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A Note of Caution Regarding Single-Arm 1p or 19q Deletion in *IDH*-Mutant Gliomas

In their article entitled "Radiogenomics Provides Insights into Gliomas Demonstrating Single-Arm 1p or 19q Deletion," Lasocki et al[1] reported that *IDH*-mutant gliomas with a single-arm deletion of either 1p or 19q have imaging features and clinical outcomes similar to those of astrocytoma *IDH*-mutant. These important results support the current World Health Organization classification of *IDH*-mutant gliomas, in particular its requirement for detecting deletions of both chromosome arms 1p and 19q for establishing a diagnosis of oligodendroglioma *IDH*-mutant and 1p/19q codeleted.

The authors correctly point out that molecular testing for 1p/19q codeletion is occasionally erroneous. In a prior publication, we reported 6 *IDH*-mutant gliomas that were initially misclassified to 1p/19q codeletion status with fluorescence in site hybridization (FISH).[2] FISH is a widely used technique for 1p/19q testing and was among the techniques used by Lasocki et al.[1] We discovered these 6 cases due to a discordance between the FISH result and neuroimaging features. Interestingly, 3 of these 6 cases were initially diagnosed as astrocytoma *IDH*-mutant on the basis of 1p unideletion on FISH but were ultimately discovered to be 1p/19q codeleted (ie, oligodendrogliomas) on the basis of subsequent testing with a high-resolution chromosomal microarray assay (see Table 2 in Patel et al[2]). In these 3 cases, FISH had failed to detect a 19q deletion that was actually present.

Although such cases are uncommon, they slightly complicate the conclusion of Lasocki et al[1] that their findings provide "reassurance to pathologists and treating clinicians that tumors with 1p- or 19q-unideletion should indeed be considered astrocytomas, rather than having a reason to question the 1p/19q result or repeat testing on a different part of the tumor." Their conclusion seems valid when 1p or 19q unideletion accompanies other biomarkers consistent with astrocytoma *IDH*-mutant (eg, *ATRX* mutation, p53 overexpression, characteristic neuroimaging findings). However, in cases in which compelling discrepancies exist between the presence of 1p or 19q unideletion and other routinely obtained biomarkers, it might be necessary to retest the 1p/19q status with a different molecular assay. Overall then, we entirely agree with Lasocki et al that radiogenomics can play a useful role in glioma diagnostics, both when supporting the molecular/histologic diagnosis and also when contradicting it.

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Disclosure forms provided by the authors are available with the full text and PDF of this article at www.ajnr.org.

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