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*Retrospective Study*

**Radiomics** of rectal cancer for predicting distant metastasis and overall survival

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## Abstract

### BACKGROUND

Rectal cancer (RC) patient stratification by different factors may yield variable results. Therefore, more efficient prognostic biomarkers are needed for improved risk stratification, personalized treatment, and prognostication of RC patients.

### AIM

## Match Overview

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## Radiomics: a new application from established techniques

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5193485>

A recent **study** compared the performance of twelve different supervised classifiers in predicting overall survival in **lung cancer patients** using CT scans and found the **random forest classifier** to have relatively the best performance with low AUC=0.6 62. However, since **Radiomics** is a new and ever expanding area of research and with the development of better classification algorithms, the ...

**Cited by:** 92

**Author:** Vishwa Parekh, Michael A. Jacobs

**Publish Year:** 2016

## Radiomics features on radiotherapy treatment planning CT ...

<https://www.nature.com/articles/s41598-019-51629-4>

Oct 25, 2019 · The overall survival was improved by **radiomics** features from 0.67 to 0.73, suggesting that **radiomics** features are an independent feature of **overall survival prediction**.

**Author:** Jiazhou Wang, Lijun Shen, Haoyu Zh... **Publish Year:** 2019

## MRI-based Radiomics nomogram to detect primary rectal ...

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6399278>

The **radiomics nomogram** combined with clinical risk factors and LASSO features showed a good predictive performance in the training set (0.921 [0.862–0.961]) and validation set (0.912 [0.809–0.97]). Our **study** indicated that **radiomics** based on primary **rectal cancer** could provide a non-invasive way to predict the risk of SLM in clinical practice.

**Author:** Zhenyu Shu, Songhua Fang, Zhongx... **Publish Year:** 2019

## Radiomics score: a potential prognostic imaging feature ...

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6249916>

Nov 21, 2018 · In this **study**, we aimed at developing a **radiomics score (rad-score)** to estimate **postoperative** recurrence and survival in patients with solitary hepatocellular carcinoma (HCC).  
Methods A total of 319 solitary HCC patients (training cohort: n ...

**Cited by:** 15

**Author:** Bo-Hao Zheng, Long-Zi Liu, Zhi-Zhi Zh...



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## [MRI radiomics analysis for predicting preoperative ...](#)

<https://pubmed.ncbi.nlm.nih.gov/30413955>

Objectives: To investigate the value of MRI **radiomics** based on T2-weighted (T2W) images in **predicting** preoperative synchronous **distant metastasis** (SDM) in patients with **rectal cancer**.

Methods: This retrospective study enrolled 177 patients with histopathology-confirmed **rectal** adenocarcinoma (123 patients in the training cohort and 54 in the validation cohort).

## [Radiomics for rectal cancer - Dinapoli - Translational ...](#)

<tcr.amegroups.com/article/view/8067/html> ▼

For **distant metastases** special attention was placed over liver **metastases**: several studies showed that texture analysis of an apparently **metastases** free-area of the liver in patients with **colorectal cancer** correlates with hepatic hemodynamic and metabolism, indirectly revealing **metastatic** status also in the absence of any visible morphological ...

**Cited by:** 14**Author:** Nicola Dinapoli, Calogero Casà, Brunella ...**Publish Year:** 2016

## [Radiomics features on radiotherapy treatment planning CT ...](#)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6814843>

**Valentini V, et al. Nomograms** for predicting local recurrence, distant metastases, and overall survival for patients with locally advanced rectal cancer on the basis of European randomized clinical trials.

Journal of clinical oncology: official journal of the American Society of Clinical Oncology. 2011; 29:3163–3172. doi: 10.1200/JCO.2010.33.1595.

**Cited by:** 1**Author:** Jiazhou Wang, Lijun Shen, Haoyu Zhong,...**Publish Year:** 2019



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**Cited by:** 8 **Author:** Huanhuan Liu, Caiyuan Zhang, Lijun Wa...**Publish Year:** 2019

### [CT-based radiomic signature predicts distant metastasis in ...](#)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4400248>

**Radiomics** provides opportunities to quantify the tumor phenotype non-invasively by applying a large number of quantitative imaging features. This study evaluates computed-tomography (CT) radiomic features for their capability to **predict distant metastasis** (DM) for lung adenocarcinoma patients.

**Cited by:** 404 **Author:** Thibaud Patrick Coroller, Thibaud Patrick ...**Publish Year:** 2015

### [Radiomics features on radiotherapy treatment planning CT ...](#)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6814843>

**Valentini V, et al. Nomograms** for predicting local recurrence, distant metastases, and overall survival for patients with locally advanced rectal cancer on the basis of European randomized clinical trials. Journal of clinical oncology: official journal of the American Society of Clinical Oncology. 2011; 29:3163–3172. doi: 10.1200/JCO.2010.33.1595.

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