Distribution of basement membrane type IV collagen alpha chains in ameloblastoma: an immunofluorescence study

Type:

Article

Abstract:

Background: Type IV collagen, a heterotrimeric molecule that exists in six genetically distinct forms, alpha1(IV)-alpha6(IV) is a major structural component of basement membrane (BM) and acts as a scaffold for other BM constituents. Methods: Indirect immunofluorescence using alpha chain-specific monoclonal antibodies was employed to clarify basement membrane (BM) collagen IV distribution in two ameloblastoma, and for comparison, on oral mucosa and tooth germ. Results: Ameloblastoma BM expressed five of six genetically distinct forms of collagen IV: alpha1(IV), alpha2(IV), alpha5(IV) and alpha6(IV) chains occurred as intense linear stainings without disruption around neoplastic epithelium, and this expression pattern was fundamentally similar to oral mucosa BM; alpha4(IV) expression was rare and occurred around nests of primitive tumor cells or potentially invasive sites. The tooth germ demonstrated a stage- and position-specific collagen IV distribution: the inner enamel epithelium BM expressed alpha1(IV), alpha2(IV), and alpha4(IV) except in the cuspal predentine region; and the outer enamel epithelium BM expressed alpha1(V), alpha2(IV), alpha5(IV), and alpha6(IV) chains. Conclusions: Results suggest that collagen IV alpha chain distribution in ameloblastoma BM plays an important role in tumor cytodifferentiation and progression.

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