

S1 Table. Baseline characteristics according to institution (7 institutions, n=118)

Variable	All (n=118)	Institution 1 (n=81)	Institution 2 (n=14)	Institution 3 (n=8)	Institution 4 (n=5)	Institution 5 (n=5)	Institution 6 (n=3)	Institution 7 (n=2)
Initial presentation								
Age, median (range, yr)	56 (20-83)	56 (20-83)	56 (38-70)	50 (20-81)	54 (34-67)	59 (52-65)	66 (41-67)	55 (51-58)
Sex								
Male	92 (78.0)	63	11	4	5	5	3	1
Female	26 (22.0)	18	3	4	0	0	0	1
Primary subsite								
Nasopharynx	30 (25.4)	23	2	2	1	2	0	0
Oropharynx	15 (12.7)	8	4	0	1	1	1	0
Oral cavity	9 (7.6)	6	1	2	0	0	0	0
Paranasal sinus/nasal cavity	23 (19.5)	18	1	2	0	0	1	1
Hypopharynx/larynx	30 (25.4)	19	4	2	2	2	0	1
Other (SG, UP)	11 (9.3)	7	2	0	1	0	1	0
Histology								
SCC	95 (80.5)	66	10	7	3	5	2	2
Non-SCC	23 (19.5)	15	4	1	2	0	1	0
Stage								
I/II	31 (26.3)	22	5	1	1	1	0	1
III	16 (13.6)	11	0	3	0	1	0	1
IV	66 (55.9)	43	9	4	4	3	3	0
Unevaluable	5 (4.2)	5	0	0	0	0	0	0
Initial RT total dose, median (range, Gy)	66.0 (40.0-78.6)	66.6 (40.0-74.0)	65.95 (52.0-72.0)	65.4 (50.4-73.8)	66.0 (54.0-78.6)	70.0 (59.4-70.0)	66.0 (61.2-66.0)	70.4 (70.2-70.6)
Second presentation								
Age (yr)								
Median (range)	59	59 (20-90)	57 (40-76)	52 (32-82)	56 (45-76)	60 (53-66)	67 (42-71)	60 (54-65)

	(20-90)								
< 60	63 (53.4)	41	8	6	4	2	1	1	
≥ 60	55 (46.6)	40	6	2	1	3	2	1	
rStage									
rT0Nany	25 (21.2)	15	5	0	1	2	2	0	
rT1Nany	13 (11.0)	9	2	0	1	1	0	0	
rT2Nany	11 (9.3)	9	1	1	0	0	0	0	
rT3Nany	19 (16.1)	13	1	2	0	1	0	2	
rT4Nany	50 (42.4)	35	5	5	3	1	1	0	
Failure type									
Local failure	74 (62.7)	52	7	7	3	3	0	2	
Regional failure	24 (20.3)	15	5	0	1	2	1	0	
Locoregional failure	20 (16.9)	14	2	1	1	0	2	0	
Recurrent or SP tumor size (cm)									
< 3	54 (45.8)	35	8	3	2	4	1	1	
≥ 3	64 (54.2)	46	6	5	3	1	2	1	
No. of recurrent or SP tumor									
1	72 (61.0)	49	6	7	4	4	1	1	
≥ 2	46 (39.0)	32	8	1	1	1	2	1	
Pre-existing organ dysfunction									
No	110 (93.2)	80	11	6	4	5	3	1	
Yes ^{a)}	8 (6.8)	1	3	2	1	0	0	1	
RPA class ^{b)}									
Class I	25 (21.2)	18	4	0	1	0	0	2	
Class II	89 (75.4)	62	9	7	3	5	3	0	
Class III	4 (3.4)	1	1	1	1	0	0	0	

Second treatment

Salvage surgery									
No	70 (59.3)	49	4	8	3	3	3	0	
Yes ^{c)}	48 (40.7)	32	10	0	2	2	0	2	
Chemotherapy									
No	32 (27.1)	15	5	5	2	4	0	1	
Yes	86 (72.9)	66	9	3	3	1	3	1	
Reirradiation total dose, median (range, Gy)	59.4 (36.0-75.0)	60.0 (40.0-75.0)	57.7 (44.0-65.7)	40.25 (36.0-66.0)	54.0 (45.0-62.0)	60.0 (55.0-66.0)	59.4 (41.4-72.6)	60.1 (60-60.2)	
Reirradiation total dose (Gy)									
< 60	60 (50.8)	37	8	7	4	2	2	0	
≥ 60	58 (49.2)	44	6	1	1	3	1	2	
Treatment volume of reirradiation ^{d)}									
Focal field	100 (84.7)	73	9	6	5	3	2	2	
Radical field	18 (15.3)	8	5	2	0	2	1	0	
Cumulative RT dose, median (range, Gy)	124.9 (90.0-146.3)	124.8 (90.0-146.3)	120.0 (96.0-134.0)	108.9 (90.4-127.0)	123.6 (108.0-129.4)	126.0 (125.-136.0)	125.4 (102.6-138.6)	130.5 (130.4-130.6)	
Interval between RT courses (mo)									
< 24	52 (44.1)	34	8	4	1	3	2	0	
≥24	66 (55.9)	47	6	4	4	2	1	2	

Values are presented as number (%) unless otherwise indicated. ECOG PS, Eastern Cooperative Oncology Group performance status; SG, salivary gland; UP, unknown primary; SCC, squamous cell carcinoma; RT, radiotherapy; CRT, chemoradiotherapy; SP, second primary; PORT, postoperative radiotherapy; POCRT, postoperative chemoradiotherapy; CTx, chemotherapy; SP, second primary; rStage, recurrent tumor and nodal stage; RPA, recursive partitioning analysis. ^{a)}Tracheostomy (n=6, 5.2%) or feeding tube dependence (n=2, 1.6%) prior to re-irradiation, ^{b)} Prognostic groups associated with overall survival according to RPA defined by the Multi-Institution Reirradiation (MIRI) Collaborative, ^{c)}Salvage surgery was performed in 29 (R0 resection) and 19 patients (R1 resection), ^{d)}Focal field included the gross tumor or surgical bed plus margin of 0.5-1.0 cm, whereas radical field encompassed the gross tumor or surgical bed with elective high risk area plus margin of 0.5-1.0 cm.