Surgical treatment of laryngeal papillomatosis using NBI

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ABSTRACT

Objective: Multiple laryngeal papillomas has a high recurrence rate. Narrowband imaging (NBI) is a novel optical enhancement technology used in gastroenterology to improve the diagnostic accuracy of superficial lesions. This study reports to date in the diagnosis of the larynx. The purpose of this study was to assess the efficacy of laryngeal flexible endoscopy using NBI for the diagnosis and resection of multiple laryngeal papillomas.

Methods: The patients were 34-year-old man and a 30-year-old man. Both cases underwent surgery in which the endoscopic view was used under general anesthesia. The endoscopy with NBI was subsequently used to compare the conventional view with the NBI view for the detection and identification of papillomas.

Results: In the case of the multiple laryngeal papillomas, the conventional view of the papillomas were not clearly identified, allowing precise resection. Two months later, CO2 laser resection was performed under NBI view. The lesions were more clearly visualized using the NBI view. The usage of a Micro Debrider allowed the satisfactory excision of the lesions. In NBI, light absorption depth is confined to the superficial mucosa because the bandwidth is filtered to highlight the vasculature and glandular structures. By this method, changes in the blood vessels in the superficial mucosa in the early stages of cancer can be recognized and, in recent years, it has been reported that the use of NBI has allowed the identification of papillomas on the vestibular folds.

Conclusion: Herein we reported two cases of multiple laryngeal papillomas. These lesions were treated by the combination of laryngomicro surgery and videoendoscopic surgery using NBI technology. The lesions have now been eradicated without further recurrence. This paper demonstrates the applicability of the NBI system to the identification and resection of laryngeal papillomas.

INTRODUCTION

Laryngeal papillomatosis is the most frequent form of laryngeal cancer. There are two types: juvenile papillomas and adult papillomas. The adult papillomas are usually found in adults with tumors of the vocal cords, but the juvenile papillomas are often multiple and usually occur in children. The examination by laryngeal flexible endoscopy using NBI (CLV-S40Pro, ENF-V2, ENF-V20) revealed papilloma-like mucosal changes, and multiple laryngeal papillomatosis was diagnosed (Figure 1A, 1B). Papillomatosis under general anesthesia, obtained using a conventional technique, confirmed multiple papillomas on the bilateral vocal folds (Figure 1C). The papillomas were removed from the right vocal fold and bilateral vestibular folds using an XPS Micro Debrider and CO2 laser. However, the posterior surface of the epiglottis could not be clearly identified under NBI view (Figure 1D). The papillomas were removed from the vestibular folds using a clear view. The operation was performed using a NBI flexible endoscope under topical anesthesia was undertaken under general anesthesia for recur- rent multiple papillomas. NBI enhanced the identification of papillomas on the vestibular folds (Figure 1C). NBI enhanced the identification of papillomas on the vestibular folds. With regard to treatment, surgical intervention is standard, though effective adjuvant therapy with IFN-α, I3C, Indole-3-cabinol, the antiviral agent cidofovir has been reported. The current standard treatment for the laryngeal papillomatosis is surgical intervention, however, due to recurrence, they have been treated, because its anatomical location impedes laryngomicroscopic surgical views. Two months later, outpatient CO2 laser resection using a laryngeal flexible endoscope under topical anesthesia was undertaken for recurring or remaining papilloma lesions on the right vocal cord, vestibular folds and laryngeal ventricle. After several operations, the lesions have been eradicated without further recurrence (Figure 1E, 1F).

Case 1

A 34-year-old man with two months of hoarseness visited our clinic. Examination by laryngeal flexible endoscopy using NBI (CLV-S40Pro, ENF-V2, ENF-V2) revealed papilloma-like mucosal changes, and multiple laryngeal papillomatosis was diagnosed (Figure 1A, 1B). Papillomatosis under general anesthesia, obtained using a conventional technique, confirmed multiple papillomas on the bilateral vocal folds (Figure 1C). The papillomas were removed from the right vocal fold and bilateral vestibular folds using an XPS Micro Debrider and CO2 laser. However, the posterior surface of the epiglottis could not be clearly identified using NBI (Figure 1D). The papillomas were removed from the vestibular folds using a clear view. The operation was performed using a NBI flexible endoscope under topical anesthesia was undertaken under general anesthesia for recurrent or remaining papilloma lesions on the right vocal cord, vestibular folds and laryngeal ventricle. After several operations, the lesions have been eradicated without further recurrence (Figure 1E, 1F).

Case 2

A 30-year-old man with five months of hoarseness visited our clinic. Examination by laryngeal flexible endoscopy using NBI (CLV-S40Pro, ENF-V2, ENF-V2) revealed papilloma-like mucosal changes, and multiple laryngeal papillomatosis was diagnosed (Figure 1A, 1B). Papillomatosis under general anesthesia, obtained using a conventional technique, confirmed multiple papillomas on the bilateral vocal folds (Figure 1C). The papillomas were removed using an XPS Micro Debrider and CO2 laser. However, the posterior surface of the epiglottis could not be clearly identified using NBI (Figure 1D). The papillomas were removed from the vestibular folds using a clear view. Two months later, outpatient CO2 laser resection using a laryngeal flexible endoscope under topical anesthesia was undertaken for the recurrent lesions on the posterior surface of the epiglottis. The lesions have been eradicated without further recurrence (Figure 1E, 1F).

REFERENCES

9-12.

CONCLUSIONS

Herein we reported two cases of adult onset multiple laryngeal papillomas that were treated by the combination of laryngomicro surgery and videoendoscopic surgery using NBI technology. Clearer identification of the tumor border was obtained by this technique, allowing minimally invasive resection. This paper demonstrates the applicability of the NBI system to the identification and resection of laryngeal papillomas.

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DISCUSSION

Adult laryngeal papillomatosis is usually solitary and requires a single treatment; however, malignant cases are sometimes observed (1-4). Cases of recurrent multiple papillomas, similar to the current study, are also known, and most are found to be intractable. In cases of a multiple papillomas, HPV 6 and 11 are involved in tumor formation (5,6) and virus infection in the larynx is known to occur, and is important to keep in mind that it is spread through surgical intervention that leads to recurrence. In NBI, light absorption depth is confined to the superficial mucosa because the bandwidth is filtered to highlight the vasculature and glandular structures. By this method, changes in the blood vessels in the superficial mucosa in the early stages of cancer can be recognized and, in recent years, it has been reported that the use of NBI has allowed the identification of papillomas on the vestibular folds. Further, clearer identification of the lesion borders allowed for effective laser ablation. Postoperative complications associated with multiple papillomas include scarring and tumor dissemination. In the current case, the use of NBI during surgery allowed the identification of the border of the papilloma via the laryngeal flexible endoscope, and a clip-on laser allowed the excision of the tumor. Thus, the possibility of post-operative scarring or tumor dissemination was reduced.

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