|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sequence | Slice orientation |  | Repetition time (ms) | Echo time (ms) | Field of view | Acquisition matrix | Flip Angle(°) | Bandwidth(HZ) | Slice thickness | fat suppression |
| T2W\_P2 | TRA | FLASH | 7500 | 101 | 200×200 | 320×320 | 160 | 200 | 3.5/ | - |
| T2WI | TRA | FLASH | 7451 | 85 | 320×320 | 384×269 | 180 | 169 | 5 | + |
| T2WI | SAG | FLASH | 3000 | 86 | 260×260 | 320×256 | 140 | 206 | 6 | - |
| T1c | TRA | VIBE | 3.23 | 1.22 | 380×309 | 320×240 | 9 | 520 | 1.2 | + |
| T1c | SAG | VIBE | 3.10 | 1.25 | 350×262 | 384×269 | 9 | 690 | 3 | + |
| DWI | TRA | EPI | 6500 | 74 | 380×380 | 192×163 | - | 1532 | 5 | + |

**Supplementary Materials**

TABLE 1｜mpMRI scan protocols

T2W\_P2, Small field of view High-resolution T2-weighted imaging; T1c, Contrast-enhanced T1-weighted, DWI, Diffusion weighted imaging; TRA and SAG represent transverse view and sagittal view respectively.

**FIGURE 1**｜A 56-year-old CC woman with LVSI. Plots (**A-F**) show the regions of interest (ROIs) in small field-of-view high-resolution T2-weighted MRI (sFOV HR-T2WI), axial fat-suppressed (FS)-T2WI, axial contrast-enhanced T1-weighted MRI (T1c), apparent diffusion coefficient (ADC), sagittal T2WI, sagittal T1c, respectively.



**FIGURE 2**｜A 51-year-old CC woman without LVSI. Plots (**A-F**) show the ROI in sFOV HR-T2WI, axial FS-T2WI, axial T1c, ADC, sagittal T2WI, sagittal T1c, respectively.



**FIGURE 3**｜Box plot shows distribution of results for 3-fold cross-validation performed 20 times.



**Text 1**

**The Radiomic feature sets are as follows:**

1. shape features (14)

Elongation, Flatness, LeastAxisLength, MajorAxisLength, Maximum2DDiameterColumn, Maximum2DDiameterRow, Maximum2DDiameterSlice, Maximum3DDiameter, MeshVolume, MinorAxisLength, Sphericity, SurfaceArea, SurfaceVolumeRatio, VoxelVolume

1. first-order grey-level statistics features (18)

10Percentile, 90Percentile, Energy, Entropy, InterquartileRange, Kurtosis, Maximum, MeanAbsoluteDeviation, Mean, Median, Minimum, Range, RobustMeanAbsoluteDeviation, RootMeanSquared, Skewness, TotalEnergy, Uniformity, Variance

1. textural features (75)
2. grey-level co-occurrence matrices (GLCM, 24 features)

glcm\_Autocorrelation, glcm\_ClusterProminence, glcm\_ClusterShade, glcm\_ClusterTendency, glcm\_Contrast, glcm\_Correlation, glcm\_DifferenceAverage, glcm\_DifferenceEntropy, glcm\_DifferenceVariance, glcm\_Id, glcm\_Idm, glcm\_Idmn, glcm\_Idn, glcm\_Imc1, glcm\_Imc2, glcm\_InverseVariance, glcm\_JointAverage, glcm\_JointEnergy, glcm\_JointEntropy, glcm\_MCC, glcm\_MaximumProbability, glcm\_SumAverage, glcm\_SumEntropy, glcm\_SumSquares

1. grey-level run length matrices (GLRLM, 16 features)

glrlm\_GrayLevelNonUniformity, glrlm\_GrayLevelNonUniformityNormalized, glrlm\_GrayLevelVariance, glrlm\_HighGrayLevelRunEmphasis, glrlm\_LongRunEmphasis, glrlm\_LongRunHighGrayLevelEmphasis, glrlm\_LongRunLowGrayLevelEmphasis, glrlm\_LowGrayLevelRunEmphasis, glrlm\_RunEntropy, glrlm\_RunLengthNonUniformity, glrlm\_RunLengthNonUniformityNormalized, glrlm\_RunPercentage, glrlm\_RunVariance, glrlm\_ShortRunEmphasis, ShortRunHighGrayLevelEmphasis, glrlm\_ShortRunLowGrayLevelEmphasis,

1. grey-level size-zone matrices (GLSZM, 16 features)

glszm\_GrayLevelNonUniformity, glszm\_GrayLevelNonUniformityNormalized, glszm\_GrayLevelVariance, glszm\_HighGrayLevelZoneEmphasis, glszm\_LargeAreaEmphasis, glszm\_LargeAreaHighGrayLevelEmphasis, glszm\_LargeAreaLowGrayLevelEmphasis, glszm\_LowGrayLevelZoneEmphasis, glszm\_SizeZoneNonUniformity, glszm\_SizeZoneNonUniformityNormalized, glszm\_SmallAreaEmphasis, glszm\_SmallAreaHighGrayLevelEmphasis, glszm\_SmallAreaLowGrayLevelEmphasis, glszm\_ZoneEntropy, glszm\_ZonePercentage, glszm\_ZoneVariance,

1. gray level dependence matrices (GLDM, 14 features)

gldm\_DependenceEntropy, gldm\_DependenceNonUniformity, gldm\_DependenceNonUniformityNormalized, gldm\_DependenceVariance, gldm\_GrayLevelNonUniformity, gldm\_GrayLevelVariance, gldm\_HighGrayLevelEmphasis, gldm\_LargeDependenceEmphasis, gldm\_LargeDependenceHighGrayLevelEmphasis, gldm\_LargeDependenceLowGrayLevelEmphasis, gldm\_LowGrayLevelEmphasis, gldm\_SmallDependenceEmphasis, gldm\_SmallDependenceHighGrayLevelEmphasis, gldm\_SmallDependenceLowGrayLevelEmphasis

1. neighborhood grey-tone difference matrices (NGTDM, 5 features)

ngtdm\_Busyness, ngtdm\_Coarseness, ngtdm\_Complexity, ngtdm\_Contrast, ngtdm\_Strength