

## Long-term Follow-up after Radiation Therapy Alone for Esophageal Carcinoma

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**Purpose :** The incidence of esophageal carcinoma is increasing. Radical surgery is the treatment of choice, but large proportion of the esophageal cancer patients are with unresectable disease at the time of initial diagnosis, so radiation therapy has been the major treatment modality. We carried out retrospective analysis to see the outcome and prognostic factors of radiation therapy alone for esophageal carcinoma

**Materials and Methods :** From June of 1979 through December 1992, 289 patients with esophageal carcinoma were treated with radiation therapy alone at Department of Therapeutic Radiology, Seoul National University Hospital. Of these patients, 84 patients were excluded as they were ineligible for the current analyses. Twenty-two patients had distant metastasis other than supraclavicular lymph node metastasis, 52 patients received less than 45 Gy, and 10 patient were lost from follow-up. Therefore 205 patients constituted the base population of this study. According to AJCC staging system, there were 2 patients with of this study I, 104 with stage IIA, 26 with stage IIB, 48 with stage III, and 25 with stage IV, Radiation dose ranged from 4500 cGy to 6980 cGy with median dose of 5940 cGy. Follow-up period of the alive patients ranged from 77 to 180 months.

**Results :** The Median survival period of all the patients was 11 months and the 2-, 5-, and 10-year overall survival rates were 22.4%, 10.2% and 5.3%, respectively. Most of the failures were local recurrences. Of 169 failures, 134 had local failure as a component and 111 had local recurrence only. The Lymph node was most common distant metastatic site and the next was the lung. The stage, T-stage, N-stage, functional status, tumor size, and aim of treatment were statistically significant prognostic factors for survival by univariate analyses. But only tumor size and N-stage were significant by multivariate analyses.

**Conclusion :** We could get 10.2% of 5 year survival rate and 5.3% of 10 year

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가 AJCC  
 205 가 74  
 .1) 가 가  
 5 10% , 131  
 .2,3)  
 가 가 60 24 82  
 가 ECOG 1(123 ,  
 60.0%) .(Table 1). 가  
 가 191  
 , 19 , 125 13 , 28  
 120 5cm 83 5cm 10cm  
 2 10cm AJCC  
 TNM I 2 , IIA 104 , IIB  
 26 , III 48 , IV 25 .(Table 2)  
 5cm  
 1979 6 1992 12  
 289 3600cGy  
 84 4500cGy  
 52  
 4500cGy 10 3  
 가 22 가 가 4500cGy  
 가 6980cGy 5940cGy

**Table 1. Characteristics of the Patients with Esophageal Carcinoma**

Characteristic	Number(%)	Characteristic	Number(%)
Age	24 - 30	Functional status	
	31 - 40	ECOG	0
	41 - 50		1
	51 - 60		2
	61 - 70		3
	71 - 82		4
Sex	female	Location	
	male	cervical	13( 6.3)
		upper-thoracic	39(19.0)
		mid-thoracic	125(61.0)
Histology	squamous cell ca	low-thoracic	28(13.7)
	adenocarcinoma	Size of lesion	
		< 5 cm	120(58.5)
		5 - 10 cm	83(40.5)
	> 10 cm	2( 1.0)	

**Table 2. Distribution of Stage according to AJCC TNM Staging**

Stage	Number(%)	T-stage	Number(%)	N-stage	Number(%)
I	2(1.0)	1	3(1.5)	0	
IIA	104(50.7)	2	87(42.4)	1	130(63.4)
IIB	26(12.7)	3	87(42.4)		75(36.6)
III	48(23.4)	4	28(13.7)		
IV	25(12.2)				

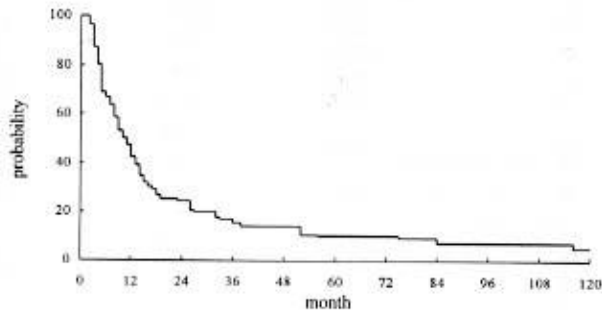


Fig. 1. Overall survival rate of esophageal cancer treated with radiation therapy alone.

Kaplan-Meier  
log-rank  
Cox-regression

.(Table 4).

169  
111 , 6 ,  
4 , 19 ,  
134 가 .(Table  
5). 가  
, , ,  
가  
1 180  
11 , 205  
10 , 10 2  
77 180 115 , 4 가 가 3 ,  
1-3 1

complete response가 41 (20.0%) partial response  
가 142 (69.3%), minimal response가 22 (10.7%)

11 , 1 , 2 , 5 10  
42.4%, 22.0%, 10.2% 5.3%

.(Fig.1).

가 .4)  
70% 가

가 15%  
5)

.(Table 3).

가

N-

.1)



**Table 3. Prognostic Factors Affecting Survival on Univariate Analysis**

Prognostic factor	Median survival	2-year survival	5-year survival	10-year survival	p-value
Age					
≤ 60	10	25.2%	13.5%	6.1%	n.s.
> 60	11	19.2%	6.4%	4.3%	
Sex					
female	9	7.1%	7.1%	0	n.s.
male	11	23.0%	10.5%	5.3%	
Stage					
I	18	50.0%	50.0%	0	0.0268
IIA	13	26.9%	12.5%	8.1%	
IIB	10	23.1%	7.7%	7.7%	
III	9	16.7%	8.3%	4.2%	
IV	7	12.0%	4.0%	4.0%	
Performance status					
ECOG 1	13	26.0%	12.2%	6.7%	0.013
2	7	15.3%	6.9%	4.2%	
3	10	20.0%	0	0	
Size of lesion					
< 5 cm	13	30.0%	13.3%	6.7%	0.009
5 - 10 cm	7	12.1%	6.0%	3.6%	
> 10 cm	7	0	0	0	
Location					
cervical	5	15.4%	15.4%	7.7%	n.s.
upper 1/3	11	22.4%	15.4%	10.3%	
mid 1/3	11	22.4%	8.8%	4.2%	
lower 1/3	12	21.4%	7.1%	3.6%	
T-stage					
1	38	66.7%	33.3%	0	0.0012
2	14	29.9%	13.8%	11.1%	
3	9	12.6%	4.6%	1.2%	
4	9	21.4%	14.3%	0	
N-stage					
0	12	26.2%	13.9%	5.5%	
1	8	14.7%	4.0%	2.7%	
Aim of treatment					
curative	13	27.5%	12.2%	5.2%	0.0026
palliative	7	13.5%	6.8%	2.7%	

**Table 4. Prognostic Factors Affecting Survival on Multivariate Analysis**

Prognostic factor	Relative risk	p-value
Age	1.203	n.s.
Sex	1.481	n.s.
Stage	1.073	n.s.
Performance status	1.184	n.s.
Size	1.542	0.0038
Location	0.897	n.s.
T-stage	1.212	n.s.
N-stage	1.604	0.0284
Aim	1.195	n.s.

**Table 5. Patterns of Recurrence of 205 Patients with Radiation Alone**

Recurrence pattern	Number
Local	111
Locoregional	6
Regional	4
Distant metastasis	19
Local & distant metastasis	15
Locoregional & distant metastasis	2
Regional & distant metastasis	12
<b>Total</b>	<b>169</b>
Failure with local component	134
Failure without local component	35
<b>Total</b>	<b>169</b>

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: 1979 6 1992 12 289 가

84 ;

22 , 4500cGy 52 , 가 10

205 77 180

. AJCC I 2 , IIA 104 , IIB 26 , III 48 , IV 25

4500cGy

6980cGy 5940cGy .

: 11 , 2 5 10

22.4% 10.2% 5.3% . 169

111 134 .

, T- , N- , ,

, N-

: 10.2% 5 5.3%

10 N- 가