Case Report

Received: February 23, 1990

Accepted after revision: March 22, 1991

Gynecol Obstet Invest 1991;32:191-192

Heterotopic Striated Muscle in the Myometrium in a Patient with Myoma uteri

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Key Words

Striated muscle
Myoma uteri
Heterotopic tissue
Humans

Abstract

Heterotopic striated muscle tissue was found in the myometrium of a 50-year-old Japanese woman with myoma uteri. It is suggested that the tissue originated in a differentiation of stromal cells in the myometrium.

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Introduction

Discovery of a wide variety of heterotopic tissues in the endometrium has been described in the literature, including bone [3], cartilage [7], smooth muscle [4], and nerve [7]. However, the occurrence of heterotopic striated muscle in the myometrium is very rare [2]. The present paper reports heterotopic striated muscle in a uterus with myomata.

Case History

M.C. (No. 88-373), a 50-year-old, self-employed Japanese woman complained that menstruation was profuse, with blood clots. She had had 5 pregnancies with 3 normal deliveries and 2 spontaneous abortions. At age 34 she had a tubal ligation to induce sterility. Myoma uteri was diagnosed 7 or 8 years previously on a checkup for vaginal cancer. She visited a gynecological clinic because of severe lumbago and hypermenorrhea lasting 2 months.

The physical examination was normal. Gynecological examination revealed a large uterus with a tumor mass of the size of a goose egg on the left side of the uterine body. Ultrasonography revealed a giant mass with only partial calcification and a myometrial echo in the posterior wall of the uterus which strongly suggested myoma uteri. Laboratory findings were normal. A simple total hysterectomy was done.

The uterus weighed about 1,100 g. It contained two large subserous tumorous nodules, one intraligamentary and the other pedunculated. The myoma uteri was composed of smooth muscle cells, and the center of the nodule in the uterine body was degenerated and partially calcified.

On microscopic examination, heterotopic striated muscle tissue was detected in the stretched myometrium adjacent to the intraligamentary myoma nodule (fig. 1). The tissue was not observable macroscopically. The cut surface of the muscle tissue was composed of 113 irregularly shaped striated muscle cells ranging from 10 to 30 μm in diameter. The stroma was occupied by connective tissue and capillaries (fig. 2).

Discussion

The striated muscle tissue which was present in the uterus of this patient was about 1 mm in diameter and was present in the distended myometrium around the myoma. This tissue was mature striated muscle with a normal microscopic appearance. Since the myometrium was otherwise normal, the tissue appears to be heterotopic.

Heterotopic tissues are rarely found in the myometrium. Further, although heterotopic bone, cartilage and glial tissue have been identified in the uterus [3,7], heterotopic muscle tissue (smooth or striated) has been reported only rarely [4, 5]. Striated muscle tissue and osteoid tissue in the fetal uterus was reported by Meyer [2]. However, there have been no reports of heterotopic striated muscle tissue alone in the myometrium in the international literature between January 1972 and January 1990. Thus, the present finding of heterotopic striated muscle tissue in the myometrium is considered significant.

Several mechanisms might be suggested to explain the presence of heterotopic striated muscle tissue in the uterus. We cannot conclude the mechanism operant in this case, but let us consider the possibilities: The myometrium and stroma of the endometrium originate in the

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Fig. 1. Heterotopic striated muscle. Endometrium, myometrium and striated muscle tissue (arrow) in the myometrium adjacent to intraligamentary myoma nodule. Hematoxylin and eosin. $\times 20$.

Fig. 2. Higher magnification of the striated muscle illustrated in figure 1. The nucleus of striated muscle is eccentrically placed. The stroma is occupied by connective tissue and capillaries. Hematoxylin and eosin. $\times 400$.

mesenchymal tissue surrounding the primordial utero-vagina. As the mesenchyme develops, the multipotential stem cell becomes a specific stem cell that can differentiate gradually into specific tissue, and further differentiate into progenitor cells with the proliferative faculty of characteristic tissues, finally becoming well-differentiated cells [6]. Therefore, it is possible that a mesodermal cell remnant could become differentiated into normal striated muscle.

There is a possibility that the tissue is an implantation of striated muscle of fetal origin following a spontaneous or induced abortion [7]. Although the present patient has a history of abortion, the small amount of striated muscle tissue present in the myometrium, the absence of other fetal tissues, and the absence of myometrial wound healing (fibrosis) after curettage make it unlikely that implantation of fetal tissue occurred in this case. The heterotopic tissue could be an acquired graft of pelvic floor muscle (a homograft), but, although there was a history of tubal ligation, an intramyometrial graft of pelvic floor muscle or abdominal wall muscle is unlikely. Meyer has reported that striated muscle can reach the uterus with the internal cremaster muscle through the round ligament [1]. Such an origin is ruled out here because no component tissues of the round ligament were found in the myometrium other than the isolated striated muscle tissue.

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