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# Successful Completion of Radical Radiotherapy Alone for Cancer of the Palate in a 101-Year-Old Patient: A Case Report

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## Abstract

Here, we present the rare case of an oldest-old patient with cancer of the palate who successfully received radical radiotherapy with a good outcome. A 101-year-old woman with a 12-year history of left mandibular gingival squamous cell carcinoma, which was treated with surgery after intra-arterial chemotherapy, was noted to harbor a shallow ulcerative lesion on the left palate during a dental visit. The lesion did not improve despite denture adjustment and oral care instructions, and she was referred to the oral surgery department one month later. Abrasion brush cytology led to the diagnosis of clinical Stage I squamous cell carcinoma. The patient had congestive heart failure after myocardial infarction and chronic kidney disease, and surgery and chemotherapy were challenging due to her advanced age. The patient was offered the option of follow-up without treatment, but she preferred radiotherapy alone, with the understanding that the treatment would need to be terminated early if she could not tolerate the adverse events. She received intensity-modulated radiotherapy (IMRT), which was delivered to a limited area, including the primary lesion on the palate. During treatment, the patient developed grade 2 mucositis of the palate, requiring acetaminophen for pain control. However, she maintained oral intake and was able to complete radiotherapy, with a total dose of 66 Gy/33 fractions. The patient could continue oral intake at the one-year follow-up evaluation. According to information provided by her family, she died 13 months after completing radiotherapy. The patient was treated with the goal of early treatment completion, but the radiotherapy could be safely administered up to the curative dose. As illustrated in this case, radical radiotherapy alone with a curative dose may be considered a safe and effective option in oldest-old patients with head and neck cancer.

**Categories:** Geriatrics, Radiation Oncology, Oral Medicine
**Keywords:** case report, japanese geriatrics, longevity medicine, oldest old, palate cancer, radiotherapy

## Introduction

Japan is currently experiencing a declining birth rate and an aging population. In 2022, 29% and 15.5% of the Japanese population were≥65 and 75 years of age, respectively [1], whereas 92,139 individuals were >100 years of age in 2023 [2]. Importantly, the incidence of cancer and cancer-related deaths has been increasing in parallel with an aging population [3]. Although some older patients are healthy and may be eligible for the same treatment as younger patients, treatment can be more challenging because of age-related organ dysfunction, comorbidities, and an increased risk of severe complications. However, chronological age alone should not determine cancer treatment. Rather, treatment selection should be individualized according to functional status, frailty, comorbidities, organ function, tumor characteristics, life expectancy, and patient preferences. Radiotherapy is a minimally invasive cancer treatment that offers the maintenance of quality of life and can be performed even in cases where surgery or chemotherapy is not feasible. Radiotherapy has become more precise, ensuring fewer adverse events and fewer treatments, rendering this approach a more suitable option for elderly patients. However, evidence specifically addressing the feasibility and tolerability of radiotherapy in patients aged 100 years or older remains limited.

In Japan, oral cancer accounts for 1% of all cancers, and cancer of the palate is rare, accounting for only 3% of all oral cancers. Risk factors for cancer of the palate include smoking, drinking, chronic irritation, and old age, and the number of new cases is increasing with the aging population in Japan. More than 90% of malignant tumors of the palate are squamous cell carcinomas. Other histological types include carcinomas arising from the minor salivary glands, sarcomas, malignant lymphomas, and metastatic tumors. Surgery is the mainstay of treatment for palatal cancer. Depending on the extent of the tumor, resection may require a subtotal maxillectomy, potentially resulting in an oroantral or oronasal communication. Furthermore, when the tumor extends to the soft palate, surgical resection may substantially impair oral function, including speech and swallowing. For selected early-stage, exophytic tumors, however, local excision, including the periosteum when indicated, may be sufficient and can sometimes be performed under local anesthesia. Cervical lymph node metastases, when present, generally require separate management from the primary palatal tumor. The reported incidence of cervical lymph node metastasis may be lower than that associated

with some other oral cavity subsites, such as the mandibular gingiva [4]. Radiotherapy is another treatment option, particularly when preservation of speech and swallowing function is a priority or when surgery is unsuitable. Treatment approaches include external-beam radiotherapy, intensity-modulated radiotherapy (IMRT), stereotactic radiotherapy, and radiotherapy combined with systemic agents such as chemotherapy or cetuximab. The role of elective cervical lymph node irradiation in clinically node-negative patients depends on the clinical context and the evidence supporting the treatment approach. Brachytherapy is also an option for selected patients with early-stage disease. Because the hard palate is adjacent to bone and has a relatively thin layer of soft tissue, conventional interstitial implantation of radioactive sources can be technically challenging; mold-based brachytherapy may therefore be used. However, access to mold-based brachytherapy remains limited in Japan [5]. Furthermore, evidence regarding the feasibility and tolerability of radiotherapy, including mold-based brachytherapy, in patients aged 100 years or older is limited. Here, we report the case of a 101-year-old patient with cancer of the palate who successfully underwent radical radiotherapy.

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## Case Presentation

A shallow ulcer measuring 10 × 8 mm on the left side of the hard palate, at a site in contact with the denture, was incidentally identified during a dental visit in a 101-year-old woman with no specific symptoms. The patient had a history of left mandibular gingival squamous cell carcinoma diagnosed 12 years earlier, which was treated with two courses of intra-arterial cisplatin chemotherapy followed by marginal mandibulectomy and left supraomohyoid neck dissection. The postoperative pathological stage was pStage IVA (pT3N2bM0). The patient also had a history of femoral fractures on two occasions, 32 and four years earlier, deep vein thrombosis, angina pectoris, congestive heart failure following myocardial infarction treated with catheter-based intervention 22 years earlier, chronic kidney disease, and dyslipidemia. She had no history of alcohol consumption or smoking. Regarding family history, her mother was diagnosed with a cervical tumor, although the details were unknown, and her son was diagnosed with bile duct cancer.

She received denture adjustment and oral care instructions, which did not lead to an improvement in the ulcer size, and was evaluated in the oral surgery department of Toyama University Hospital one month later.

On physical examination, a shallow ulcer was observed on the left side of the hard palate. There was no obvious bleeding. The patient did not complain of pain and had a performance status (PS) score of 1. She usually walked with a cane but remained independent in activities of daily living (ADL). Although her PS and ADL independence were assessed, formal geriatric assessment, standardized nutritional assessment, and objective baseline swallowing evaluation were not performed. Her hearing was adequate for normal conversation, and she was able to read and sign the informed consent form independently. She enjoyed playing video games that involved cognitive stimulation, could engage in coherent conversations, and demonstrated a clear understanding of medical explanations. She also had a good appetite.

Laboratory tests revealed blood urea nitrogen, creatinine, and potassium levels of 26.4 mg/dL, 1.14 mg/dL, and 5.5 mmol/L, respectively, indicating a mild decrease in renal function. The tumor marker cytokeratin 19 fragment (CYFRA 21-1) level was high at 9.2 ng/mL. Laboratory findings at admission are summarized in Table *1*.

| Parameter | Patient volume | Reference range |
|---|---|---|
| Total protein (g/dL) | 7.1 | 6.6-8.1 |
| Albumin (g/dL) | 3.7 | 4.1-5.1 |
| Blood urea nitrogen (mg/dL) | 26.4 | 8.0-20.0 |
| Creatinine (mg/dL) | 1.14 | 0.46-0.79 |
| Estimated glomerular filtration rate (eGFR) (mL/min/1.73 m²) | 33 | ≥60 |
| Potassium (mmol/L) | 5.5 | 3.6-4.8 |
| Sodium (mmol/L) | 142 | 138-145 |
| Chloride (mmol/L) | 103 | 101-108 |
| Squamous cell carcinoma antigen (ng/mL) | 1.9 | ≤2.5 |
| CYFRA 21-1 (ng/mL) | 9.2 | ≤2.8 |

**TABLE 1: Laboratory findings at admission**

Although the CYFRA 21-1 level was elevated, this elevation may have been attributable, at least in part, to impaired renal function associated with the patient's chronic kidney disease. Therefore, the elevated CYFRA 21-1 level alone cannot be considered definitive evidence supporting the diagnosis of palatal cancer, the presence of metastatic disease, or the extent of tumor burden.

Contrast-enhanced computed tomography (CT) of the neck through the upper abdomen was performed. No obvious primary lesion or evidence of bone invasion was identified. No lymph node or distant metastases were detected within the imaged area. Considering the patient’s physical and financial burden, other imaging studies, such as magnetic resonance imaging (MRI) and 18F-fluorodeoxyglucose positron emission tomography/CT (FDG-PET/CT), were not conducted.

A tissue biopsy was not performed because of concerns about the invasiveness of the procedure. Instead, abrasion brush cytology was performed, which suggested squamous cell carcinoma. Therefore, histopathological confirmation and assessment of the depth of invasion were not available. Based on the clinical findings, measurement of the primary lesion (10 × 8 mm), and contrast-enhanced CT findings, the clinical stage was classified as T1N0M0 (Stage I) according to the eighth edition of the TNM Classification of Malignant Tumours [6]. However, because no tissue biopsy was performed, the histopathological depth of invasion could not be determined.

The treatment options were carefully discussed with the patient and her family. Surgery and chemotherapy were considered challenging due to advanced age and comorbidities, and both the patient and her family expressed that they did not wish to pursue surgery. Follow-up with no treatment was also presented as an option. The oral surgeon suggested treatment initiation before the appearance of symptoms, whereas the radiotherapist explained that the patient’s condition could rapidly deteriorate if oral intake became difficult due to acute adverse events and that follow-up observation was an option for the time being. However, the patient clearly expressed her wish to undergo treatment, stating that she was given the same explanation when she underwent surgery for gingival cancer and that she was satisfied with that decision. The patient chose radiotherapy as the treatment plan, provided written informed consent, and was referred to the radiology department for consultation one month after the diagnosis, two months after the initial observation of the shallow ulcer.

The timeline of the patient's clinical course, including the diagnostic process, treatment, and subsequent follow-up, is presented in Figure *1*.

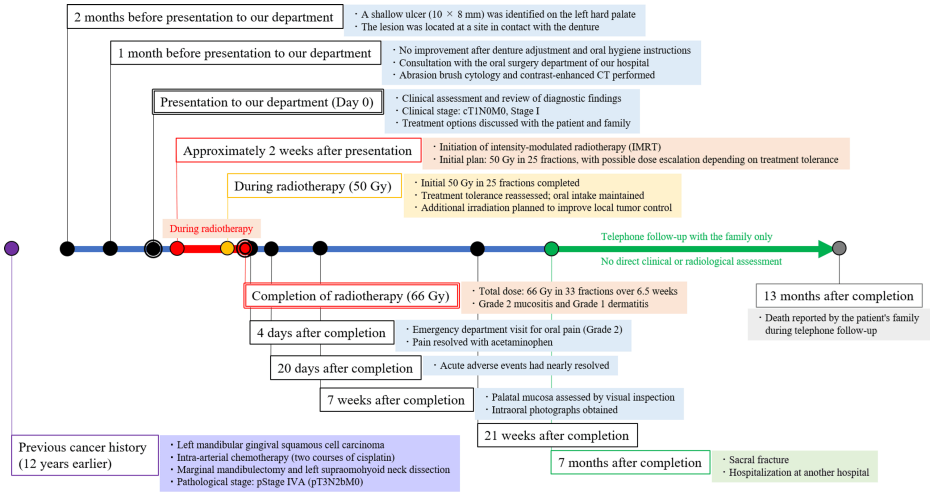



**FIGURE 1: Timeline of the patient's clinical course**

The timeline summarizes the patient's previous cancer history, presentation and diagnostic assessment of the palatal lesion, treatment planning, radiotherapy, and subsequent follow-up. The previous mandibular gingival cancer, treated 12 years earlier, is presented separately from the current palatal cancer.

Although the residual root stumps posed potential risks of local infection and osteomyelitis, extracting multiple teeth before radiotherapy was considered to impose a substantial procedural risk and physical burden on this 101-year-old patient. The potential risk of osteoradionecrosis (ORN) associated with dental extraction after radiotherapy was also considered. After carefully weighing these risks against the potential benefits of extraction, the oral surgeon decided not to perform extractions before radiotherapy, taking into account the patient's advanced age and overall condition.

Although mold-based brachytherapy may be an effective treatment option for palatal cancer, it was not available at our institution or nearby facilities because these institutions lacked experience with the technique and the necessary treatment applicators. Therefore, the patient was treated with IMRT alone, targeting only the primary tumor; the cervical lymph nodes were not included in the treatment field. This decision was made to minimize the treatment-related burden on the patient, taking into consideration the relatively low reported incidence of cervical lymph node metastasis in palatal cancer compared with some other oral cavity cancers [4]. The clinical target volume (CTV) was defined as the palatal lesion with a 5-mm margin, and the planning target volume (PTV) was defined as the CTV with an additional 3-mm margin. The prescribed dose was defined based on the dose covering 95% of the PTV (PTV D95). A bite block was used to minimize radiation exposure to the tongue and mandibular alveolar bone.

Given the patient's advanced age, the initial treatment plan was to administer a palliative dose of 50 Gy in 25 fractions, with the option of early discontinuation if clinically significant adverse events developed. If the treatment was well tolerated, additional irradiation would be considered to enhance local tumor control. After the initial 50 Gy, the patient had experienced only mild adverse events and was able to maintain oral intake. Following reassessment of her clinical condition and treatment tolerance, we decided to continue radiotherapy to a total dose of 66 Gy in 33 fractions. The final dose distribution showed a mean PTV dose of 68.93 Gy, a minimum dose of 62.79 Gy, and a maximum dose of 72.53 Gy. Figure *2A* and Figure *2B* show the radiotherapy dose distribution; Figure *2C* shows the patient setup during radiotherapy, and Figure *2D* shows the dose-volume histogram (DVH).

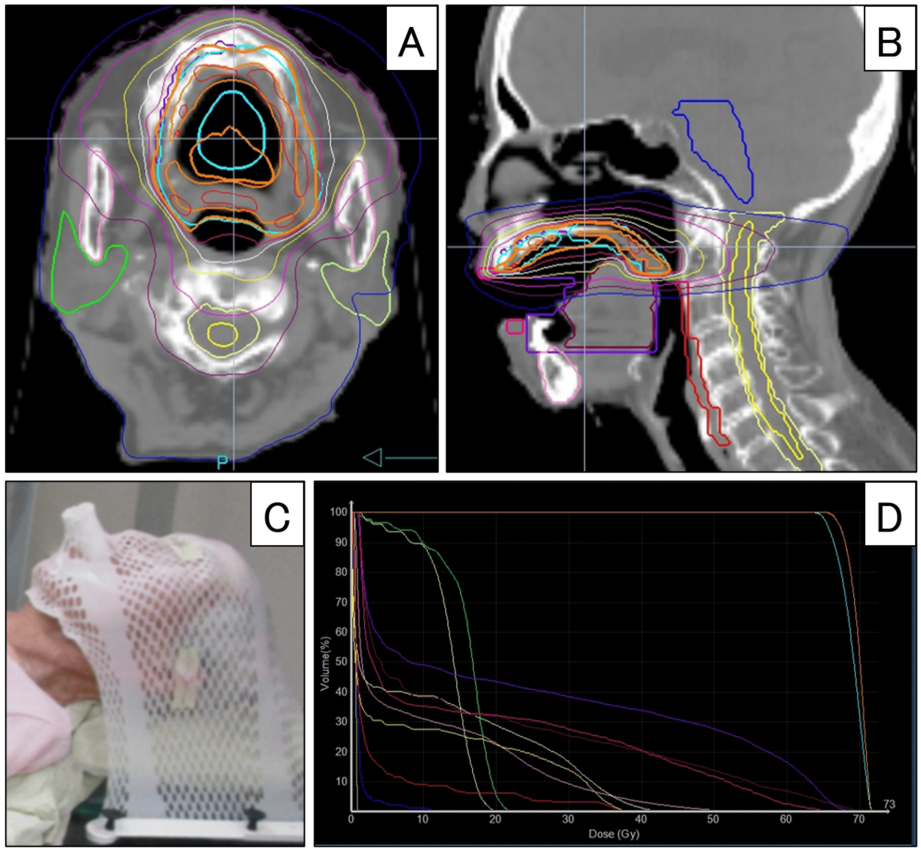



**FIGURE 2: Dose distribution, irradiation setup, and dose-volume histogram**

(A, B) Radiotherapy dose distribution. (B) Isodose lines are labeled with the corresponding dose values in Gy. The contours represent the planning target volume (PTV, light blue), clinical target volume (CTV, orange), right parotid gland (green), left parotid gland (light green), right submandibular gland (dark yellow), tongue (dark red), mandible (light pink), lips (pink), pharyngeal constrictor muscles (red), oral cavity outside the PTV (purple), brainstem (blue), spinal cord (yellow), and spinal canal (light yellow). (C) Patient setup during radiotherapy, showing the use of a bite block. (D) DVH showing the dose distribution for the PTV and organs at risk. The same color coding is used in panels A, B, and D to represent the corresponding structures. Intensity-modulated radiotherapy was used to deliver radiation exclusively to the primary palatal lesion.

At the start of radiation therapy, patients received a full-mouth professional mechanical tooth cleaning performed by a dental hygienist. Thereafter, approximately once a week, the dental hygienist provided oral care using cotton swabs and interdental brushes, as well as instruction on the proper use of a lipid-based oral liquid, an ointment containing dimethyl isopropylazulene, and an oral rinse containing dimethyl isopropylazulene and lidocaine. Adverse events were evaluated according to the Common Terminology Criteria for Adverse Events (CTCAE) version 5.0 [7].

During the treatment course, the patient experienced oral mucositis and odynophagia after the administration of approximately 20 Gy/10 fractions and 40 Gy/20 fractions, respectively. However, at the total planned treatment dose of 50 Gy/25 fractions, the patient was able to eat without analgesics after switching to porridge for meals; therefore, the patient could complete treatment with a total dose of 66 Gy/33 fractions, given in 6.5 weeks.

The mean dose to the oral cavity outside the PTV was 24.38 Gy. The mean doses to the right and left parotid glands were 12.13 Gy and 11.03 Gy, respectively, while the mean dose to the right submandibular gland was 0.65 Gy. The left submandibular gland had previously been surgically removed. The mean and maximum doses to the pharyngeal constrictor muscles were 3.38 Gy and 39.82 Gy, respectively. The mean and maximum doses to the tongue were 17.07 Gy and 71.33 Gy, respectively, while those to the lips were 16.12 Gy and 66.78 Gy, respectively.

Acute adverse events at the time of the final dose included grade 2 oral mucositis of the palate and tongue and grade 1 dermatitis of the philtrum [7]. Figure *3A* shows the palate before the initiation of radiotherapy, Figure *3B* shows the palate immediately after completion of radiotherapy, and Figures *3C*, *3D* show the palate at seven and 21 weeks after completion of radiotherapy, respectively.

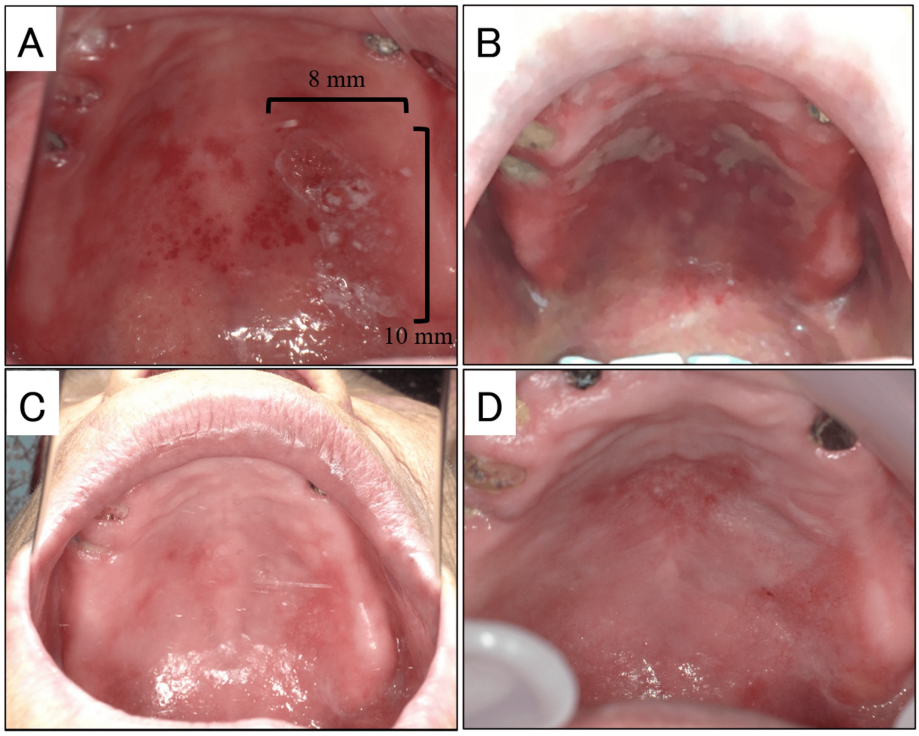



**FIGURE 3: Intraoral photographs before and after treatment**

Changes in the palatal lesion before and after radiotherapy. (A) Before the initiation of radiotherapy. The initial lesion measured 10 × 8 mm, as indicated in the photograph. (B) Immediately after completion of radiotherapy. (C) Seven weeks after completion of radiotherapy. (D) Twenty-one weeks after completion of radiotherapy. Intraoral photographs in panels A and C were obtained using an intraoral mirror, whereas those in panels B and D were taken from a direct frontal view.

Four days after the end of radiotherapy, the patient visited the emergency room with oral pain, which was assessed as Grade 2 [7]. The pain resolved with acetaminophen; the patient had not considered acetaminophen before the emergency room visit, although it was prophylactically prescribed at the start of radiotherapy. She had mild xerostomia but was able to eat, and all acute adverse events were nearly completely resolved within 20 days after the end of the treatment.

However, seven months after the end of treatment, the patient suffered a sacral fracture and was hospitalized in another hospital, making it impossible for her to continue regular follow-up visits to our hospital. Telephone follow-up at one year after the end of treatment confirmed that the patient was alive and in good health at 102 years of age, following admission to a convalescent hospital, and that she was not bedridden and was able to ingest her favorite foods, such as rice balls, sweetfish, and watermelon. Furthermore, according to information provided by the patient's family during a subsequent telephone interview, the patient died 13 months after completion of radiotherapy. According to the family, there was no evidence of local recurrence or ulcer formation, and the patient was able to continue eating foods of their preference until the end of life.

Written informed consent was obtained from the patient for publication of this case report, including the use of clinical information and intraoral photographs.

## Discussion

The present case report illustrates the safe and successful completion of radical radiotherapy in a 101-year-old patient with cancer of the palate. Surgery is the mainstay of treatment for cancer of the palate, and brachytherapy is considered an effective treatment option for patients with early-stage disease. For hard palate cancer, brachytherapy is often administered using a mold because of the difficulty of positioning the radiation source appropriately [5]. Although limited surgical resection, such as excision of the gingival tissue alone, may be performed as a less invasive approach in selected cases [4], it was not undertaken in the present case. The oral surgeon in charge considered that even this limited procedure would impose a considerable burden on the patient, and both the patient and her family did not wish to pursue surgery. In the present case, mold-based brachytherapy could also have been considered because of its shorter treatment duration, less invasive nature, and potential for curative treatment. However, this technique is available at only approximately 10 institutions in Japan. Neither our institution nor any nearby facility had

the necessary equipment and experience to perform this procedure; therefore, it was not a feasible option for this patient. Hypofractionated radiotherapy may also be used for palliative purposes, such as controlling bleeding and alleviating other tumor-related symptoms. However, this approach was not selected in the present case, taking into consideration the patient's clinical condition and preference for treatment. After discussing the available options, definitive external-beam radiotherapy was selected, with an initial plan to administer 50 Gy in 25 fractions and to consider additional irradiation depending on treatment tolerance.

Conventional external-beam radiotherapy using three-dimensional conformal radiotherapy (3D-CRT) alone is considered less likely to achieve tumor control in cancer of the palate, whereas the utility of high-precision radiotherapy techniques, including IMRT, particularly in combination with chemotherapy, has been evaluated in several studies [8]. However, there are reports indicating that patients who were older than 81 years did not have increased survival in combination with chemotherapy [9], and, moreover, no study to date has evaluated the efficacy of these approaches in patients aged over 100 years.

Japan is facing a declining birth rate and an aging population, with the population over 65 years of age currently accounting for approximately 30% of the total population [1]. In cancer control, consideration is given to the elderly, children, adolescents, and young adults. Radiotherapy is not considered off-label solely because of advanced age. A retrospective, single-center study evaluating curative radiotherapy for cancer in 327 patients over 85 years of age, with a median age of 87 years, reported that 95% of the patients completed treatment successfully [10]. In a multicenter study evaluating radiotherapy for cancer in 308 patients over 90 years of age, with a median age of 93.2 years, 93% of the patients successfully completed treatment [11]. However, treatment responsiveness may decline with age, and elderly patients with head and neck cancer are vulnerable to adverse events and require particular attention to oral intake. In elderly patients requiring radiotherapy, high-precision regimens that minimize the dose to normal tissues and accelerated radiotherapy should be considered to complete treatment within a short time frame [5].

Elderly patients, who face a shorter life expectancy, often have multiple comorbidities and may have difficulty making decisions, contributing to their reluctance to undergo treatment. Conversely, health conditions of elderly patients vary widely, so they are not necessarily excluded from treatment. During their treatment, the following conceptual categories should be considered: “fit,” in which the standard treatment used for healthy non-elderly patients can also be used in elderly patients; “vulnerable,” in which the standard treatment used for healthy non-elderly patients is not indicated in elderly patients, although aggressive treatment can be considered to an extent; and “frail,” in which aggressive treatment is not indicated and only palliative treatment is used in elderly patients [12,13]. In addition, for elderly patients undergoing treatment for cancer, several functional assessment tools have been developed for a variety of domains, including physical function, comorbidities, medications, nutrition, cognitive function, mood, social support, and geriatric syndromes. In older patients, a combination of assessment tools, such as ADL and instrumental ADL, which assess physical function; the Charlson comorbidity index, which assesses comorbidity; and Geriatric 8 (G8), a simple screening tool for assessing frailty in elderly cancer patients, is recommended [14,15]. Previous reports revealed that the G8 score, together with PS and tumor stage, was a significant factor influencing treatment decision-making [16]. Although the current patient had multiple comorbidities, her PS was good, with a well-maintained ADL and clear decision-making; therefore, determining the treatment plan was not challenging.

Whether patients over the age of 100 years should receive the same treatment as those aged 65-85 years is controversial. Currently, more than 90,000 people in Japan are over the age of 100 years [2]. The expected life expectancy of a 101-year-old woman is approximately two years [17]. Therefore, albeit extremely rare, a notable number of patients over the age of 100 years likely require treatment for similar diagnoses. There are very few case reports of patients aged 100 or older receiving radiation therapy. A search on PubMed using the terms “case report," “centenarian or 100 years old," “cancer or carcinoma," and “radiotherapy” yielded only two reports: one describing a patient who received radiation therapy for liver cancer at age 99, experienced a recurrence at age 102 [18], and underwent re-irradiation; and another describing a patient who received brachytherapy using a mold for skin cancer at age 103 (Table *2*) [19].

| Case | 1 | 2 | 3 |
|---|---|---|---|
| Author (year) | Meng Z, et al. (2020) [18] | Nakai M, et al. (2025) [19] | Current study |
| Age | 102 | 103 | 101 |
| Gender | Male | Female | Female |
| Site of lesion | Liver | Skin | Palate |
| Irradiation method | EBRT | Mold brachytherapy | EBRT |
| Radiotherapy setting | Re-irradiation | Initial radiotherapy | Initial radiotherapy |
| Dose per fraction (Gy) | 5.5 | 6 | 2 |
| Total dose (Gy) | 55 | 48 | 66 |
| Fractionation | 10 | 8 | 33 |
| Follow-up (month) | 9 | 11 | 13 |
| Recurrence | None | None | None |
| Toxicities | No acute toxicities | No serious adverse events | Grade 2 mucositis, Grade 2 pain, and Grade 1 dermatitis |
| Complications | Diabetes, dyslipidemia, and hypothyroidism | Dementia, tremor, and kyphosis | CHF, CKD, and dyslipidemia |

**TABLE 2: Case report on radiation therapy administered to a patient over 100 years old**

EBRT: external beam radiotherapy; CHF: congestive heart failure; CKD: chronic kidney disease

However, these cases differ substantially from the present case in terms of tumor location and radiotherapy technique: the former involved re-irradiation for liver cancer, the latter involved mold-based brachytherapy for skin cancer, whereas the present case involved external-beam radiotherapy for palatal cancer. Therefore, the comparability of these cases is limited, and direct comparisons of treatment approaches and outcomes should be interpreted with caution. In one study, a patient received radiotherapy for head and neck cancer at 97 and 99 years of age and survived until 100 years of age [20]; however, to the best of our knowledge, reports describing the completion of radiotherapy for head and neck cancer in patients aged 100 years or older remain scarce. The present case may provide a valuable addition to the limited literature on the use of conventionally fractionated radiotherapy in this age group. It suggests that, even in the head and neck region, where radiation-related adverse effects can be particularly challenging, radiotherapy may be completed in carefully selected patients through measures such as limiting the treatment field and providing appropriate supportive care throughout the treatment period.

This case report has several limitations. First, the diagnosis of squamous cell carcinoma was based solely on abrasion brush cytology, without histopathological confirmation by tissue biopsy. Therefore, the presence of invasive carcinoma, histological characteristics, and depth of invasion could not be definitively established. Although the clinical diagnosis was consistent with squamous cell carcinoma, other possible diagnoses could not be completely excluded. Second, pretreatment staging was based primarily on contrast-enhanced CT. Although no apparent regional lymph node or distant metastases were identified within the imaged area, more comprehensive staging with MRI or FDG-PET/CT was not performed. Therefore, the accuracy of the clinical staging, particularly the assessment of local tumor extent and distant metastasis, was limited. Third, although the patient's PS and ADL were assessed, no formal geriatric assessment, such as the G8 screening tool, was performed. In addition, nutritional status and baseline swallowing function were not evaluated using standardized assessment tools. Therefore, a comprehensive assessment of her physiological reserve and functional status before radiotherapy was not available. Finally, although the clinical course was monitored by visual inspection of the palatal mucosa, objective clinical and radiological assessments were not available after seven months of follow-up. Subsequent information was obtained through telephone interviews and reports from family members. Therefore, despite the visual assessment of the mucosal condition, sustained local tumor control could not be definitively established, and the long-term disease status could not be objectively confirmed. These limitations should be considered when interpreting the treatment outcome and the feasibility of radiotherapy in this patient.

## Conclusions

This case demonstrates the feasibility of completing definitive radiotherapy in a carefully selected, fit centenarian with palatal cancer. By appropriately limiting the irradiation field and providing oral care throughout treatment, radiotherapy was completed with manageable acute toxicity, and the patient was able to maintain oral intake during and after treatment. However, sustained local tumor control and the long-term oncological outcome could not be definitively established. This case highlights the potential feasibility of definitive radiotherapy in carefully selected, fit centenarian patients but does not establish its general safety or efficacy in this population.

## Additional Information

### Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

**Concept and design:** Tatsuji Mizukami, Jun-ichi Saitoh

**Acquisition, analysis, or interpretation of data:** Tatsuji Mizukami, Masaki Tobikawa, Shin-ichi Yamada, Kotaro Sakurai, Jun-ichi Saitoh

**Drafting of the manuscript:** Tatsuji Mizukami

**Critical review of the manuscript for important intellectual content:** Masaki Tobikawa, Shin-ichi Yamada, Kotaro Sakurai, Jun-ichi Saitoh

**Supervision:** Shin-ichi Yamada, Jun-ichi Saitoh

### Disclosures

**Human subjects:** Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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