Spindle cell carcinoma (SpCC) is a biphasic tumor composed of squamous cell carcinoma (SCC) and a malignant spindle cell component. There is mounting evidence that SpCC is a monoclonal neoplasm originating from a stem cell giving rise to both components. We tested the hypothesis that spindle cell phenotype might be related to the cadherin-catenin complex, which forms adherens junctions between cells. We analyzed the immunohistochemical expression of E- and N-cadherin, alpha-, beta- and gamma-catenin, and Snail-1, a transcription repressor of E-cadherin, in 30 cases of SpCC, and 30 cases of SCC of the head and neck. In SpCC, cadherin and catenin expression was similar in the SCC component, whereas in the spindle cell component, loss of E-cadherin and neo-expression of N-cadherin was found in 19 cases, loss of cadherins in seven, and their co-expression in four cases. Catenin expression were altered in 18 SpCCs. Snail-1 was found in 19 SpCC cases. In SCC, E-cadherin and catenins were expressed in all cases, and N-cadherin focally in five cases. Snail-1 was observed in the stroma. To summarize, in SpCC, there is an altered expression of the cadherin-catenin complex, associated with morphological transition from epithelial to spindle cell phenotype. These features are reminiscent of epithelial-mesenchymal transition.
(EMT). Our study thus indicates that EMT might play an important role in the pathogenesis of SpCC. This conclusion is further supported by our finding of Snail-1 expression, a potent inducer of EMT, in more than half SpCC cases.

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