Myofibroblasts vs. smooth muscle cells - peritubular contractile cells in the testis of the dog

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Contractile cells in peritubular tissue of the mammalian testis are supposed to contribute to the initial transport of spermatozoa from testis to epididymis. These cells are usually referred to as myoid cells without further classification. However, in some species such as cattle and humans, they have been termed myofibroblasts (Böck et al. 1972; Wrobel et al. 1979; Hees et al. 1989). The aim of this study was to assess the distribution of peritubular contractile cells in the canine testis by immunohistochemistry and transmission electron microscopy and to classify them with respect to their possible physiologic function. The complete tubular system of the canine testis, including seminiferous tubules, rete channels, efferent ducts and ductus epididymidis, is surrounded by contractile cells expressing smooth muscle actin, smooth muscle myosin and desmin. Contractile cells of seminiferous tubules and efferent ducts represent smooth muscle cell (SMC)/myofibroblast intermediates with different morphology, but both showing structural characteristics of SMC (e.g. spindle shape and nucleus with smooth surface) as well as of myofibroblasts (e.g. incomplete basement membrane). Contractile cells surrounding rete channels represent typical stellate myofibroblasts with incomplete basement membrane, stress fibres and lobated nucleus, those of the ductus epididymidis spindle-shaped SMC with complete basement membrane, spindle-shaped nucleus and uniformly distributed microfilaments. Differences in structure and arrangement of these peritubular contractile cells suggest different functions. Myofibroblasts and contractile cells similar to them, which surround seminiferous tubules, rete channels and efferent ducts, are probably mainly responsible for maintenance of an appropriate tissue turgor, whereas contraction of SMC of the ductus epididymidis might cause true peristaltic movement and therefore propulsion of spermatozoa. Experimental studies with isolated tubular segments would be helpful to prove this hypothesis.

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Ultrastructural analysis in human gingival fibroblasts after exposure to hema

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Polymerized resin-based dental materials can release monomers from their matrix due to an incomplete polymerization or degradation processes. Released monomers can diffuse in the oral cavity and induce adverse effects to biological tissues. Although there are many data about the effects of lethal concentrations of resin monomers, a few studies have been conducted to investigate morphological modifications of cells exposed to sub lethal concentrations of dental monomers.

The aim of this study is to analyze ultrastructural modifications in human gingival fibroblasts exposed to a sub lethal concentration of HEMA and to analyze the influence of dental monomers on the expression of the protein procollagen $\alpha 1$ type I. A primary culture of gingival fibroblasts were exposed to 3 mM HEMA for 24 h, 72 h, 96 h. Morphological investigations were performed by scanning electron microscopy and transmission electron microscopy, while an immunostaining for fluorescence microscopy was carried out to visualize the protein procollagen $\alpha 1$ type I.

A strong modification in cell morphology from a fibroblastic shape to a round shape due to HEMA treatment was demonstrated by scanning electron microscopy. These results correlate with the transmission electron microscopy data which showed