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CARCINOMA OF THE LARYNX

IV. Recurrences more than 5 years after primary treatment

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During the period January 1944 to August 1968 400 patients with carcinoma of the larynx were treated at the Municipal Hospital, Århus. In 366 (91.5 per cent) of the cases the primary treatment was irradiation and in 34 (8.5 per cent) surgery. The material has been analysed and the results of treatment reported previously (JØRGENSEN 1970, 1974, JÖRGENSEN & SELL 1971). The present report concerns recurrences appearing more than 5 years after the primary treatment and the survival after 10 years of observation.

Recurrences. The great majority of recurrences appeared during the first 2 years of observation. During the period August 1963 to August 1968 152 patients were treated and 53 displayed recurrences during the first 2 years, but only five altogether during the third, fourth and fifth years.

The number of recurrences during the period 5 to 10 years of observation appears in Table 1. This table was designed to estimate the annual recurrence rate which (in per cent) was calculated from the formula $\frac{G \times 100}{E + ((A + C)/2)}$. (The factors G, E, A and C are defined in Table 1.) The formula is intended to elucidate that the rate is dependent

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Table 1

The fate of 261 patients with carcinoma of the larynx during the period from 5th to 10th year of observation. The table is used for cumulative survival rate calculation and evaluation of frequency of late recurrences

	Year of observation					
	6th	7th	8th	9th	10th	11th
A. Number of deaths from other causes than carcinoma of the larynx during year	8	9	8	8	8	
B. Number of deaths from carcinoma of the larynx during year	1	3*	0	0	0	
C. Withdrawn alive recurrence free during year	14	28	16	21	13	
D. Withdrawn alive with recurrence during year	0	0	0	1	1	
E. Alive at beginning of year without recurrence	256	234	196	172	143	122
F. Alive at beginning of year	261	238	198	174	144	122
G. Number of recurrences during year	3	1	2	1	3	0
H. Recurrence rate during year (%)	1.2	0.5	1.1	0.6	2.3	0.0

* This group includes the patients dying from a late recurrence

on the number of patients exposed to the risk of developing a recurrence in a certain year. All cases with recurrences had been irradiated primarily. However, the 34 primary operated patients were also included in the recurrence rate calculations. Hence, the late recurrence rates for patients with primary irradiation are slightly higher.

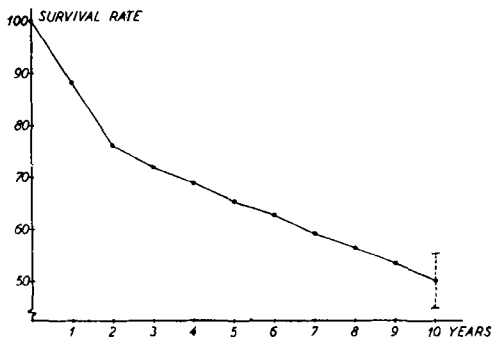
Ten patients developed recurrences, on average, a little more than 1 per cent a year, all of them in loco or in the marginal area of the location of the original tumour. Only 2 recurrences occurred after more than 10 years. One was almost certainly a new tumour, the original one being a T1N0M0 (UICC 1972) on the left vocal cord and the new tumour appearing in the right ventricular band. In the second case the recurrence occurred in loco.

The regional lymph nodes were not involved in any of the patients. The treatment of these 12 cases (11 recurrences and one new tumour) appears in Table 2. Two pa-

Table 2

Treatment of 12 cases of recurrences appearing more than 5 years after primary treatment

Partial laryngectomy	6 patients
Partial laryngectomy Later total laryngectomy	2 patients
Total laryngectomy	3 patients
Palliative irradiation	1 patient
Total	12 patients



Survival rate (per cent) for 400 patients with carcinoma of the larynx. Twice standard error is marked on the curve.

tients had a partial laryngectomy made total, and in one of them 8 years had passed between the two operations. One patient, old and feeble, had palliative irradiation. Apart from this patient, no patients had died from or with recurrence after surgery. No surgical complications appeared.

The survival was calculated per August 1973 when 248 patients had been observed for more than 10 years and 152 for 5 to 10 years. The crude 10-year survival rate for the former group was 49 per cent (122/248); the group of 152 patients had a 5-year crude survival rate of 68 per cent (104/152). A cumulative 10-year survival rate of all 400 patients was calculated after dividing the material as in Table 1. The mortality coefficient Q for the individual year of the follow up period was calculated and the corresponding survival coefficient was $1 - Q$. The cumulative 10-year survival was 50.4 per cent. The survival rates of the individual years of observation are plotted in the Figure. Standard error of the 10-year result was calculated using Greenwood's formula, and twice standard error was found to be 5.23 per cent. (For further information as to mode of calculation, see JØRGENSEN & SELL.)

Discussion

The frequency of late recurrences was low. In a series of 414 cases of carcinoma of the larynx all primarily irradiated, RYGAARD & HANSEN (1966) reported 11 cases of recurrences appearing 5 to 13 years after treatment, i.e. a frequency of the same order as the present one.

It has been discussed whether late recurrences were to be considered as new, independent tumours possibly irradiation induced (SVANE-KNUDSEN 1960, FALBE-HANSEN & JAZBI 1966). Apart from one case, all recurrences appeared at the site of the primary tumour or its immediate vicinity which indicates that late recurrences in the present material were almost exclusively ordinary recurrences and not new independent tumours. MARKS et coll. (1973) in a retrospective analysis of 134 cases of early glottic carcinoma, came to the same result. However, late recurrences differ from early ones, viz. half of the cases could be treated by partial laryngectomy. It is

likely that also their histology differs and the result of a histologic grading, following the rules of JAKOBSSON (1973) not only the primary tumours but also of the recurrences would be most interesting.

The low frequency of late recurrences and their benign behaviour indicate that there is no need for frequent follow up examinations of patients free of recurrence more than 5 years after the primary treatment. In the present material these patients were examined once a year up to 10 years, which seems rational as only 2 recurrences occurred more than 10 years after the primary treatment.

The declination of the survival curve in the Figure depends on two factors, the mortality from laryngeal carcinoma and from other causes. The latter factor is the most important one after the 5th year of observation (Table 1), i.e. the declination of the last part of the survival curve is determined mainly by mortality from causes other than carcinoma of the larynx.

SUMMARY

The annual frequency of recurrences appearing during the 5th to 10th year of observation was a little more than 1 per cent a year. A formula is described for calculating this frequency. Apart from one case all 12 late recurrences were ordinary recurrences and not new independent tumours. Mortality was almost exclusively attributable to causes other than carcinoma of the larynx.

ZUSAMMENFASSUNG

Die jährliche Frequenz von Rückfällen, die während des 5. bis 10. Jahres der Untersuchung auftrat, betrug etwas mehr als 1 Prozent im Jahr. Abgesehen von einem Fall waren alle späten Rückfälle gewöhnliche Rezidive und nicht neue unabhängige Tumoren. Die Mortalität war beinahe ausschliesslich anderen Ursachen als dem Laryngx-Karzinom zuzuschreiben.

RÉSUMÉ

La fréquence annuelle de récidive de cancer du larynx apparaissant de la cinquième à la dixième année d'observation a été un peu supérieure à 1 % par an. L'auteur donne une formule pour calculer cette fréquence. A l'exception d'un cas, les 12 récidives tardives étaient des récidives ordinaires et n'étaient pas de nouvelles tumeurs indépendantes. La mortalité a été presque exclusivement due à d'autres causes que le cancer du larynx.

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