A06-2 Reduction of the temporomandibular joint fibrous adhesion in tenascin-C knockout mouse

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Purpose: Tenascin-C (TNC) is a large hexameric extracellular matrix glycoprotein that expressed in developing organs and tumors. It has been reported that TNC is expressed in the inflamed synovial membranes and deformed discs of temporomandibular joint disorder. However, the role of TNC in the temporomandibular joint is not fully known. In this study, the role of TNC in temporomandibular joint fibrous adhesion was examined using the TNC knockout (TNCKO) mouse.

Materials and Methods: Excessive mouth opening was made separately on the temporomandibular joint of both TNCKO and wild-type mice. The wound healing of the temporomandibular joint was compared histologically and the expression of TNC and fibronectin on the wounded temporomandibular joint was examined by immunohistochemical and immunoblot analysis.

Results: Based on histologic analysis, fibrous adhesion was observed in the temporomandibular joint of both TNCKO and wild-type mice after excessive mouth opening. But, the formation of fibrous adhesion in the TNCKO mice was later than wild-type mice. TNC expressed in the wounded temporomandibular joint was compared histologically, and the expression of TNC and fibronectin on the wounded temporomandibular joint was examined by immunohistochemical and immunoblot analysis.

Conclusions: In the wounded temporomandibular joint, TNC appears to enhance the expression of fibronectin, and a lack of TNC may reduce fibrous adhesion of temporomandibular joint. TNC plays an important role in temporomandibular joint wound healing, especially for wounds by mechanical stress.