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## Esophagus contouring guidelines

Skip Nav Destination PDF Split View Article contents Figures & tables Video Audio Supplementary Data Hypopharyngeal invasion would be a key finding in determining the extent of the irradiation fields in patients with cervical esophageal squamous cell carcinoma (CESCC). The aim of this study was to examine the clinical results of chemoradiotherapy using simultaneous integrated radiotherapy with intensity of strengthening (SIB-IMRT), which at CESCC omitted irradiation of the upper cervix lymph nodes without hypopharyngeal invasion and dosimetric predominance of SIB-IMRT to 3D conformal radiotherapy (3DCRT). Retrospectively, we identified 21 CESCC patients without hypopharyngeal invasion (clinical stage I/II/III/IV (M1LYM); 3/6/5/7) (UICC-TNM 7th edition) who underwent chemoradiotherapy with SIB-IMRT between 2009 and 2015. SIB-IMRT delivered 60 Gy to each primary tumor and metastatic lymph nodes and 48 Gy to elective lymph nodes, including levels III and IV of the neck, supraclavicular, and upper mediastinal lymphatic region, in 30 fractions. The overall survival rate, the coregional control rate and the initial repetition site were evaluated. 3DCRT plans were created to perform dosimetric comparisons with SIB-IMRT. At a median follow-up of 64.5 months, the 5-year co-regional control control and overall survival rates were 66.7% and 53.4%. The disease progresses in eight patients: all were locoregional progression, and no patients developed distant progression, including upper cervical lymph nodes, as starting points of recurrence. The planning study showed that SIB-IMRT improved target coverage without compromising the dose to the risk authorities compared to 3DCRT. In conclusion, omission of elective nodes irradiation of the upper cervical lymph nodes was probably reasonable for CESCC patients without hypopharyngeal invasion. Locoregional progression remained the main point of progression in this population. Chemoradiotherapy using 3D conformal radiotherapy (3DCRT) technique delivers a 29-66.5% 3-year overall survival (OS) rate in patients with cervical esophageal cancer squamous cell (CESCC) [1-5]. Two reports indicate that this result is comparable to that in patients treated with surgery [6,7]. However, locally advanced CESCC continued to show poor local regional control (LRC) and OS [3-5]. One of the reasons for the poor clinical outcome of locally advanced CESCC is the inadequate dosing of the target organ using 3DCRT due to its technical limitations. Unlike 3DCRT, intensity-modulated radiotherapy (IMRT) is an advanced radiotherapy technique that delivers conformist doses to the target but reduces doses to the remit [8]. Imrt for CESCC has been reported as delivering a better clinical outcome than achieved with 3DCRT [9, 10]. Cervical esophagus is serially associated with hypopharynx. Hypopharyngeal CESCC CESCC is not a rare situation and occurs in 11.1-42.6% of CESCC patients treated with chemodotherapy [5,11-14]. Hypopharyngeal submucosa has abundant lymphatic drainage to the cervical areas of the lymph nodes. Once CESCC attacks the hypopharynx glands, the risk of metastases to the upper cervical lymph nodes (level II and retropharyngeal lymph nodes) increases: 12% in CESCC patients with hypopharyngeal invasion vs. 0-1% in CESCC patients without hypopharyngeal invasion, respectively [15-17]. These pathophysiological backgrounds suggest that irradiation fields for the upper cervical lymph node areas are safely spared for CESCC without hypopharyngeal invasion. However, previous planning studies [8-10, 12-14,18] do not take into account the presence or absence of hypopharyngeal invasion in determining the extent of irradiation fields, with the exception of one study [11]. According to our information, no information is available on the clinical outcome of IMRT and its dosimetric evaluation in CESCC patients without hypopharyngeal invasion. Since 2009, cescc patients without hypopharyngeal invasion have undergone definitive chemodotherapy with simultaneous integrated radiotherapy with amplification intensity (SIB-IMRT) in our facility. SIB-IMRT adopted elective node irradiation (ENI) by omitting the upper cervical regions of the lymph nodes. In this study, we reviewed the medical records of these patients retrospectively and conducted a planning study to compare SIB-IMRT with 3DCRT using ENI omission of upper cervical lymph nodes. We focused on examining the safety and efficacy of SIB-IMRT chemotherapy at CESCC without hypopharyngeal invasion, omitting irradiation of the upper cervical lymph nodes and conducting a dosimetric evaluation of SIB-IMRT. MATERIALS AND METHODS Inclusion criteria This study retrospectively reviewed the medical records of patients who underwent SIB-IMRT for CESCC in our institution. All patients gave written informed consent to the research using their clinical data prior to treatment. This study was reviewed and approved by the Institutional Review Commission at our institution on 27.31 consecutive patients underwent definitive chemotherapy using SIB-IMRT for CESCC in our institution. Among them, 21 patients met the following criteria: (i) histologically confirmed squamous cell carcinoma, (ii) the primary tumour was in the cervical oesophagus without hypopharyngeal invasion, (iii) the prescription >50 Gy was the primary tumour and metastatic lymph nodes, and iv) chemotherapy was co-administered. Ten patients were excluded from this study for the following reasons: hypopharyngeal invasion (n = 8), chemotherapy (n=1) and adenocarcinoma (n=1). This study gathered the following information from patients' medical records: age, gender, performance status of the Eastern Cooperative group, laboratory data, clinical stage of cancer (Classification of malignant tumors According to the International Oncology Control, 7th edition), resectability, details of radiotherapy and chemotherapy, radiological findings (including computed tomography (CT) of the neck, chest and abdomen; magnetic resonance imaging of the neck and upper mediastinum; and 18F-fluorodeoxyglucose positron emission tomography (FDG-PET)), gastrointestinal endoscopic findings and adverse events. Patient characteristics are shown in Table 1. A multidisciplinary oncology team (gastroenterologists, surgeons, medical oncologists and radiation oncologists) assessed the tracheal invasion or large involvement of the vessels of primary tumor or metastatic lymph nodes. M1LYM refers to patients with supraclavicular and lower cervical lymph node metastasis that has been included in irradiation. Table 1. Parameters. . Median age (IQR) 66 (57, 68) Gender (female/male) 2/19 ECOG Performance status (0/1/2) 16/5/0 Clinical stage (I/II/III/IV)and condition 3/6/5/7 T (1/2/3/4) 5/5/2/9 N status (0 /1/2/3) 5 /13/3/0 M status (0/1LYM) 14/7 M1LYM

