

Main Articles

Negative pathology following endoscopic resection of T_{1a} squamous carcinoma of the glottis

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Abstract

Endoscopic CO₂ laser excision for T_{1a} glottic cancer is a recognized treatment modality producing equivalent disease-free and voice results to external beam radiotherapy. On reviewing a series of 15 patients who had undergone endoscopic resection of a T_{1a} glottic squamous cancer, it was noted that five patients had negative excisional pathology following the initial biopsy of an invasive squamous carcinoma. The histopathology of each patient's resected specimen was reviewed by a second pathologist who confirmed the accuracy of the results in all cases. We conclude that a significant number of early squamous carcinomas of the glottis present with very small localized, minimally invasive disease and that a proportion may be treated by biopsy alone.

Key words: Laryngeal Neoplasms; Laser Surgery; Pathology

Introduction

Early glottic squamous cancer is eminently curable, and T₁ lesions can be treated by radiotherapy or endoscopic local excision with or without the assistance of a CO₂ laser.^{1,2} Studies to date have shown no difference in disease-free survival rates between the modalities.^{3–5} Until recently in the United Kingdom virtually all patients presenting with a T_{1a} glottic squamous carcinoma would have received a course of radiotherapy. There has been increasing interest in endoscopic resection for these lesions. This has developed for a number of reasons. Firstly, the disease itself is, by its nature, of a small volume and is often minimally invasive. Secondly, the high incidence of second head and neck primaries and recurrent disease in this patient group means that if they have been initially treated by endoscopic excision then they still have radiotherapy in reserve should the above occur. Thirdly, significant side effects may arise with radiotherapy.

It was noted that a number of our patients undergoing endoscopic resection for T_{1a} glottic lesions had no squamous cancer in the definitive excision following positive biopsy. We therefore decided to look at the prevalence of this interesting phenomenon. Figures 1 and 2 show photo

micrographs of a typical example of an initial positive biopsy and the subsequent negative excision.

Methods

A retrospective case note and pathology archive review was undertaken. All patients identified as having T_{1a} squamous carcinoma of the glottis treated by endoscopic excision were assessed; the mode of treatment and pathology results reviewed. Patients treated by endoscopic resection were selected, and all patients with negative pathology in their definitive excised specimen had the original diagnostic biopsy slides as well as the excised specimen slides reviewed by an experienced head and neck pathologist who was not involved in their original diagnosis.

Results

Fifteen patients were treated endoscopically for T_{1a} glottic squamous carcinoma between 1997 and 2003. There were 11 men and four women, with an age range of 55 to 82 years. All patients then underwent endoscopic CO₂ laser excision of their lesion, at least down to the vocal ligament, under frozen section control. Ten patients had their diagnosis confirmed on definitive histology.

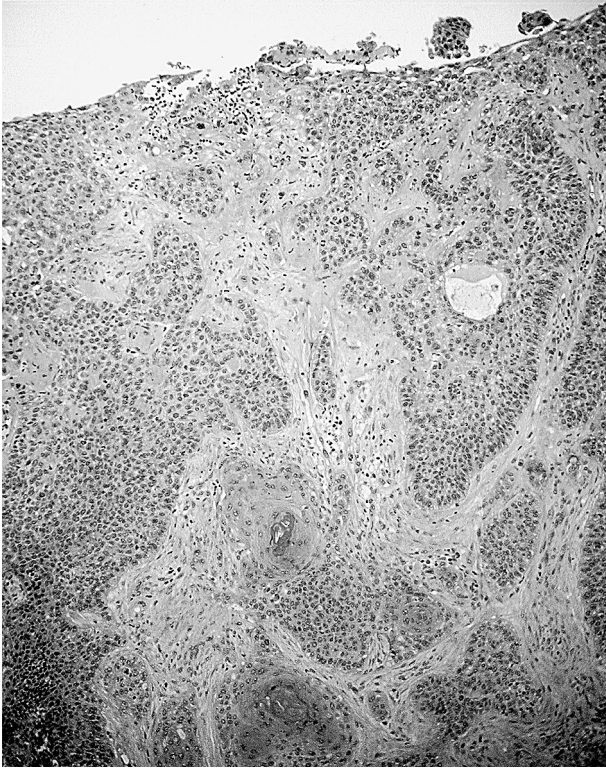


FIG. 1

Initial positive biopsy showing squamous mucosa infiltrated by invasive, moderately differentiated squamous carcinoma. Haematoxylin and eosin, magnification $\times 100$.

However, five patients (33 per cent) had no evidence of squamous carcinoma in the excised vocal fold, with only varying degrees of dysplasia noted. All of these patients had invasive squamous carcinoma on initial biopsy. All of the five initial biopsies had positive margins!

All five patients had their pathology reviewed and in all of them the original diagnosis was confirmed. In addition the negative report of the definitive excised specimens was confirmed in all



FIG. 2

Endoscopic resection specimen showing the previous biopsy site with evidence of epithelial regeneration. A foreign body giant cell reaction with associated scarring is seen within the lamina propria. There is, however, no evidence of residual squamous carcinoma. Haematoxylin and eosin, magnification $\times 40$.

cases by a second pathologist. All patients remain disease free with a follow up of 2–60 months (median 23). Two patients out of the total of 15 have since developed second primary tumours of the oropharynx, and have had their second primary treated by external beam radiotherapy.

Conclusion

From this relatively small series it can be seen that 33 per cent of our patients had negative pathology following endoscopic excision for T_{1a} laryngeal squamous carcinoma or carcinoma *in situ*. This is unlikely to be a diagnostic error, as the pathology in all cases was verified by a second pathologist. It also appears that sufficient vocal fold was excised at laser cordectomy as no patients have had recurrent disease. Therefore, the most likely conclusion is that in all five cases the disease was of such a small volume that the initial diagnostic biopsy adequately treated the patient. Of interest, in the recent past and in many units currently, these patients would have been referred for, and received, a course of radical radiotherapy for a disease that had already been excised by a simple biopsy.

- **This study looks at a series of 15 patients who had endoscopic resection for T_{1a} glottic cancer**
- **Five patients had negative excisional pathology following initial biopsy of an invasive squamous carcinoma**
- **A significant number of early glottic cancers may be treated by biopsy alone**

Clearly, there is no way of predicting which patients will be over treated, as all will require, at the very minimum, a repeat biopsy. However, the deleterious consequences of over treating a patient by fold excision are less likely than if the patient underwent radiotherapy. A number of studies have shown similar disease-free results, and voice and quality of life results between the two treatment modalities.^{1,2,4,5} However, where the treatments differ is that external beam radiotherapy, no matter how narrow the field, is almost always a one-off treatment that precludes its use again in the neck. Endoscopic excision provides a repeatable low morbidity procedure, whose worst side effect may be a weakening of the voice. The incidence of second primary tumours following laryngeal malignancy is exceptionally high,⁶ and second head and neck primaries themselves are common with an incidence of between 13 and 22 per cent in a number of large observational studies.^{7–9} Indeed in our study, two out of 15 patients (13 per cent) developed a second head and neck primary in the oropharynx. If these patients had already been treated by external beam radiotherapy then their only option for treatment would have been extensive surgical resections. However, both patients elected to have radiotherapy for their oropharyngeal squamous carcinomas.

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