

The treatment of primary recurrence following laryngectomy for laryngeal carcinoma

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Abstract

Of the 397 patients undergoing total laryngectomy for squamous cell carcinoma by Professor P. M. Stell between 1963 and 1991, 73 are known to have suffered a local recurrence. Of these, 17 were treated by radiotherapy and/or further surgery. Secondary surgery was reserved for selected cases of peristomal and pharyngeal recurrence: of the 35 peristomal recurrences, eight were treated surgically. Previous reports of recurrence after total laryngectomy have focused on the problem of peristomal recurrence. Patients with pharyngeal recurrences can also be treated satisfactorily with microvascular surgical reconstruction techniques. Though rarely curative, secondary total pharyngectomy can be highly palliative and results in little additional morbidity.

Key words: Laryngeal neoplasms; Laryngectomy; Carcinoma, squamous cell

Introduction

Much has been written about the aetiology for recurrence following total laryngectomy for laryngeal cancer. Most interest has concerned stomal recurrence. In 1952 Latella noted that some patients dying of carcinoma of the larynx had malignant ulceration around the tracheostomy. The cause of death in these cases was usually erosion of major vessels with massive haemorrhage. Latella's paper is widely quoted (Keim *et al.*, 1965; Modlin *et al.*, 1969; Stell *et al.*, 1971; Weisman *et al.*, 1979; Mantravadi *et al.*, 1981; Foote *et al.*, 1989) and the greatly increased risks of stomal recurrence associated with pre-operative tracheostomy in patients with cancer of the larynx is now well established. Recurrences in other areas opposed to the larynx resection have been studied. These areas include the skin, the base of tongue and the pharyngeal remnant. Latella himself noted recurrence in the thyroid in four cases and in the oesophagus in two cases (out of 38 patients dying of laryngeal carcinoma). The patterns of failure have been well studied using multilinear survival analysis. In this paper 397 patients are reported who had a total laryngectomy for carcinoma of the larynx, 73 of

whom developed a local recurrence. This paper concentrates on the treatment of this recurrence and its success or failure.

Patients

This report is based on 1206 patients with squamous cell carcinoma of the larynx treated between 1963 and 1991. Data was stored initially on a punch card system and since 1976 on a microcomputer. Of these cases 397 patients had a total laryngectomy, 73 of whom suffered a

TABLE I
PATIENT CHARACTERISTICS: HOST FACTORS

| Sex | No. of patients |
|------------------------------|-----------------|
| Male | 321 (59.3) |
| Female | 76 (59.5) |
| Performance status | |
| 0 | 179 |
| I | 51 |
| II | 3 |
| III | 1 |
| IV | 1 |
| Not recorded | 18 |
| Previously treated elsewhere | 144 |

TABLE II
PATIENT CHARACTERISTICS: TUMOUR FACTORS

| T stage | No. of patients |
|--------------------------------|-----------------|
| T ₁ | 46 |
| T ₂ | 41 |
| T ₃ | 123 |
| T ₄ | 33 |
| Not recorded | 10 |
| Previously treated elsewhere | 144 |
| N stage | |
| N ₀ | 171 |
| N ₁ | 39 |
| N ₂ | 25 |
| N ₃ | 5 |
| Not recorded | 13 |
| Previously treated elsewhere | 144 |
| Histological grade | |
| Well differentiated | 109 |
| Moderately well differentiated | 104 |
| Poorly differentiated | 96 |
| Ungraded | 88 |
| Site | |
| Supraglottic | 137 |
| Glottic | 146 |
| Subglottic | 35 |
| Tracheal | 12 |
| Transglottic | 67 |

TABLE III
LOCAL RECURRENCE AFTER TOTAL LARYNGECTOMY

| Site | No. of patients | Treatment | Survival for treated patients (months) |
|--|-----------------|--|--|
| Skin | 9 | Untreated 9 | NA |
| Stoma | 35 | Untreated 24 DXRT 3 Sternectomy 8 | NA 1*, 2*, 11* 1*, 1*, 19†, 34† 52†, 54†, 70†, 115† |
| Tongue base | 11 | Untreated 11 | NA |
| Pharynx | 15 | Untreated 10 Flap repair 2 Jejunum 3 | 5*, 16*, 4*, 4†, 48† |
| Thyroid gland (2 patients had 2 recurrences) | 1 | DXRT 1 | 11* |

*Indicates dead of tumours; † dead of intercurrent disease.

local recurrence. Two hundred and fifty two of the patients were previously untreated and the remaining 145 patients had received treatment elsewhere. Each tumour was classified using the most recent UICC (International Union against Cancer 1987) method. This method was also used to classify lymph node metastases in the neck. The specimens were examined histologically and assigned a pT stage. Histological grade was assessed by a group of pathologists. In addition the patient's performance status was classified according to The Eastern Cooperative Oncology Group (ECOG) method (1988). The patients' details are given in Tables I and II. Of the 397 patients, 45 received pre-operative irradiation which was our practice, but this has now been abandoned as there was no evidence that such treatment improved survival.

Methods

Local recurrence can occur in five sites: the skin, stoma, base of tongue, pharynx, or thyroid gland (Table III). Recurrence in the skin was not treated, and those cases with recurrences in the stoma were also not usually treated although some patients received radiotherapy and some a sternectomy. Recurrence in the stoma or peristomal recurrence can be of four anatomical types (Sisson *et al.*, 1977): (i) suprastomal, (ii) extending backwards into the oesophagus, (iii) lying inferior to the stoma and (iv) extending laterally beneath the clavicles. The latter two extensions are untreatable because they are always associated with a large mass in the mediastinum. The former two are treatable and have been in the present series. The peristomal recurrence lying above the stoma was treated in this series by a sternectomy. The method of Sisson (1962) has been adopted where the medial end of both clavicles, the first ribs and the manubrium are resected. The skin defect may be closed by either a pedicled or a free flap.

In the present series recurrence in the pharynx was untreated in two thirds of the cases: the remainder were repaired using local or pedicled flaps and three out of 15 by free revascularized jejunal loop replacement. In the latter operation a pharyngectomy is carried out creating a defect in the oropharynx above and in the oesophagus below. This is bridged by a segment of jejunum with a microvascular anastomosis to an artery and vein in the neck.

Analysis of data

The Life Table Method was used to determine survival

(Armitage and Berry, 1987). The association of sites of recurrence to the various primary tumour sites were determined by tabulation in contingency tables and analysed by χ^2 .

Results

Of a total of 397 patients, 55 per cent (48–61 per cent) were alive after five years. Seventy-three suffered a recurrence, of whom only two were alive after five years and of the remaining 71 patients all but eight died of tumour. The nine patients with skin recurrence were untreated because of the extent of the disease and all quickly died of their disease. Of the 35 stomal recurrences 24 were untreated and all died of their disease: three had radiotherapy and one gained useful palliation surviving 11 months. Eight had a sternectomy and six survived on average 52 months. Eleven patients had recurrence in the base of the tongue; all were untreated because of advanced disease and all died of their recurrence. Of the 15 pharyngeal recurrences 10 were untreated; two had flap repair, giving one useful palliation; three were repaired by free revascularized jejunal loop: one of whom gained useful palliation surviving four years before succumbing to intercurrent disease. The one recurrence in the thyroid gland was treated by radiotherapy and survived nearly a year before dying of the recurrence. Two patients suffered two recurrences. The results are summarized in Table III.

When the relationship between the original primary site and the site of recurrence was studied there was a slight excess of glottic tumours in the pharyngeal recurrence group but the difference was not significant. Recurrence in the base of the tongue was again more likely if the original tumour was supraglottic, but this relationship was not significant. There was no obvious correlation between the primary site and skin recurrence but stomal recurrences were more likely to occur if the original tumour had been glottic. The relationship here was significant at the four per cent level ($\chi^2 = 8.12$; df 3).

Discussion

The present study shows that local recurrence following total laryngectomy can be successfully treated when it recurs in certain sites. Recurrence in the skin was considered untreatable as was recurrence in the base of the

tongue. Stomal recurrence, particularly occurring superiorly was treatable and six of the eight patients undergoing sternectomy achieved an average survival of 52 months. All six patients died of causes other than the recurrence. Recurrence in the pharynx can be successfully treated although of the three treated by jejunal loop only one obtained useful palliation surviving four years to die of recurrent disease. Recurrence in the thyroid gland is treatable by radiotherapy, palliation of nearly a year being obtained in the one patient treated by this modality. The prognosis for recurrence after total laryngectomy does however remain grim. Of 73 patients in the present series only 11 per cent were cured of their recurrent disease. In addition poorly differentiated tumours do not appear any more likely to recur than their better differentiated counterparts.

The present paper contains a large number of patients with recurrence after laryngectomy. As one may expect recurrence in certain sites was related to the site of the original tumour. Recurrences were more likely to occur in glottic cancers and less likely with supraglottic cancers. Stomal recurrence did not appear to be related particularly to subglottic cancers which at first sight one may have expected. Similarly, recurrence in the base of the tongue was more likely to occur in patients with an original supraglottic cancer. However this relationship was not statistically significant.

Recurrence in the skin and base of the tongue did not appear to warrant treatment. Recurrence in the stoma and the pharynx however, did appear worth treating. Sternectomy produced a cure in six out of eight patients. As regards the pharynx, free revascularized jejunal loop cured two out of three patients.

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