

# FLUORESCENCE IN-SITU HYBRIDIZATION (FISH) IN ATYPICAL MELANOCYTIC PROLIFERATIONS AND MELANOMA OF YOUNG PATIENTS

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Morphologic heterogeneity among melanocytic proliferations is a common challenge in the diagnosis of melanoma. In particular, atypical melanocytic lesions in children, adolescents, and young adults may be difficult to classify due to significant morphologic overlap with melanoma. Recently, fluorescence in-situ hybridization (FISH) protocols to detect chromosomal abnormalities in chromosomes 6 and 11 are promising for improving classification of melanocytic lesions. We sought to determine the correlation between FISH results, morphology and clinical outcomes in a series of challenging melanocytic proliferations in young patients.

We retrospectively performed FISH on a total 21 melanocytic lesions from 19 patients age 25 years or younger (range 5-25 years, mean 15.2 years), obtained from Stanford University Medical Center archives. The study contained 5 confirmed melanomas (one of which progressed to regional lymph node metastases following surgical excision, one of which progressed to regional lymph node metastases, recurrence and distant metastases, and three with no evidence of disease after 18, 44 and 50 months follow-up), and 2 melanocytic tumors of uncertain malignant potential (MeiTUMP, one of which progressed to regional lymph node metastasis, the other without follow-up). The study also included 7 morphologically challenging atypical Spitz tumors (AST), and 7 Spitz nevi, 10 of which were negative for disease after an average of 45.1 months follow-up, and 4 without follow-up.

Chromosomal aberrations were detected by FISH in all 5 melanomas and in 1 MeiTUMP, one of which had a subsequent lymph node metastasis. All 7 ASTs, all 7 Spitz nevi, and 1 of 2 MeiTUMP were negative for significant gains or losses in chromosome 6 and 11q.

In this study, there was a strong correlation between positive FISH results and a histomorphologic impression of melanoma. In addition, all melanocytic tumors in this study with known poor clinical outcome showed positive FISH results. Therefore, the utilization of FISH as an adjunct in the classification of melanocytic tumors in young patients appears useful.

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