

**Table S1** The results of pairwise comparison between different grades after multiple comparisons in putamen magnetic susceptibility

Groups	P value
HC vs. grade 2	0.004*
HC vs. grade 3	<0.001*
HC vs. grade 4	<0.001*
Grade 2 vs. HC	0.004*
Grade 2 vs. grade 3	0.010*
Grade 2 vs. grade 4	0.038*
Grade 3 vs. HC	<0.001*
Grade 3 vs. grade 2	0.010*
Grade 3 vs. grade 4	0.693
Grade 4 vs. HC	<0.001*
Grade 4 vs. grade 2	0.038*
Grade 4 vs. grade 3	0.693

\*, statistical significance. Grade 2: patients with grade 2 gliomas; Grade 3: patients with grade 3 gliomas; Grade 4: patients with grade 4 gliomas. HC, healthy controls.

**Table S2** The results of pairwise comparison between different grades after multiple comparisons in globus pallidus magnetic susceptibility

Groups	P value
HC vs. grade 2	<0.001*
HC vs. grade 3	<0.001*
HC vs. grade 4	<0.001*
Grade 2 vs. HC	<0.001*
Grade 2 vs. grade 3	0.710
Grade 2 vs. grade 4	0.851
Grade 3 vs. HC	<0.001*
Grade 3 vs. grade 2	0.710
Grade 3 vs. grade 4	0.866
Grade 4 vs. HC	<0.001*
Grade 4 vs. grade 2	0.851
Grade 4 vs. grade 3	0.866

\*, statistical significance. Grade 2: patients with grade 2 gliomas; Grade 3: patients with grade 3 gliomas; Grade 4: patients with grade 4 gliomas. HC, healthy controls.

**Table S3** The results of pairwise comparison between different grades after multiple comparisons in caudate nucleus magnetic susceptibility

Groups	P value
HC vs. grade 2	0.003*
HC vs. grade 3	<0.001*
HC vs. grade 4	<0.001*
Grade 2 vs. HC	0.003*
Grade 2 vs. grade 3	0.355
Grade 2 vs. grade 4	0.203
Grade 3 vs. HC	<0.001*
Grade 3 vs. grade 2	0.355
Grade 3 vs. grade 4	0.677
Grade 4 vs. HC	<0.001*
Grade 4 vs. grade 2	0.203
Grade 4 vs. grade 3	0.677

\*, statistical significance. Grade 2: patients with grade 2 gliomas; Grade 3: patients with grade 3 gliomas; Grade 4: patients with grade 4 gliomas. HC, healthy controls.

**Table S4** The results of pairwise comparison between different grades after multiple comparisons in thalamus magnetic susceptibility

Groups	P value
HC vs. grade 2	0.027*
HC vs. grade 3	<0.001*
HC vs. grade 4	<0.001*
Grade 2 vs. HC	0.027*
Grade 2 vs. grade 3	0.030*
Grade 2 vs. grade 4	0.039*
Grade 3 vs. HC	<0.001*
Grade 3 vs. grade 2	0.030*
Grade 3 vs. grade 4	0.995
Grade 4 vs. HC	<0.001*
Grade 4 vs. grade 2	0.039*
Grade 4 vs. grade 3	0.995

\*, statistical significance. Grade 2: patients with grade 2 gliomas; Grade 3: patients with grade 3 gliomas; Grade 4: patients with grade 4 gliomas. HC, healthy controls.

**Table S5** The results of pairwise comparison between different grades after multiple comparisons in substantia nigra magnetic susceptibility

Groups	P value
HC vs. grade 2	0.052
HC vs. grade 3	<0.001*
HC vs. grade 4	<0.001*
Grade 2 vs. HC	0.052
Grade 2 vs. grade 3	0.092
Grade 2 vs. grade 4	0.055
Grade 3 vs. HC	<0.001*
Grade 3 vs. grade 2	0.092
Grade 3 vs. grade 4	0.729
Grade 4 vs. HC	<0.001*
Grade 4 vs. grade 2	0.055
Grade 4 vs. grade 3	0.729

\*, statistical significance. Grade 2: patients with grade 2 gliomas; Grade 3: patients with grade 3 gliomas; Grade 4: patients with grade 4 gliomas. HC, healthy controls.

**Table S7** The results of pairwise comparison between different grades after multiple comparison in dentate nucleus magnetic susceptibility

Groups	P value
HC vs. grade 2	0.068
HC vs. grade 3	<0.001*
HC vs. grade 4	<0.001*
Grade 2 vs. HC	0.068
Grade 2 vs. grade 3	0.010*
Grade 2 vs. grade 4	0.147
Grade 3 vs. HC	<0.001*
Grade 3 vs. grade 2	0.010*
Grade 3 vs. grade 4	0.294
Grade 4 vs. HC	<0.001*
Grade 4 vs. grade 2	0.147
Grade 4 vs. grade 3	0.294

\*, statistical significance. Grade 2: patients with grade 2 gliomas; Grade 3: patients with grade 3 gliomas; Grade 4: patients with grade 4 gliomas. HC, healthy controls.

**Table S6** The results of pairwise comparison between different grades after multiple comparisons in red nucleus magnetic susceptibility

Groups	P value
HC vs. grade 2	0.800
HC vs. grade 3	0.001*
HC vs. grade 4	0.018*
Grade 2 vs. HC	0.800
Grade 2 vs. grade 3	0.003*
Grade 2 vs. grade 4	0.048*
Grade 3 vs. HC	0.001*
Grade 3 vs. grade 2	0.003*
Grade 3 vs. grade 4	0.390
Grade 4 vs. HC	0.018*
Grade 4 vs. grade 2	0.048*
Grade 4 vs. grade 3	0.390

\*, statistical significance. Grade 2: patients with grade 2 gliomas; Grade 3: patients with grade 3 gliomas; Grade 4: patients with grade 4 gliomas. HC, healthy controls.