Clinical course of laryngeal papillomatosis

I. Hočevar-Boltežar,*, M. Žargi, N. Gale

*University Department of Otorhinolaryngology and Cervicofacial Surgery, Zaloška 2, SI-1525 Ljubljana, Slovenia
bInstitute of Pathology, Faculty of Medicine, University of Ljubljana, Korytkova 2, SI-1000 Ljubljana, Slovenia

Abstract

Laryngeal papillomatosis (LP) can have various clinical courses. Malignant transformation is rare. The purpose of the present study was to correlate the clinical course of the disease with the histopathologic findings of the surgically removed papillomas. In the series of 123 patients, abnormal or atypical epithelial hyperplasia of the papillomas removed at the first surgical procedure appeared to be the most frequent histopathologic finding associated with the recurrent disease. Malignant transformation was detected in three patients with adult type of recurrent LP. Laryngeal carcinoma appeared five times more often in the adult patients with atypical hyperplasia than in the adults without it.

Keywords: Laryngeal papillomatosis; Histopathologic grading; Epithelium; Malignant transformation

1. Introduction

Laryngeal papillomatosis (LP) is a relatively rare disease with various clinical courses [1]. The incidence of malignant transformation is very rare and usually reported to be from 2% to 6.9%. Most occurrences have been reported in adult patients and are associated with other risk factors, such as smoking or prior irradiation [2–4].

The diagnosis and prognosis of various laryngeal lesions (polyps, nodules, chronic laryngitis, papillomas, granulomas, Reinke’s edema) depend on the interpretation of changes of the covering epithelium. Gale et al. [5] re-evaluated 4574 laryngeal biopsies and graded the epithelial abnormalities according to the “Ljubljana classification” into simple, abnormal and atypical hyperplasia (AtH), and carcinoma in situ. The percentage of...
malignant transformation in AtH (risky epithelium) was 11.6%, while in simple and abnormal hyperplasia, it was 0.3%.

The purpose of the present study was to correlate the clinical course of LP with the histopathologic findings of the removed papillomas.

2. Patients and methods

A total of 123 patients (25 children, 98 adults) surgically treated for LP at the University Department of ORL and CFS in Ljubljana in the period from 1979 to 1999 were included in the study. With regard to the clinical course, the patients were divided into two groups: a group with recurrent LP (RLP), and a group of patients with only one surgical procedure necessary for cure (OLP). The patients were followed up from 0.5 to 180 months (mean 23.8 months). All patients with OLP were followed up at least 23 months after their surgical procedure.

The covering epithelium of the surgically removed papillomas was classified into simple, abnormal, and AtH following “Ljubljana classification” [6]. The clinical course of the disease was correlated with the type of epithelial hyperplasia. \( \chi^2 \) test was used for statistical analysis.

3. Results

In all 123 patients, 424 surgical procedures were performed in 20 years. One patient was irradiated for LP in his childhood (before 1979).

In 52 patients (2 children, 50 adults), after the first surgical procedure, LP did not recur. These patients with OLP were followed from 23 to 180 months. In 71 patients (23 children, 48 adults), the disease was recurrent. At their last control visit, 41 subjects were without papillomas, 19 subjects had recurrent LP (including the irradiated patient), in 3 subjects laryngeal squamous cell carcinoma appeared, and 8 subjects were lost from follow-up.

Histopathologic examination of the 357 laryngeal biopsies confirmed simple hyperplasia in 139 samples (38.9%), abnormal hyperplasia in 189 samples (52.9%), and AtH in 29 biopsies (8.1%). The AtH was detected in the specimens from 17 adults and 1 child. The percentage of smokers among the subjects with AtH was about the same as in other patients without risky epithelium—33.3%.

The patients with AtH were followed up for 4 to 96 months. At their last check-up, 13 patients were without LP, 2 patients had a recurrence of LP, and 1 patient was lost from follow-up. Laryngeal cancer occurred in 2 adult patients with RLP.

Malignant transformation of LP was also detected in one adult patient with RLP and abnormal hyperplasia. Considering only patients with adult-onset LP, laryngeal cancer
occurred in two patients with AtH (2/17) and in one patient with abnormal hyperplasia (1/48) in previous biopsies. Laryngeal cancer was found 4, 5, and 2 years after their last recurrence of LP, respectively. Only one subject was a smoker.

4. Discussion

The present study showed that abnormal or AtH of the papilloma epithelium at first surgical procedure appears to be the most frequent histopathologic finding associated with the recurrent disease. Quick et al. [7] used different histopathologic classifications but the result was similar: the patients with increasing degrees of epithelial atypia were more likely to have more frequent recurrences than patients without atypia.

Laryngeal cancer occurred in three patients (2.4%). They had adult-onset RLP, had never been irradiated in the neck region, and only one was a smoker. Malignant alteration occurred in 2 out of 18 subjects (11.1%) with AtH, and in 1 out of 107 subjects (0.9%) without AtH. The percentage of malignant alteration in the patients with AtH is about the same as in the great series reported by Gale et al. [5]—1.6%.

Papilloma virus may persist in a clinically normal mucosa for a long time. Malignant transformation can occur even more than 25 years after onset of the LP, and can be a consequence of cellular genome changes caused by environmental carcinogens. Therefore, long-term follow-up of all patients with OLP and RLP is necessary.

References