

Squamous Cell Carcinoma

_____ : Squamous cell carcinoma (SCC)

_____ : 1995 10 2001 5

_____ : SCC 48

_____ : SCC 79.2%

가 3 23.0%

가 6 SCC 가

SCC (lead time) 4

SCC 85.7%, 100.0%

4 3 SCC 가

_____ : SCC 가 SCC

SCC 4

SCC 가

SCC 가

: SCC , , , ,

squamous cell carcinoma(SCC) antigen, carcinoembryonic antigen (CEA)

1997 Kato ¹⁾
SCC

가 (neoplastic transformation) 가 SCC

Epidermal Growth Factor (EGF)

2003

2003 9 29 2003 12 1

SCC EGF (differentiation) (de-

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differentiation) CaSki SCC ^{2,3)}

EGF

⁴⁾

SCC 9 Gy
가 18 Gy

가

Microsoft Office Excel 2000

AVERAGE, CORREL, SUM, COUNT

⁵⁾

SCC

CEA

48

35

⁶⁾

SCC 가

78

59

30 가

가

CEA

가

3 , 40 가 11 , 50 가 10 , 60 가 11 , 70 가 13

CEA SCC

가 SCC

가

⁶⁾

가

87

IA가

1 , IB 가 2 , IIA가 4 , IIB가 31 , IIIA가 2 , IIIB가 3 , IVA가 5

8.0

1 , 8.1 ~ 10.0 7 , 10.1 ~ 11.0 8 , 11.1 ~ 12.0 12 , 12.1 19 . 48 45 MRI CT

1.

1995 10 2001 5

0.0 cc 168.0 cc

38.1 cc

48

1

47

11

SCC

가

8

48

1

가

2

2.

(Table 1).

SCC

48

3 1 ,

3 6

SCC

SCC

Abott SCC Riabead

“ sandwich ”

radioimmunoassay

solid phase

2 ng/ml

400

0 ~ 5000 cGy/5 ~ 6

microselectron HDR

A point 400

cGy 7

A point

7000 ~ 7800 cGy

가

가

SCC

3

가

6

3

Table 1. Patients' Characteristics

Tumor volume (cc)	
~ 10	6 (12.5)
11 ~ 20	12 (25.0)
21 ~ 40	14 (29.2)
41 ~ 60	6 (12.5)
61 ~ 80	2 (4.2)
81 ~ 100	1 (2.1)
100 ~	4 (8.3)
NA	3 (6.2)
Lymph node enlargement	
Positive	11 (22.9)
Pelvic LN alone (+)	8 (16.6)
PALN alone (+)	1 (2.1)
Pelvic LN+PALN (+)	2 (4.2)
Negative	36 (75.0)
Not available	1 (2.1)

11.9 ng/ml, 38 (79.2%), 2 ng/ml, 29, 4 ng/ml, -0.278, SCC, SCC, 가, 15, 10 ng/ml, 100 ng/ml, 1, 46, (Table 2), (95.8%), 2 (4.2%), SCC, SCC, 0.499, 가, 가, 38, 36, 1, SCC, 1.55 ng/ml, 2, 8.58 ng/ml, 3, 35.44 ng/ml, 4, SCC, 48, 22.79 ng/ml, 가, SCC, 2.97 ng/ml, 71.20 ng/ml, SCC, 1, 47, SCC, 가, 13.44 ng/ml, 가, 1.52 ng/ml, 11 (23.0%), 11.21 ng/ml, 2 ng/ml, 37 (77.0%), SCC, 0.04, 28 (58.3%), SCC, 가, 1 ng/ml, 4, 8.4%, ng/ml, (Table 2), SCC, 가, 10, 2.0 ng/ml, SCC, 3, (Table 3), 10, SCC, 가, 1 (case 2), 가, SCC, 가, SCC, 가, 2.0 ng/ml, 가, 38, 3, 3.49 ng/ml, SCC, SCC, 71.20 ng/ml, SCC, 1, 37, 1.66 ng/ml, 38, 10 (26.3%), 2 ng/ml, 28 (73.6%), SCC, 가, 1 ng/ml, $\bar{x} \pm \bar{s}$

Table2. Pre-radiotherapy (Pre-RT) and Post-radiotherapy (Post-RT)

SCC Levels (for All Patients)		
SCC (ng/ml)	Pre-RT No. of patient (%)	Post-RT* No. of patient (%)
~ 0.99	4 (8.3)	28 (58.3)
1.00 ~ 1.99	6 (12.5)	9 (18.7)
2.00 ~ 3.99	9 (18.7)	7 (14.6)
4.00 ~ 9.99	14 (29.2)	2 (4.2)
10.00 ~ 19.99	9 (18.7)	1 (2.1)
20.00 ~ 39.99	3 (6.3)	0 (0.0)
40.00 ~ 99.99	2 (4.2)	1 (2.1)
100 ~	1 (2.1)	0 (0.0)
Total	48 (100.0)	48 (100.0)

*Post-RT SCC AgLevel was measured at around 3 months after RT

Table3. List of Patients with normal pre-RT SCC AgLevel with Failure

	Pre-RT SCC (ng/ml)	Local response	Post-RT* SCC (ng/ml)	SCC on relapse (ng/ml)	Site of relapse	Lead time (months)	Last F/U status
Case 1	0.61	CR	0.96	1.44	PALN		Fail
Case 2	1.65	PR	2.92	2.92	DM(bone)	1	Fail
Case 3	1.81	CR	0.76	0.32	DM(lung), LF	2	Fail

*Post-RT: SCC AgLevel was measured at around 3 months after RT, CR: Complete response, PR: Partial response, PALN: Paraaortic lymph nodes, DM: Distant metastasis, NED: No evidence of disease, Lead time: Elapsed time between tumor marker elevation and clinical relapse

(Table 4). SCC 가 SCC 가
 38 가 36 (B, Table 6), 17 3 3
 3 SCC 가 2.0 ng/ml 2 (C, Table 7).
 28 (77.8%) 4.0 ng/ml 2
 (5.6%) 2 6 SCC 가 14 (A +B)
 가 . SCC 가 12 SCC 가
 38 17 3 SCC (Table 5, 6) SCC
 가 가 17 7 가 85.7% (12/14) , SCC 가
 가 . 7 5 가 가 12 가
 SCC SCC 100.0%
 SCC 2 (12/12) . SCC
 가 (A 가
 , Table 5). 17 7 3 가
 (Table 5 case 5, case 6).

Table4. Pre-radiotherapy and Post-radiotherapy SCC Levels (forPatients Whose Pre-RT SCC were High)

SCC (ng/ml)	Pre-RT No. of patient (%)	Post-RT* No. of patient (%)
~ 0.99		21 (55.3)
1.00 ~ 1.99		7 (18.4)
2.00 ~ 3.99	9 (23.7)	6 (15.8)
4.00 ~ 9.99	14 (36.8)	2 (5.3)
10.00 ~ 19.99	9 (23.7)	1 (2.6)
20.00 ~ 39.99	3 (7.9)	0 (0.0)
40.00 ~ 99.99	2 (5.3)	1 (2.6)
100 ~	1 (2.6)	0 (0.0)
Total	38(100.0)	38 (100.0)

*Post_RT SCC AgLevelwasmeasuredat around 3 months after RT

Table5. List ofFailedPatients with High Pre-RT SCC Ag Level and Normal Post-RT SCC Ag Level

	Pre_RT SCC (ng/ml)	Local response	Post_RT* SCC (ng/ml)	SCC on relapse (ng/ml)	First site of relapse	Lead time (months)	Last F/U status
Case 1	3.84	CR	0.45	2.32	LRF	1	Fail
Case 2	5.37	CR	0.64	7.15	LRF	1	Fail
Case 3	7.00	CR	0.82	7.02	PALN	9	Fail
Case 4	8.25	CR	0.34	2.02	LRF	2	Fail
Case 5	8.82	CR	1.93	1.93	DM(lung)		Fail
Case 6	9.68	CR	1.2	1.2	DM(lung)		Fail
Case 7	13.28	CR	1.46	16.8	PALN	14	Fail

*Post_RT: SCC AgLevelwasmeasured at around 3 months after RT, CR: Completeresponse, PR: Partial response, PALN: Paraaortic lymph nodes, LRF: Locoregional failure, DM: Distantmetastasis, NED: Noevidence of disease, Lead time: Elapsed time between tumor marker elavation and clinical relapse

Table6. List ofFailedPatients with High Pre-RT SCC Ag Level and High Post-RT SCC Ag Level

	Pre_RT SCC (ng/ml)	Local response	Post_RT* SCC (ng/ml)	SCC on relapse (ng/ml)	First site of relapse	Lead time (months)	Last F/U status
Case 1	11.67	PR	71.2	71.2	DM(bone)	0	Fail
Case 2	17.69	CR	2.23	9.22	DM(lung)	-1	Fail
Case 3	24.64	PR	3.34	3.34	DM(lung)	0	Fail
Case 4	31.18	CR	4.5	2.57	PALN	13	NED
Case 5	66.38	PR	11.41	11.41	DM(bone)	4	Fail
Case 6	17.41	CR	2.0	2.76	PALN	4	NED
Case 7	100.23	CR	3.34	20.34	LRF	1	Fail

*Post_RT: SCC AgLevelwasmeasured at around 3 months after RT, CR: Completeresponse, PR: Partial response, PALN: Paraortic lymph nodes, LRF: Locoregional failure, DM: Distantmetastasis, NED: Noevidence of disease, Lead time: Elapsed time between tumor marker elavation and clinical relapse

Table7. List ofPatients with High Post-RT SCC Ag Level without Relapse (forPatients with High Pre-RT SCC Ag Level)

	Pre_RT SCC (ng/ml)	Local response	Post_RT SCC (ng/ml)	Minimum SCC during F/U (ng/ml)	Last F/U status (month)
Case 1	19.46	CR	3.2	0.44	NED
Case 2	25.06	CR	3.34	0.78	NED
Case 3	52.33	CR	6.76	0.22	NED

NED: No evidence of disease, F/U: Follow up

) SCC 가 19 ng/ml MRI
6 Ohara SCC
SCC (0.44, 0.78, 0.22 ng/ml) 7) Taketa 8)
SCC (Table 7). FIGO SCC 가
3 가 가 가
가 가
SCC (lead time) 4 (Table SCC 가가
5, 6) SCC (Table 6 case 2). 2 cm 가
0.5 cc 38.1 cc
Gaarenstroom⁹⁾
SCC 가
MRI parametrium
, Taketa 8) Lin 10)
SCC SCC
SCC 가 가
SCC 79.2%

IIB 가 가 . Yuan ²¹⁾

가 I 17 ~ 50% SCC (residual tumor)

53 ~ 77% 92% Pras ²²⁾ SCC (residual tumor)

11 ~ 18) Ohno ¹⁹⁾ 92% 14

SCC . Micke SCC 가가

98% 12 SCC 가 가 가 2

SCC 가 가 SCC 가

87% SCC 가 SCC 가가 2 SCC

71% 가 SCC 가 SCC 가가 8.82, 9.68 ng/ml

20) SCC 가 SCC 가

6 14 가 SCC

1.93, 1.2 ng/ml 가 SCC

SCC 가 가 SCC

SCC 가 SCC (nodule) 3

(Table 4). SCC 가 1 cm 0.375 cc 가 2 SCC

가 SCC 가 가 가 가 2

38 21 SCC (NED) SCC 가 SCC 2

가 4.9 ng/ml 가 SCC 가 SCC 가

14 SCC 가 0.64 ng/ml SCC

(abdominopelvic CT) 85.7%, 100.0% Ngan ⁵⁾

가 1.0 cm 74.2%, 98.2%

SCC 1.19 ng/ml 30 SCC

가 가 1.2 cm SCC ^{19,24)} Esajas

38 17 () 14% SCC ²⁴⁾

SCC 가 SCC , ,

6 SCC 가 SCC 가가

3 SCC SCC 가가

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Abstract

Long Term Follow Up Results of Serum Squamous Cell Carcinoma Antigen Level in Uterine Cervix Cancer Treated by Radiotherapy

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Purpose: To evaluate the long term significance of the squamous cell carcinoma (SCC) antigen (Ag) as a tumor marker in uterine cervix carcinoma.

Materials and Methods: The SCC antigen levels of pre-radiotherapy and serial post-radiotherapy serum were analyzed in 48 patients who received radiotherapy with histologically proven primary SCC of the uterine cervix.

Results: Pre-radiotherapy SCC Ag level was high (≥ 2 ng/ml) at 79.2%. After the treatment, the SCC Ag level was significantly decreased. The SCC Ag level measured at about 3 months after radiotherapy was high at 23.0%. In further follow up measurements, a rise of the SCC Ag to a high level was well associated with clinical relapse. The specificity of the elevated SCC Ag level in association with recurrent or persistent disease was 100%, and the sensitivity was 85.7%. In 3 of 4 lung metastasis cases, lung lesions were detected in chest PA before elevation of the SCC Ag level. The median lead time of the high SCC Ag level to clinical recurrence was 4 months.

Conclusion: SCC Ag was a good tumor marker for monitoring treatment effect in patients with increased pre-treatment levels except in case of early lung metastasis. Elevation of the SCC Ag level after radiotherapy accurately predicted the treatment failure with lead time of 4 months. But, in early lung metastasis cases, the SCC level may be normal temporarily. Thus, chest PA should be checked to evaluate the presence of lung metastasis.

Key Words: SCC, Tumor marker, Uterine cervix cancer, Radiotherapy, Lung metastasis