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Possible role of notch signaling in the cells from migration of the bone marrow mesenchymal tissues experimentally induced periodontal inflammatory lesions using GFP BMT-model mice**Masahito Shoumura¹, Saeka Matsuda¹, Keita Moriyama¹, Akio Kida¹, Naoto Osuga¹, Norimasa Okafuji¹, Keisuke Nakano², Hidetsugu Tsujigiwa², Hitoshi Nagatsuka² and Toshiyuki Kawakami¹**¹Matsumoto Dental University, Japan²Okayama University, Japan

Objective: In our previous examination, the experimentally induced periodontal polyp in mice was examined the cytological dynamics of the lesion by immunohistochemistry using green fluorescence protein bone marrow-transplanted model mice. Our data indicated that the cells in granulation tissue are mainly from migration of undifferentiated mesenchymal cells of the bone marrow and differentiate into the tissue-specified cells.

Materials & Method: In the present examination using the same methods using GFP-BMT model mice, the crown of maxillary left first molar of the mouse using ½ round bur to create a perforation of floor of the dental pulp. The regions were examined by histopathology and immunohistochemistry.

Result: Histopathological examination revealed the results suggest that fibroblasts, periodontal ligament fibroblasts and blood vessels in granulation tissue were derived from transplanted-bone marrow cells. Thus, essential growth of granulation tissue in periodontal polyp was caused by the migration of undifferentiated mesenchymal cells derived from bone marrow, which is differentiated into fibroblasts and later differentiated into other cells in response to injury. The fibroblasts with some round cells and blood vessels were proliferated in the granulation tissue, experimental ranges from at 2 weeks to 6 months. Immunohistochemical staining of Notch1 revealed that the protein was expressed in almost spindle-shaped cells. The result suggests that the periodontal ligament fibroblasts in granulation tissue were expressed Notch1 protein.

Conclusion: Further examination is needed. However, the data strongly suggests that the cell differentiation within the periodontal polyp was controlled by Notch signaling.

Biography

Masahito Shoumura is the Associate Professor of Department of Pediatric Dentistry at Matsumoto Dental University and a part-time Lecturer at Department of Sports Dentistry of Tokyo Dental University. He has obtained his degree of a Doctor of Dentistry from the Graduate School of Oral Medicine at Matsumoto Dental University. He is a Specialist and a Councilor of Japanese Society of Pediatric Dentistry.

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