confirmed the diagnosis of laryngeal papillomatosis with evidence of HPV infection. In consideration of her concerns in terms of voice outcomes, the patient was initially treated with the quadrivalent vaccine, postponing phonosurgical resection. After 5 months the lesions had completely disappeared (Fig. 2E) and no intervention was required. The patient is free of disease at 10 months after the end of the treatment.

Traditionally, laryngeal papillomatosis has conventionally been treated by repeated surgery⁵. HPV vaccination has a role in the setting of primary, secondary and tertiary prevention, and it is often used as an adjuvant therapy following surgical intervention for laryngeal papillomatosis, which frequently leads to a reduction in recurrence rates^{6,7}. However, in these cases, surgery was postponed according to the patient's preference due to concerns about voice outcomes.

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Correspondence

Francesca Gennarini

E-mail: gennarini.francesca@gmail.com

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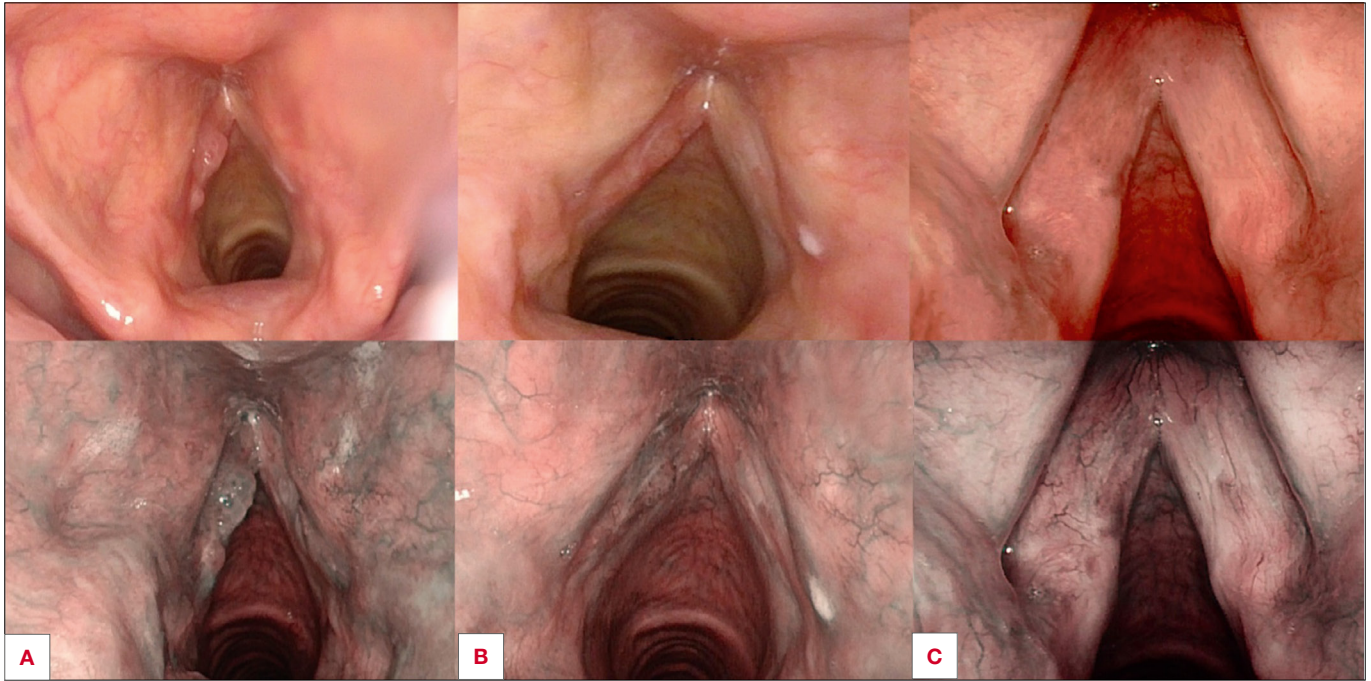


Figure 1. Panel A) videolaryngoscopy in white light (WL) and narrow band imaging (NBI) of the first patient before the vaccination; Panel B) videolaryngoscopy after the first dose; Panel C) videolaryngoscopy after the second dose.

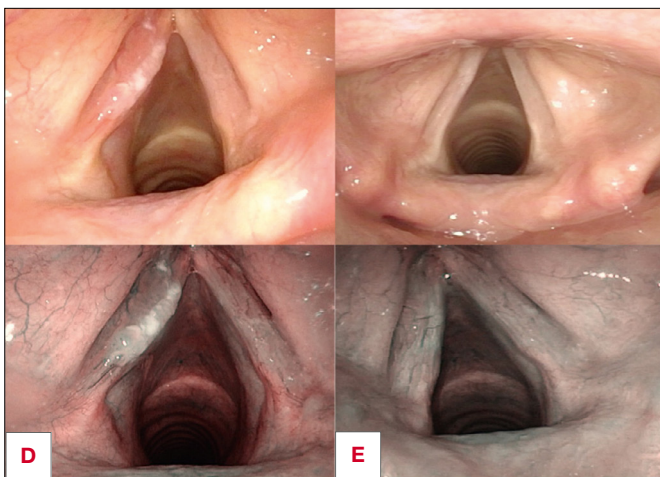


Figure 2. Panel D) videolaryngoscopy in white light (WL) and narrow band imaging (NBI) of the second patient before the vaccination; Panel E) videolaryngoscopy at 5 months after vaccination.

To our knowledge, there are no reported cases in the literature regarding the use of HPV vaccine as the sole therapy for laryngeal papillomatosis. Our experience with these patients suggests that the use of HPV vac-

cine may hold promise as a primary therapeutic option in specific scenarios where surgical intervention is not preferred or feasible.

The favourable outcomes observed in our cases, with the complete resolution of laryngeal lesions and significant improvement in voice quality following HPV vaccination, warrant further exploration of this alternative approach.

Our report sheds light on the potential benefits of using HPV vaccination as a treatment strategy for laryngeal papillomatosis in selected patients who decline surgical intervention due to voice-related concerns. Although our findings are encouraging, they underscore the need for more extensive research and larger studies to establish evidence-based guidelines for the safe and effective use of HPV vaccine as the primary therapy for this challenging condition. In cases where surgery is not a viable option, the use of an HPV vaccine may serve as a valuable therapeutic option, emphasising the importance of individualised patient care and innovative approaches in managing laryngeal papillomatosis.

Conflict of interest statement

The authors declare no conflict of interest.

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Author contributions

AP, FG: conception and design; IMD drafting of the manuscript or revising it for important intellectual content. Final approval of the version to be published: all authors.

Ethical consideration

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the local Ethics Committee of ASST Spedali Civili of Brescia, protocol number 0003641/24.

Written informed consent was obtained from each participant/patient for study participation and data publication.

References

- ¹ Derkay CS, Blumer AE. Update on recurrent respiratory papillomatosis. *Otolaryngol Clin North Am* 2019;52:669-679. <https://doi.org/10.1016/j.otc.2019.03.011>
- ² Benedict JJ, Derkay CS. Recurrent respiratory papillomatosis: a 2020 perspective. *Laryngoscope Investig Otolaryngol* 2021;6:340-345. <https://doi.org/10.1002/liv.2.545>
- ³ Bertino G, Pedretti F, Mauramati S, et al. Recurrent laryngeal papillomatosis: multimodal therapeutic strategies. Literature review and multicentre retrospective study. *Acta Otorhinolaryngol Ital* 2023;43:S111-S122. <https://doi.org/10.14639/0392-100X-suppl.1-43-2023-14>
- ⁴ Arens C, Piazza C, Andrea M, et al. Proposal for a descriptive guideline of vascular changes in lesions of the vocal folds by the committee on endoscopic laryngeal imaging of the European Laryngological Society. *Eur Arch Otorhinolaryngol* 2016;273:1207-1214. <https://doi.org/10.1007/s00405-015-3851-y>
- ⁵ Lively JM, Shah RK. Recurrent respiratory papillomatosis: a possible role for the HPV vaccine? *JAAPA* 2013;26:48. <https://doi.org/10.1097/01720610-201305000-00009>
- ⁶ Tjon Pian Gi REA, San Giorgi MRM, Pawlita M, et al. Immunological response to quadrivalent HPV vaccine in treatment of recurrent respiratory papillomatosis. *Eur Arch Otorhinolaryngol* 2016;273:3231-3236. <https://doi.org/10.1007/s00405-016-4085-3>
- ⁷ Goon P, Sauzet O, Schuermann M, et al. Recurrent Respiratory Papillomatosis (RRP) – Meta-analyses on the use of the HPV vaccine as adjuvant therapy. *NPJ Vaccines* 2023;8:49. <https://doi.org/10.1038/s41541-023-00644-8>