

Reappraising the microscopic anatomy of human testis: identification of telocyte networks in the peritubular and intertubular stroma

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Telocytes are a recently described stromal cell type widely distributed in various organs including the female and male reproductive systems. This study was aimed to investigate for the first time the existence, distribution and characteristics of telocytes in normal human testis by an integrated morphological approach (immunohistochemistry, immunofluorescence and transmission electron microscopy). We found that telocytes displaying typical long and moniliform prolongations and coexpressing CD34 and platelet-derived growth factor receptor- α formed networks in the outer layer of peritubular stroma and around Leydig cells and vessels in the intertubular stroma. Testicular telocytes were immunophenotypically negative for CD31, c-kit/CD117 as well as α -smooth muscle actin, thus making them clearly distinguishable from myoid cells/myofibroblasts located in the inner layer of peritubular stroma. Transmission electron microscopy confirmed the presence of cells ultrastructurally identifiable as telocytes (i.e. cells with telopodes alternating podomers and podoms) in the aforementioned locations. Inter-cellular contacts between neighboring telocytes and telopodes were observed throughout the testicular stromal compartment. Telopodes intimately surrounded and often established close contacts with peritubular myoid cells, Leydig cells and vessels. Extracellular vesicles were also frequently detected near telopodes. In summary, we demonstrated that telocytes are a previously neglected stromal component of human testis with potential implications in tissue homeostasis deserving further investigation.

Key words

Telocytes, stromal cells, human testis, microscopic anatomy.