

Supplementary Table 1 The specific radiologic features types extracted based on the magnetic resonance imaging images

Image type	Features type	Features number	Specific radiologic features
original	shape	14	Elongation, Flatness, LeastAxisLength, MajorAxisLength, Maximum2DDiameterColumn, Maximum2DDiameterRow, Maximum2DDiameterSlice , Maximum3DDiameter , MeshVolume, MinorAxisLength, Sphericity, SurfaceArea, SurfaceVolumeRatio, VoxelVolume
	First order	18	10Percentile , 90Percentile , Energy , Entropy , InterquartileRange , Kurtosis , Maximum ,

	statistical features		MeanAbsoluteDeviation, Mean, Median, Minimum, Range, RobustMeanAbsoluteDeviation , RootMeanSquared , Skewness, TotalEnergy, Uniformity, Variance
	g1cm	24	Autocorrelation , ClusterProminence , ClusterShade , ClusterTendency, Contrast, Correlation, DifferenceAverage, DifferenceEntropy, DifferenceVariance, Id, Idm, Idmn, Idn , Imc1 , Imc2 , InverseVariance , JointAverage , JointEnergy, JointEntropy, MCC, MaximumProbability, SumAverage, SumEntropy, SumSquares

	gldm	14	DependenceEntropy , DependenceNonUniformity , DependenceNonUniformityNormalized , DependenceVariance , GrayLevelNonUniformity , GrayLevelVariance , HighGrayLevelEmphasis , LargeDependenceEmphasis , LargeDependenceHighGrayLevelEmphasis , LargeDependenceLowGrayLevelEmphasis , LowGrayLevelEmphasis , SmallDependenceEmphasis , SmallDependenceHighGrayLevelEmphasis , SmallDependenceLowGrayLevelEmphasis
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	glrlm	16	GrayLevelNonUniformity , GrayLevelNonUniformityNormalized, GrayLevelVariance, HighGrayLevelRunEmphasis , LongRunEmphasis , LongRunHighGrayLevelEmphasis , LongRunLowGrayLevelEmphasis , LowGrayLevelRunEmphasis, RunEntropy RunLengthNonUniformity , RunLengthNonUniformityNormalized , RunPercentage , RunVariance , ShortRunEmphasis , ShortRunHighGrayLevelEmphasis , ShortRunLowGrayLevelEmphasis
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	glszm	16	GrayLevelNonUniformity , GrayLevelNonUniformityNormalized, GrayLevelVariance, HighGrayLevelZoneEmphasis , LargeAreaEmphasis , LargeAreaHighGrayLevelEmphasis , LargeAreaLowGrayLevelEmphasis , LowGrayLevelZoneEmphasis , SizeZoneNonUniformity , SizeZoneNonUniformityNormalized, SmallAreaEmphasis, SmallAreaHighGrayLevelEmphasis , SmallAreaLowGrayLevelEmphasis , ZoneEntropy , ZonePercentage, ZoneVariance
	ngtdm	5	Busyness, Coarseness, Complexity, Contrast, Strength

log-sigma-0-5-mm-3D	First order statistics features	18	10Percentile , 90Percentile , Energy , Entropy , InterquartileRange , Kurtosis , Maximum , MeanAbsoluteDeviation, Mean, Median, Minimum, Range, RobustMeanAbsoluteDeviation , RootMeanSquared , Skewness, TotalEnergy, Uniformity, Variance
	glcm	24	Autocorrelation , ClusterProminence , ClusterShade , ClusterTendency, Contrast, Correlation, DifferenceAverage, DifferenceEntropy, DifferenceVariance, Id, Idm, Idmn, Idn , Imc1 , Imc2 , InverseVariance , JointAverage , JointEnergy, JointEntropy, MCC, MaximumProbability,

		SumAverage, SumEntropy, SumSquares
gldm	14	DependenceEntropy , DependenceNonUniformity , DependenceNonUniformityNormalized , DependenceVariance , GrayLevelNonUniformity , GrayLevelVariance , HighGrayLevelEmphasis , LargeDependenceEmphasis , LargeDependenceHighGrayLevelEmphasis , LargeDependenceLowGrayLevelEmphasis , LowGrayLevelEmphasis , SmallDependenceEmphasis , SmallDependenceHighGrayLevelEmphasis ,

		SmallDependenceLowGrayLevelEmphasis
glrlm	16	GrayLevelNonUniformity , GrayLevelNonUniformityNormalized, GrayLevelVariance, HighGrayLevelRunEmphasis , LongRunEmphasis , LongRunHighGrayLevelEmphasis , LongRunLowGrayLevelEmphasis , LowGrayLevelRunEmphasis, RunEntropy RunLengthNonUniformity , RunLengthNonUniformityNormalized , RunPercentage , RunVariance , ShortRunEmphasis , ShortRunHighGrayLevelEmphasis ,

		ShortRunLowGrayLevelEmphasis
glszm	16	GrayLevelNonUniformity , GrayLevelNonUniformityNormalized, GrayLevelVariance, HighGrayLevelZoneEmphasis , LargeAreaEmphasis , LargeAreaHighGrayLevelEmphasis , LargeAreaLowGrayLevelEmphasis , LowGrayLevelZoneEmphasis , SizeZoneNonUniformity , SizeZoneNonUniformityNormalized, SmallAreaEmphasis, SmallAreaHighGrayLevelEmphasis ,

			SmallAreaLowGrayLevelEmphasis , ZoneEntropy , ZonePercentage, ZoneVariance
	ngtdm	5	Busyness, Coarseness, Complexity, Contrast, Strength
wavelet-LLH wavelet-LHL wavelet-LHH wavelet-HLL wavelet-HLH wavelet-HHL wavelet-HHH wavelet-LLL	、 、 、 、 、 、 、 、 、	First order statisti cs feature s glcm	18 24
			10Percentile , 90Percentile , Energy , Entropy , InterquartileRange , Kurtosis , Maximum , MeanAbsoluteDeviation, Mean, Median, Minimum, Range, RobustMeanAbsoluteDeviation , RootMeanSquared , Skewness, TotalEnergy, Uniformity, Variance Autocorrelation , ClusterProminence , ClusterShade , ClusterTendency, Contrast, Correlation, DifferenceAverage,

		DifferenceEntropy, DifferenceVariance, Id, Idm, Idmn, Idn , Imc1 , Imc2 , InverseVariance , JointAverage , JointEnergy, JointEntropy, MCC, MaximumProbability, SumAverage, SumEntropy, SumSquares
gldm	14	DependenceEntropy , DependenceNonUniformity , DependenceNonUniformityNormalized , DependenceVariance , GrayLevelNonUniformity , GrayLevelVariance , HighGrayLevelEmphasis , LargeDependenceEmphasis , LargeDependenceHighGrayLevelEmphasis ,

		<p>LargeDependenceLowGrayLevelEmphasis ,</p> <p>LowGrayLevelEmphasis , SmallDependenceEmphasis ,</p> <p>SmallDependenceHighGrayLevelEmphasis ,</p> <p>SmallDependenceLowGrayLevelEmphasis</p>
glrlm	16	<p>GrayLevelNonUniformity ,</p> <p>GrayLevelNonUniformityNormalized, GrayLevelVariance,</p> <p>HighGrayLevelRunEmphasis , LongRunEmphasis ,</p> <p>LongRunHighGrayLevelEmphasis ,</p> <p>LongRunLowGrayLevelEmphasis ,</p> <p>LowGrayLevelRunEmphasis , RunEntropy ,</p> <p>RunLengthNonUniformity ,</p>

		RunLengthNonUniformityNormalized , RunPercentage , RunVariance , ShortRunEmphasis , ShortRunHighGrayLevelEmphasis , ShortRunLowGrayLevelEmphasis
glszm	16	GrayLevelNonUniformity , GrayLevelNonUniformityNormalized, GrayLevelVariance, HighGrayLevelZoneEmphasis , LargeAreaEmphasis , LargeAreaHighGrayLevelEmphasis , LargeAreaLowGrayLevelEmphasis , LowGrayLevelZoneEmphasis , SizeZoneNonUniformity , SizeZoneNonUniformityNormalized, SmallAreaEmphasis,

			SmallAreaHighGrayLevelEmphasis , SmallAreaLowGrayLevelEmphasis , ZoneEntropy , ZonePercentage, ZoneVariance
	ngtdm	5	Busyness, Coarseness, Complexity, Contrast, Strength

GLCM: Gray Level Cooccurrence Matrix; GLDM: Gray Level Dependence Matrix; GLRLM: Gray Level Run Length Matrix; GLSZM: Gray Level Size Zone Matrix; NGTDM: Neighbouring Gray Tone Difference Matrix; wavelet-LLH: wavelet-Low Low High; wavelet-LHL: wavelet-Low High Low; wavelet-LHH: wavelet-Low High High; wavelet-HLL: wavelet-High Low Low; wavelet-HLH: wavelet-High Low High; wavelet-HHL: wavelet-High High Low; wavelet-HHH: wavelet-High High High; wavelet-LLL: wavelet-Low Low Low.

Supplementary Table 2 Radiologic features and coefficients extracted from T2-weighted imaging sequence, contrast-enhanced T1WI sequence and T2-weighted imaging + contrast-enhanced T1WI fusion sequence

Radiology models	Radiologic features	Coefficient
T2WI	original_glcm_Correlation	0.03702
	original_glcm_MCC	0.10289
	original_glszm_ZoneEntropy	8.2082
	wavelet-LLL_glcm_MCC	9.15542
	wavelet-LLL_grlm_GrayLevelNonUniformityNormalized	-3.61471
T1CE	original_shape_Maximum2DDiameterSlice	2.919
	original_gldm_DependenceEntropy	22.566
T2WI + T1CE	T2WI_original_glcm_MCC	-0.1798
	T2WI_original_glszm_ZoneEntropy	0.7251
	T2WI_wavelet-LLL_glcm_MCC	7.5941

T2WI_wavelet-LLL_glrIm_GrayLevelNonUniformityNormalized	-4.442
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T1CE_original_shape_Maximum2DDiameterSlice	2.3265
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T2WI: T2-weighted imaging; T1CE: Contrast-enhanced T1WI; glcm: gray level cooccurrence matrix; MCC: Matthews' correlation coefficient; glszm: gray level size zone matrix; wavelet-LLL: wavelet-Low Low Low; glrlm: gray level run length matrix; gldm: gray level dependence matrix.