

Characterization of Uterine Leiomyoma in the Nonhuman Primate: The Baboon

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Introduction: The transformation of a single random myometrial cell into a group of benign cells that continue to divide form a leiomyoma in the uterus. These usually occur in the perimenopausal hormonal environment. Several animal models are being used to study the biology of uterine leiomyoma including the Eyker rat and the guinea pig. However, there are no models available that are similar to the human. Recently the presence of leiomyoma has been observed in the baboon (*Papio hamadryas*).

Objective: To determine whether leiomyoma in the baboon are histologically and biochemically similar to the human leiomyoma.

Methods: Archived cases of uterine smooth muscle tumors were obtained from the Department of Pathology, Southwest Primate Research Center (San Antonio). Hematoxylin and Eosin sections were examined by four independent observers with criteria used in the literature to confirm histology of leiomyoma. Smooth muscle cells were characterized using Masson's trichrome special stain and immunohistologically using specific antibodies for smooth muscle actin, desmin, vinculin and vimentin. Immunohistochemistry for estrogen (ER) progesterone (PR) epidermal growth factor receptor (EGF-R) were performed using diaminobenzadine tetrachloride as the chromogen. Human leiomyoma samples were processed in parallel.

Results: All samples (23) that were previously designated to be leiomyoma were confirmed to be fibroids. The smooth muscle origin of the leiomyoma was confirmed in all the samples. EGF-R were localized in the cytoplasm of the muscle cells. ER and PR showed immunoexpression in the nucleus.

Conclusion: The leiomyoma from the baboon display similar characteristics to the human tumor.