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Post-cricoid carcinoma
(A ten-year retrospective study)

by

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Introduction

Post-cricoid carcinoma is an uncommon disease, and one which carries a very poor prognosis. The presentation of a large retrospective study of the disease is of interest: first because, as the disease is uncommon, few surgeons have sufficient personal experience on which to base their management; and secondly, because of the poor prognosis, the ideal treatment has not been finalized. This study is an attempt, based on a series of 201 patients with post-cricoid carcinoma seen at the Christie Hospital and Holt Radium Institute over a period of ten years, to analyse the results and discuss prognostic factors to improve patient management.

Materials and Methods

The study is based on a retrospective analysis of all patients with post-cricoid carcinoma seen between 1968 and 1978 at the Christie Hospital and Holt Radium Institute. The hospital is a large regional oncology centre serving a total population in the North-West of England of over 4.5 millions.

All patients were assessed at joint oncological clinics, and were staged according to the classification outlined in Table I. This differs from the UICC classification as it takes into account the length of the tumour. The size of the tumour was assessed by clinical examination, a barium swallow, X-ray and oesophagoscopy. The nodes and metastases were staged according to the UICC classification (1978).

Treatment

Table II shows the treatment regime of the patients. 102 patients had radical radiotherapy of which 13 had a radium bougie technique. 50 patients had palliative radiotherapy. 45 patients were not subjected to treatment because of the advanced stage of the disease or in cases where the patient's condition was too poor to undergo treatment. Only 4 patients had primary surgery. There were 42 patients with nodal metastases at presentation, all of whom had radiotherapy except one.

Radical radiotherapy comprised a course of usually 5500 cGrays over 15 days, using a cross-fire technique with wedges. Palliative radiotherapy was any treatment less than 5,500 cGrays, usually 3,300 cGrays in 8 days. Palliative radiotherapy was given to patients deemed incurable because of the stage of disease. Treatment with the radium bougie utilized the insertion of the calculated dose of radium inserted in a hollow oesophageal bougie, placed adjacent to the tumour (Dalby, 1964). This method of treatment has since been discontinued.

Recurrence of the primary was treated surgically in carefully selected cases using a technique of gastric transposition. Recurrence in regional lymph nodes were treated either by surgery or by radiotherapy. There were 126 patients with primary recurrences of which 16 were deemed surgically salvageable. 55 patients had nodal recurrence, 9 were treated

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TABLE I
CLASSIFICATION OF POST-CRICOID CARCINOMA IN THIS STUDY

T_{1s}	Carcinoma in situ.
T_0	No primary tumour.
T_1	Tumour size 0–2 cm.
T_2	Tumour size 2–4 cm.
T_3	Tumour size greater than 4 cm.
T_4	Massive primary tumour with invasion of surrounding organs e.g. Larynx.

TABLE II
TREATMENT REGIME OF PATIENTS PRESENTING TO THE CHRISTIE HOSPITAL WITH POST-CRICOID CARCINOMA 1968–78

Primary surgery	4
Radical radiotherapy	102
Palliative radiotherapy	50
(Radical Radiotherapy with Bougie)	13
No treatment offered (Disease too extensive or patient unfit for operation.)	45

by a radical neck dissection and a further 9 treated by radiotherapy.

Results

201 patients with post-cricoid carcinoma were seen between 1968–1978. In the 10-year period, no significant difference was seen in the numbers of patients seen each year. There were 35 male and 166 female patients in this series, and their ages ranged between 29 and 85 years (Table III), with almost 75 per cent of the patients older than 60 years.

The length of the history varied between one month and thirty-six months, most patients (95 per cent) presenting within one year of onset of symptoms and 50 per cent presenting within 3 months from onset of symptoms. The frequency of each presenting feature is shown as a histogram (Fig. 1).

The TNM stage at presentation is shown in Table IV. The majority of patients presented at a late stage, only 16 (8 per cent) had lesions smaller than 2 cm. (T_1) but 86 (42.8 per cent) had growths extending into adjacent sites.

TABLE III
AGE AND SEX DISTRIBUTION OF POST-CRICOID CARCINOMA, 1968–1978

Age Group	Male	Female	Total
Less than 40	1	3	4
	2.9	1.8	2.0
40–49	3	14	17
	8.6	8.4	8.5
50–59	3	31	34
	8.6	18.7	16.9
60–69	11	71	82
	31.4	42.8	40.8
70–79	15	42	57
	42.9	25.3	28.4
80+	2	5	7
	5.7	3.0	3.5
Total	35	166	201
	17.4	82.6	100

Cervical nodes were more common in the more extensive lesions, with 50 per cent of the T_4 lesions having nodes at presentation, and of those almost two-thirds had bilateral or fixed nodes. 88.2 per cent of T_1 and T_2 growths, that is those tumours smaller than 4 cm., had no nodes at presentation. No patients had distant metastases at presentation.

It was not possible to biopsy the tumour in all cases, as some patients were too ill to undergo anaesthesia. Histology of those cases biopsied was always reported as squamous cell carcinoma except in one case, where an adenocarcinoma was present.

Survival curves were compared using the logrank test (Peto *et al.* 1977), and corrected for intercurrent deaths. Only 19 patients survived for more than 5 years (Fig. 2); however of the 201 original patients, almost half (95) were excluded from radical treatment at the outset because of their unsuitability for treatment. Thus, of the patients treated radically, 22 per cent survived more than 5 years.

Only 4 patients had primary surgery. These operations were performed by different surgeons using different criteria and therefore it is not possible to give a value judgement of their results. None of these patients survived 5 years.

Fig. 3 compares the results of palliative and

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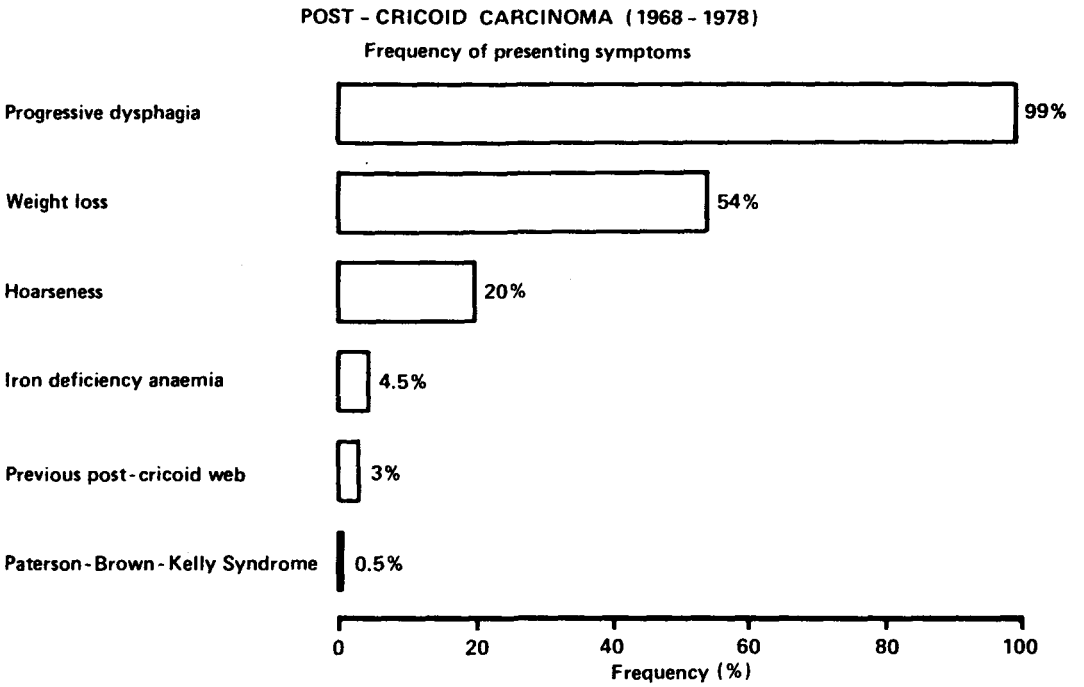


FIG. 1

TABLE IV
TUMOUR AND NODE STAGE OF DISEASE

		N Stage				
		0	1	2	3	Total
T Stage	1	15	1	0	0	16
		93.7%	6.2	0.0	0.0	8.0
	2	43	6	2	1	52
		82.7%	11.6	3.8	1.9	25.9
	3	29	11	3	4	47
		61.7%	23.4	6.4	8.5	23.4
	4	43	17	8	18	86
		50.0%	19.8	9.3	20.9	42.8
	Total	130	35	13	23	201
		64.7%	17.4	6.5	11.4	100.0

radical radiotherapy. 90 per cent of the patients having palliative radiotherapy were dead within 12 months and none survived longer than 4 years. Patients who had radical radiotherapy had a 22 per cent 5-year survival time overall. 16 patients with tumours smaller than 4 cm. survived 5 years, but only 3 patients with larger tumours survived 5 years (Fig. 4). The survival of the patients was significantly worsened by the presence of cervical nodes (Fig. 5). N_0 stage disease accounted for almost all the patients surviving 5 years. Only one patient with N_1 disease survived 12 months. All patients with N_2 and N_3 nodes were dead within 2 years.

45 patients were not treated, and of these 15 were followed up. Only one patient lived longer than 4 months (Fig. 6), and all were dead within 9 months.

126 of the patients who had primary radio-

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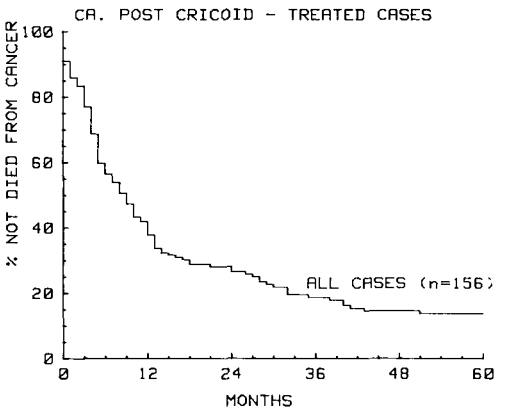


FIG. 2

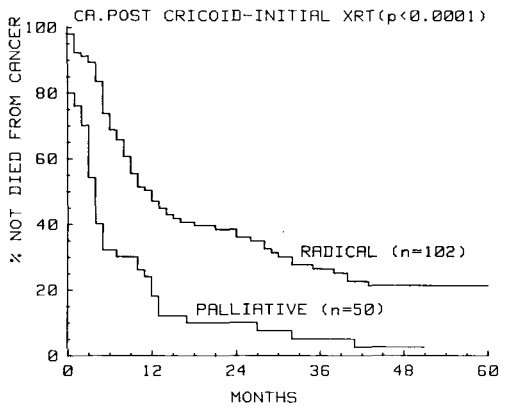


FIG. 3

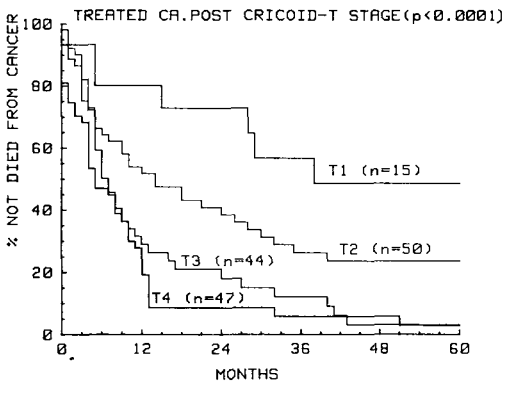


FIG. 4

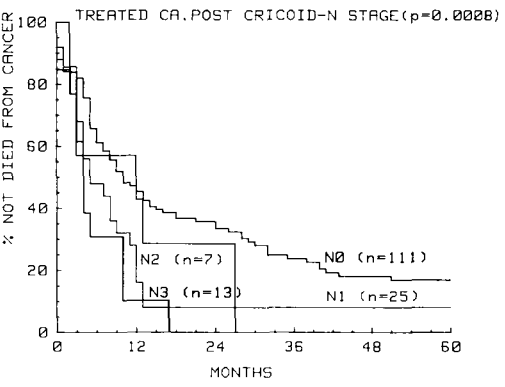


FIG. 5

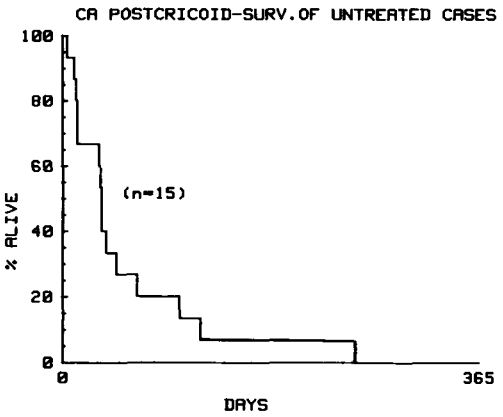


FIG. 6

therapy developed recurrences with 75 per cent of these occurring within one year of treatment. Only 16 patients were deemed suitable for salvage surgery, the remainder had no treatment at all (Fig. 7). 90 per cent of the untreated recurrent tumour cases were dead within 6 months of the diagnosis of their recurrence. The fate of the salvage surgery group is discussed more fully in the study which follows (Jones, Farrington and Weighill, 1986).

Discussion

Post-cricoid carcinoma is overall a relatively uncommon condition in ENT clinics; at the Christie Hospital it represents approximately 4 per cent of all head and neck tumours seen.

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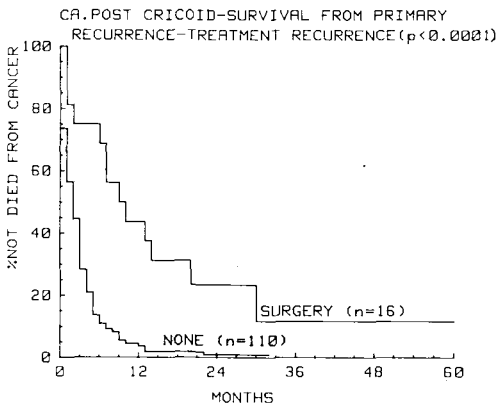


FIG. 7

This paper suggests that it is a disease mainly of the elderly, with 69 per cent of the patients between 60 and 80 years. Females much more commonly present with the disease, but survival does not appear affected by the patient's sex, as was suggested by Pearson (1966).

The most common presenting symptoms were dysphagia, hoarseness and weight loss. The length of the history was not related to overall outcome but hoarseness, if present, was associated with a poor 5-year survival. This was probably because hoarseness indicates extension of the tumour to the larynx. A surprising finding was that fewer patients with post-cricoid carcinoma have a previous history of iron-deficiency anaemia, Paterson-Brown Kelly syndrome or a post-cricoid web than is generally thought. In a previous study at the Christie Hospital (McNab-Jones, 1961), between one-third and two-thirds of patients with a post-cricoid carcinoma had previously been diagnosed as having the Paterson-Brown Kelly syndrome. However, of 76 patients seen at that time in the haematology department with the syndrome and treated, only one developed a post-cricoid carcinoma. This change in the presentation of the disease is probably due to better social conditions and also better treatment of iron deficiency anaemia in recent years.

Post-cricoid cancers present late with 66 per cent of tumours T_3 or T_4 (Lederman, 1962). Many patients are unsuitable for treatment at presentation. The overall 5-year survival figure was approximately 20%. These results are slightly worse than those of Pearson (1966) who had a 5-year survival of 25 per cent, similar to Dalby's (1964) results, but better than Lederman's (1958, 1962) or those of Lord *et al.* (1973), who had approximately 8 per cent 5-year survivals. The study shows that small tumours (0.4 cm.) do reasonably well with radiotherapy. T_1 tumours have a 48 per cent survival rate and T_2 a 23 per cent 5-year survival. Larger tumours have a less than 5 per cent 5-year survival. The relationship of tumour length to prognosis has been noted previously (Stell *et al.*, 1982; Dalby, 1964), and it has been suggested that the UICC staging system should allow for length of tumour.

The presence of cervical metastases significantly alters the prognosis, with the 5-year survival dropping to less than 10 per cent with unilateral mobile nodes and in cases with bilateral or fixed nodes, there were no long-term survivors.

Finally, as Pearson (1966) noted, patients who are treated by palliative radiotherapy do very poorly in terms of survival; most patients die within a year of treatment. However, this study did not investigate any possible beneficial effects of the treatment on swallowing or pain relief.

Conclusion

Despite the problems involved in a retrospective study in standardizing classification and treatment, it is nevertheless, often the only means of describing the natural history of relatively rare diseases. From this study, it is possible to draw several conclusions.

Post-cricoid carcinoma has a very poor prognosis, with overall a less than 20 per cent 5-year survival rate. This is largely due to the fact that it presents late, and often patients are too debilitated to undergo treatment.

Radiotherapy in small lesions of up to 4 cm. in length produces acceptable survival rates and is probably the treatment of choice at present.

The presence of nodes significantly worsens

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the prognosis, and in patients with bilateral or fixed nodes the disease seems to be incurable.

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