Head-and-neck squamous cell carcinoma patients with CT taken during pre-treatment, mid-treatment, and post-treatment (HNSCC-3DCT-RT)

Summary

Researchers will have the unique opportunity to visualize how head-and-neck squamous cell carcinoma (HNSCC) patients' 3D CT image data changes with radiotherapy between pre-treatment, mid-treatment, and post-treatment. They will also have the advantage to receive additional information such as a) photon energy, b) number of arcs for volumetric modulated arc radiotherapy (VMAT) therapy, c) tumor volume and location, d) CT-to-density table, e) treatment related toxicities for parotid glands and oral cavity, f) patient age and weight, patient chemotherapy medication, g) prior surgery, h) performance status, i) histology, j) disease stage, k) number of targets, l) organs at risk, and m) other structures delineated on the CT image.

This data collection contains three dimensional high-resolution (3D) fan-beam CT scans collected during pre-treatment, mid-treatment, and post-treatment using a Siemens 16-slice CT scanner with standard clinical protocol for 31 head-and-neck squamous cell carcinoma (HNSCC) patients. Patients underwent radiotherapy treatment to a total dose of 58-70 Gy, using daily 2-2.20 Gy, fractions for 30-35 fractions. The pre-treatment planning CT scans were performed with a median of 13 days (range: 2-27) before treatment, the mid-treatment CT was performed at fraction 17 (range: 8-26), and the post-treatment CT around fraction 30 (range: 26th fraction - 21 weeks post treatment). In addition to the imaging data, the data sets contain contours of anatomical structures for radiotherapy. The contours were generated by the attending radiation oncologists for treatment planning purposes, and subsequently treatment plans were generated with Eclipse® (Varian Medical Systems, Inc., Palo Alto, CA) treatment planning system. In addition to CT image data, included are: a) photon energy, b) number of arcs for volumetric modulated arc radiotherapy (VMAT) therapy, c) tumor volume and location, d) CT-to-density table, e) treatment related toxicities for parotid glands and oral cavity, f) patient age and weight, patient chemotherapy medication, g) prior surgery, h) performance status, i) histology, j) disease stage, k) number of targets, l) organs at risk, and m) other structures delineated on the CT image.

All patients were recruited according to the following criteria. Inclusion: i) patients had histologically confirmed head-and-neck tumors, ii) were treated with definitive radiation therapy or concurrent chemoradiation therapy, iii) patients treated with post-operative radiation therapy, for whom the gross tumor volume (GTV) or the resection cavity were visible on CT, such that it could be delineated as a target for radiotherapy, iv) patients were informed of the investigational nature of this study and were able to understand and to sign a written informed consent document.

Exclusion: i) pregnant or nursing women were not eligible to participate, ii) women of reproductive potential must have been offered a pre-treatment pregnancy test and informed of the need to practice an effective contraceptive method, iii) patients younger than 18 years, and iv) patients whose size and weight would not allow CT scanning.

For scientific or other inquiries about this dataset, please contact TCIA's Helpdesk.

Data Access

Data Access

Some data in this collection contains images that could potentially be used to reconstruct a human face. To safeguard the privacy of participants, users must sign and submit a TCIA Restricted License Agreement to help@cancerimagingarchive.net before accessing the data.

Data Type	Download all or Query/Filter	License
Images and Radiation Therapy Structures (DICOM, 14GB)	*Download* *Search* (Download requires NBIA Data Retriever)	TCIA Restricted
Clinical Data (xlsb, 34kb)	*Download*	CC BY 3.0

Detailed Description

Detailed Description

	Radiology Image Statistics
Modalities	CT, RTDOSE, RTSTRUCT
Number of Participants	31
Number of Studies	93
Number of Series	372
Number of Images	18906
Image Size (GB)	14.4

Citations & Data Usage Policy

Citations & Data Usage Policy

Users must abide by the TCIA Data Usage Policy and Restrictions. Attribution should include references to the following citations:

ⓘ **Data Citation**

Bejarano T, De Ornelas-Couto M, Mihaylov IB. (2018). **Head-and-neck squamous cell carcinoma patients with CT taken during pre-treatment, mid-treatment, and post-treatment (HNSCC-3DCT-RT) [Data set]**. The Cancer Imaging Archive. https://doi.org/10.7937/K9/TCIA.2018.13upr2xf

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ⓘ **Publication Citation**

Bejarano T, De Ornelas-Couto M, Mihaylov IB. (2019) **Longitudinal fanbeam computed tomography dataset for headandneck squamous cell carcinoma patients.** Medical Physics. https://doi.org/10.1002/mp.13460

> ⓘ **TCIA Citation**
>
> Clark, K., Vendt, B., Smith, K., Freymann, J., Kirby, J., Koppel, P., Moore, S., Phillips, S., Maffitt, D., Pringle, M., Tarbox, L., & Prior, F. (2013). **The Cancer Imaging Archive (TCIA): Maintaining and Operating a Public Information Repository.** In Journal of Digital Imaging (Vol. 26, Issue 6, pp. 1045–1057). Springer Science and Business Media LLC. https://doi.org/10.1007/s10278-013-9622-7 PMCID: PMC3824915

Other Publications Using This Data

TCIA maintains a list of publications which leverage our data. If you have a manuscript you'd like to add please contact TCIA's Helpdesk.

Versions

Version 2 (Current): Updated 2019/02/06

Data Type	Download all or Query/Filter
Images (DICOM, 14GB)	*Download Search* (Download requires the NBIA Data Retriever)
Clinical Data (xlsb, 34kb)	*Download*

Added clinical data and removed one series from the Collection.

Version 1: Updated 2018/08/30

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