So called amianthoid-like fibers are thick mats of acellular collagen surrounded by spindle cell proliferation (1–3). They strongly resemble amianthoid fibers histologically. However, they lack defining ultrastructural features of these fibers, and therefore it is more appropriate to label them with the adjective “amianthoid-like” (4).

In surgical pathology practice, they are known as the main feature of palisaded (amianthoid) myofibroblastoma (1,2). They are believed to be an atypical extracellular collagen product of myofibroblasts. We would like to present briefly a uterine leiomyoma that contained numerous amianthoid-like fibers inside a spindle cell proliferation, creating a strong resemblance to the pattern of palisaded myofibroblastoma. This case demonstrates phenotypical similarity and a possible histogenetic relationship between gynecologic-type leiomyoma and palisaded myofibroblastoma.

**MATERIAL AND METHODS**

The tissue was fixed in 4% formalin and processed routinely. The sections were stained with hematoxylin and eosin. For immunohistochemistry, the following primary antibodies were used: alpha-smooth muscle actin (clone 1A4), h-caldesmon (clone h-CD), desmin (clone D33), melanosome (clone HMB45), S100 (polyclonal), estrogen receptor (clone 1D5), progesterone receptor (clone PgR636) (all from DAKO, Glostrup, Denmark), CD10 (clone 56C6, Novocastra, Newcastle, UK), and CD34 (clone Qbend/10, NeoMarkers, Westinghouse, CA, USA).

Immunostaining was performed according to standard protocols using an avidin-biotin complex labeled with peroxidase or alkaline phosphatase. Microwave antigen pretreatment was used for immunoreactions with h-caldesmon, CD10, CD34, estrogen receptor, and progesterone receptor. Appropriate positive and negative controls were applied.

**CASE REPORT**

A 46-year-old para 3 gravida 3 woman underwent laparoscopic-assisted vaginal hysterectomy for uterus myomatosus. She was followed up with diagnoses of leiomyoma uteri, hyperprolactinemia and dysmenorrhea during the 5 years before this operation. In the past, she took hormonal contraception and gestagenes, but stopped using them six years ago because they caused her headaches and depression. Further, her previous medical history includes paroxysmal atrial fibrillation, an appendectomy and a cholecystectomy.

Grossly, a 6 cm tumor was found in the right lateral wall of the uterine corpus. It was round and well circumscribed, but in comparison with common fibroids, it was softer in consistency and more yellowish in color (therefore, the endometrial stromal nodule was suggested by gross examination).
Histologically, the tumor was well circumscribed, composed of cellular spindle cell proliferation with numerous amianthoid-like fibers (Figures 1A, B). The spindle cells were arranged in short fascicles, occasionally with vaguely palisaded nuclei. The nuclei were slender, regular appearing, and the typical cigar shape was found in a few areas only. A high cellularity created a pattern often resembling an endometrial stromal tumor. The lesion contained numerous small to medium sized vessels. Larger vessels were thick-walled and muscular. The cells of the vascular wall frequently showed continuity with the tumor cell proliferation like that seen commonly in vascular leiomyomas (angioleiomyomas) (Figure 1C). The mitotic rate was 1/50HPF, and no abnormal mitosis was found. Additional findings in the resectate were as follows: a dysfunctional proliferative endometrium with focal atrophy, and a cervical squamous cell metaplasia with ovulosis.

Immunohistochemically, the tumor cells expressed diffusely h-caldesmon, desmin, actin, progesterone receptor, estrogen receptor (Figure 2), and they were negative for CD10, CD34, S100 protein and HMB45. Actin showed accentuation of the staining in the peripheral zones of amianthoid-like fibers (Figure 2A).

DISCUSSION

The present tumor was unquestionably leiomyoma because it showed, although focally, cigar shaped nuclei and abundant...
eosinophilic cytoplasm, and it expressed diffusely h-caldesmon, desmin and actin. An interesting feature of the tumor is represented in the amianthoid-like fibers. To our best knowledge, only two similar leiomyomas were described recently by Bagwan et al. (4). One tumor was located in the uterus and the other was extratrune leiomyoma of the female pelvis. It is interesting that all three of the leiomyomas (including our case) with amianthoid-like fibers described to date were of the gynecological-type, i.e., they were sex steroid hormone-dependent in contrast with somatic-type leiomyomas which lack steroid receptors (5,6). However, the number of cases remains small and additional study is needed to determine whether amianthoid-like fibers are limited to gynecological-type leiomyomas or whether they can occur also in somatic-type smooth muscle tumors.

An additional interesting feature of leiomyomas with amianthoid-like fibers is its morphologic and immunophenotypical resemblance to palisaded myofibroblastoma (1–4,8–10). In fact, the lesion being in the inguinal region, we would have considered the diagnosis of palisaded myofibroblastoma in the first place. Both palisaded myofibroblastoma and leiomyoma with amianthoid-like fibers show spindle myoid appearing cells, focal nuclear palisading, and actin positivity with accentuation of periphery of amianthoid-like fibers. Hyaline actin-rich intracytoplasmic globules seen in many cases of palisaded myofibroblastoma may be found also in uterine leiomyoma (7). The difference is only in the expression of h-caldesmon. Positivity for smooth-muscle marker desmin was already described in palisaded myofibroblastoma (8). Moreover, ultrastructural features of palisaded myofibroblastoma also favor specialized smooth muscle differentiation (9) related probably to smooth muscle of the vascular wall (10). In our opinion, the finding of amianthoid-like fibers in gynecologic-type leiomyoma along with the mentioned overlap with palisaded “amianthoid” myofibroblastoma favor further the smooth muscle differentiation of the latter.

Regarding differential diagnosis of the present case, an exclusion of a uterine mixed stromal smooth muscle tumor was necessary (11). This tumor often contains stellate hylanized nodules that are very similar to the amianthoid-like fibers and that can represent deposition of an abnormal collagen as well. In contrast to leiomyoma, these lesions show unquestionable stromal cell differentiation characterized by dense small cell proliferation with numerous vessels and CD10 immunoreactivity (11).

In conclusion, we demonstrated a case of uterine leiomyoma with amianthoid-like fibers, with some overlapping features with palisaded myofibroblastoma. The presence of amianthoid-like fibers expands the morphologic spectrum of leiomyomas. In addition, this finding gives further information to the knowledge on histogenetic relationships between myofibroblastic and smooth muscle lesions.

REFERENCES


