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CASE REPORT

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Intraoperative ultrasound in reconstructive surgery for multiple uterine myomas

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Abstract In this paper, we describe a case of successful surgical treatment of multiple uterine myomas in an open reconstructive operation with intraoperative ultrasound (IOUS) guidance. Eight nodules were removed during myomectomy. Three of them, the smallest nonpalpable tumors, were detected only by IOUS examination. The patient had remained asymptomatic and free of recurrence at follow-up 27 months postoperatively. Future studies in a larger number of series are needed before any final conclusions are reached about the effectiveness of IOUS during reproductive gynecologic procedures.

Keywords Uterine myomas · Intraoperative ultrasound · Uterine surgery

Introduction

Intraoperative ultrasound (IOUS) is a relatively new technique in the modern surgical diagnostic armamentarium and can now be considered a fundamental tool in hepatopancreatobiliary surgery [1].

On the other hand, the role of IOUS in gynecologic surgery is still being discussed, as no complete investigation in this area has been conducted yet. IOUS is primarily applied for intraoperative guidance of endoscopic surgery, either hysteroscopic or laparoscopic [2]. Only one report about IOUS application during open reconstructive gynecological procedures [3] has recently been published in the English literature.

Herein we describe an additional well-documented case of IOUS guidance for multiple myomectomy.

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Case report

A 21-year-old patient, gravida 0, with multiple myomas was referred to our department for surgical treatment. She complained of lower abdominal pain and menometrorrhagia. The patient wanted to save her fertility, and a myomectomy was therefore proposed to her. Upon transabdominal and vaginal ultrasound, five nodules were detected at the anterior and posterior uterine walls.

A Pfannenstiel laparotomy showed multiple subserosal and interstitial myomas of the uterus. After inspection and palpation of the uterus, IOUS was done using an 8-MHz curved—array sector transducer attached to a Toshiba Just Vision 200 (model SSA-320A; Tokyo, Japan) and an ultrasound scanner to provide further definition of the relationship of the nodules to the uterine cavity and uterine vessels. The transducer was wrapped in a sterile plastic sleeve with 10 ml of saline solution, and then it was placed directly on the uterine surface (Fig.1). The five detected interstitial nodules (2–5 cm in diameter) were removed from the anterior and posterior uterine walls. Axial and sagittal images of the uterus revealed three additional nonpalpable small myomas (< 2 cm in diameter). One of these tumors was submucosal, whereas the others were located near the uterine arteries. After complete removal of all myomas, the uterine walls were sutured, and additional postresectional control with IOUS showed no residual tumor. A total of eight nodules were enucleated (Fig.2).

The patient's postoperative recovery was uneventful. Follow-up transabdominal and transvaginal ultrasonography 27 months after the multiple myomectomy revealed neither residual nor recurrent myomata.

Discussion

IOUS has a well-defined role in hepatobiliary surgery [1]. However, at present, only one article about applying

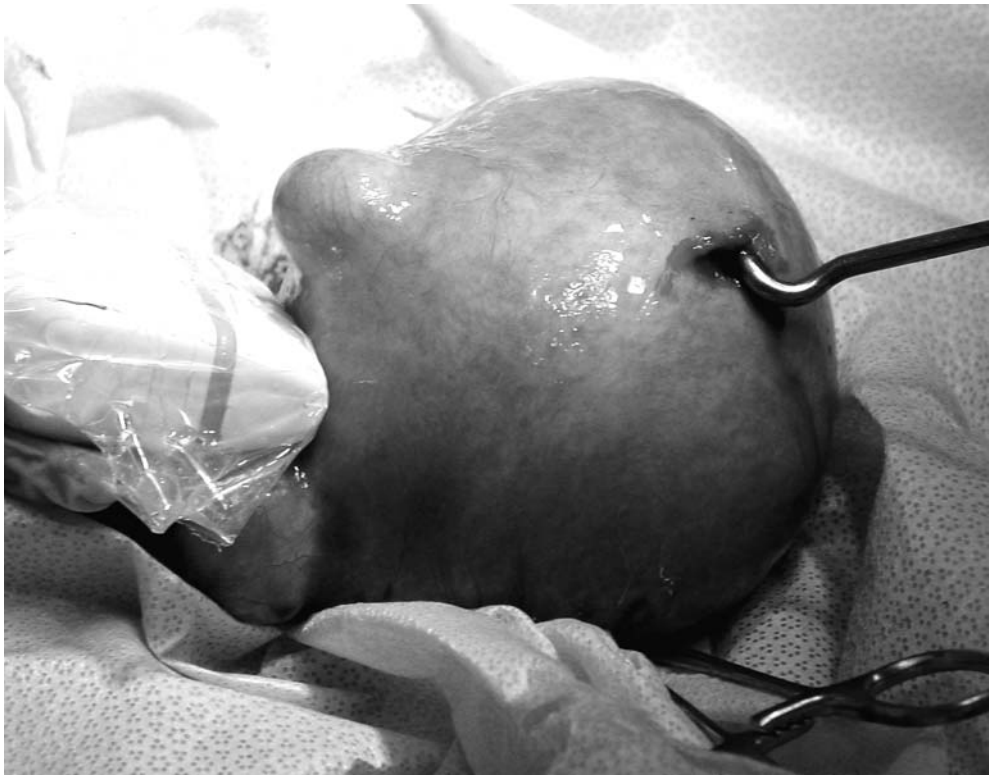

Fig. 1 An 8-MHz curved-array sector transducer placed directly on the uterine surface

Fig. 2 Resected specimen: uterine myomas from 0.4 to 5 cm in diameter

IOUS examination during complex reproductive surgical procedures has been published [3]. Our case report is the second in the English literature to describe the use of IOUS guidance during multiple myomectomy for open gynecologic procedures.

We agree with Letterie and Catherino [3] that image-guided surgery is increasingly important and demonstrates the anatomy and pathology, which enables using a more directed surgical approach. These authors suggest that reasons for IOUS in reconstructive myomata-related operations of the uterus include the following: complete exploration of the myometrium, determination of the number and exact location of nodules, and identification of the relationship between the diagnosed nodules, the uterine vessels, and the uterine cavity. Moreover, we believe this method helps modify the traditional approach to the myometrium based on multiple myomectomies, thus avoiding

additional incisions and damage to uterine tissue and allowing the determination of the absence of residual tumor or satellite nodules in a new-shaped uterus.

Besides, it is generally accepted that IOUS is a rapid, safe, relatively inexpensive, and widely available tool [1, 3]. Accurate sonographic evaluation of the uterus is possible during surgery due to direct positioning of the transducer over the uterine surface, being unobstructed by the abdominal wall or intestinal gas as is the case with transabdominal sonography.

Taking into account that during conservative myomectomy complete tumor clearance is mandatory, our case report highlights the efficient application of IOUS in open reproductive procedures, which allows the completeness of nodule excision to be determined and residual myomata to be prevented. To establish the effectiveness of IOUS in reconstructive operations of the uterus in cases of multiple and small nonpalpable myomas, it is necessary to conduct additional evaluations of a greater number of treated patients, with a longer follow-up period.

References

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