

Theme: Clinical
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Abstract Title: Clinical Outcomes of Proton Beam Therapy for Major Salivary Gland Carcinoma: A Retrospective Analysis
Author Names: Keiichiro Baba; Masatoshi Nakamura; Takashi Saito; Taisuke Sumiya; Toshiki Ishida; Haruko Numajiri; Masashi Mizumoto; Kei Nakai; Hideyuki Sakurai.
The Affiliation: Department of Radiation Oncology, University of Tsukuba hospital, Japan

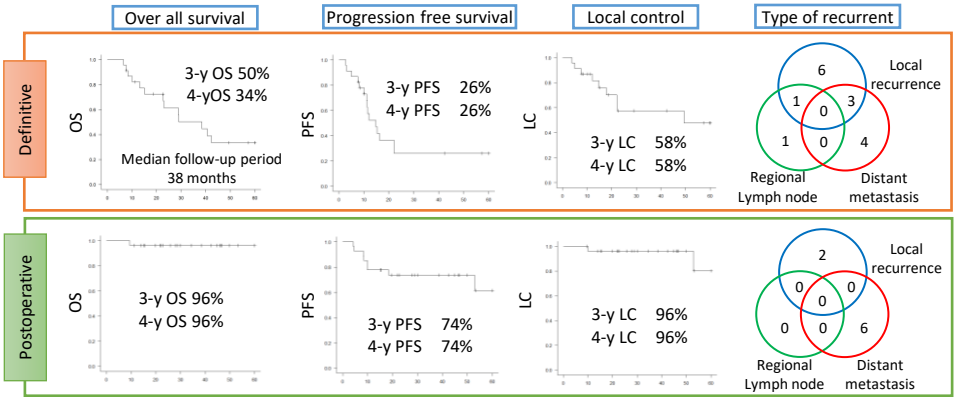
Aims To retrospectively evaluate the clinical outcomes of proton beam therapy (PBT) for major salivary gland carcinoma.

Subjects and Methods

A total of 50 patients with major salivary gland carcinoma who received PBT between 2003 and 2024 were analyzed. 23 patients underwent definitive PBT and 27 received postoperative PBT. A retrospective analysis was conducted on OS, PFS, LC and adverse events, employing univariate analysis using the log-rank test.

Patient characteristics		Definitive (n=23)	Postoperative (n=27)
Age	Median	71 (9 - 93)	61 (16 - 81)
sex	Male / Female	14/ 6	17/ 10
Performance status	0/ 1/ 2	8/ 10/ 2	24/ 3/ 0
Primary site	parotid / submandibular / sublingual	16/ 5/ 2	22/ 4/ 1
Histologic subtype	adenoid cystic CA /squamous cell CA /mucoepidermoid CA /salivary duct CA /CA ex pleomorphic adenoma/others	9/5/3/3/0/3	6/1/5/7/4/4
Stage (UICC 7 th)	I/ II/ III/ IVA/ IVB	0/ 3/ 2/ 13/ 5	3/4/6/10/4
Total dose	Median	70 (62.5 – 80)	66 (60 - 70)
BED (α/β=10)	Median	87.5 (77– 97)	79.2 (72 - 88)

Result



Univariate analysis (Definitive PBT group)

		n	3y-OS	P value	3y-PFS	P value	3y-LC	P value
age	<71	11	47%	0.432	20%	0.568	61%	0.953
	71≤	12	54%		31%		52%	
Pathological malignancy	Inter-mediate	5	60%	0.371	60%	0.064	60%	0.533
	High	12	37%		11%		55%	
Stage	I-III	5	100%	0.067	50%	0.096	75%	0.570
	IVA, IVB	18	37%		20%		53%	
BED (α/β=10)	< 89.7	17	52%	0.989	28%	0.769	53%	0.369
	89.7 ≤	6	42%		21%		75%	

In the postoperative PBT group, no significant factors associated with prognosis were identified in the univariate analysis.

Adverse events (>Gr2, CTCAE ver.4)

			Definitive	Postoperative
Acute	Dermatitis	Gr2	13	19
		Gr3	2	1
	Mucositis	Gr2	4	0
		Gr3	1	0
Chronic	Osteonecrosis	Gr2	0	1

Discussion

Retrospective study of definitive radiotherapy for salivary gland CA

		n	Median age	Stage	Median dose	OS	PFS	LC	Adverse event >G3
Spratt 2014 ¹⁾	Photon	27	55	T4a 52%	70	5-y 29%	5-y 23%	5-y 55%	acute 48% chronic 11%
				T4b 15%					
Holtzman 2021 ²⁾	Photon	67	NA	IVA 33%	74	5-y 46%	NA	5-y 54%	NA
				IVB 39%					
Current study	PBT	23	71	IVA 57%	70	4-y 34%	4-y 26%	4-y 58%	acute 15% chronic 0%

1) Jae Myoung Noh et. al. Clin Exp Otorhinolaryngol. 2010
2) Marc Andrea Walser et.al. Br J Radiol. 2023

PBT for salivary gland cancer is safe, and effective especially in the postoperative group. In the definitive PBT group, local recurrence was frequent. A trend towards improved LC was observed with high dose (BED ≥ 89.7 Gy). It is necessary to explore the optimal dose fractionation for dose escalation. Limitations : This study is a single-center, small-scale retrospective study.