Analysis of microsatellite instability using Promega panel in dermatofibrosarcoma protuberans

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To the Editor,

The deficiency of DNA mismatch repair (MMR) indicates good therapeutic response to immune checkpoint inhibitors (ICIs). There are several methods to evaluate microsatellite instability (MSI), and the frequency of MSI occurrence in skin tumors is generally less than 5% ([1]). Promega panel (Promega, Madison, WA, USA) is approved as a companion diagnostic reagent for the administration of ICIs. There are few reports about the status of microsatellite stability in skin tumors evaluated by Promega panel, and no MSI-high tumors were detected in cutaneous angiosarcoma ([2]) and extramammary Paget’s disease ([3]).

The pathogenesis of dermatofibrosarcoma protuberans (DFSP) is characterized by a fusion gene between the α-helix domain of the collagen type-I gene (COL1A1) and the platelet-derived growth factor-β gene (PDGFB) ([4]). The only analytical report of microsatellite stability in which Promega panel is not used, showed that the frequency of MSI-high, MSI-low and microsatellite stable (MSS) cases was 13.9% (5/36), 16.7% (6/36) and 69.4% (25/36), respectively. Thus, the aim of this study was to evaluate the status of MMR in 36 patients with DFSP diagnosed at Kumamoto University. MSI analysis using the Promega panel showed that all cases were MSS, which indicated the absence of MSI in DFSP. This result indicates that the status of MMR may not be useful for the potential therapeutic application of pembrolizumab and the pathogenesis of DFSP may not involve MSI.

SUMMARY

Dermatofibrosarcoma protuberans (DFSP) is a rare neoplasm derived from fibroblasts. Although the frequency of microsatellite instability (MSI) in skin cancer is reported to be less than 5%, there is only one report of the status of MMR in DFSP. The only analytical report of microsatellite stability in which Promega panel is not used, showed that the frequency of MSI-high, MSI-low and microsatellite stable (MSS) cases was 13.9% (5/36), 16.7% (6/36) and 69.4% (25/36), respectively. Thus, the aim of this study was to evaluate the status of MMR in 36 patients with DFSP diagnosed at Kumamoto University. MSI analysis using the Promega panel showed that all cases were MSS, which indicated the absence of MSI in DFSP. This result indicates that the status of MMR may not be useful for the potential therapeutic application of pembrolizumab and the pathogenesis of DFSP may not involve MSI.

Keywords  microsatellite instability (MSI), dermatofibrosarcoma protuberans (DFSP)
Administration. In conclusion, our study revealed that the DFSP is an MSS tumor.

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References


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