Intraoperative ultrasound guidance for hysteroscopic retrieval of intrauterine foreign bodies

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Summary. Retained bony fragments after a therapeutic abortion represent a rare complication of this gynecologic procedure. Management has been previously described to include blind dilatation and curettage, hysterec- tomy, and in select cases and with variable success, hysteroscopy. We describe a case of retained bones after a second-trimester abortion managed by operative hysteroscopy using a resectoscope and wire loop under intraoperative transabdominal ultrasound guidance.

Key words: Retained products – Operative hysteroscopy – Ultrasound

Retention of bony fragments after therapeutic abortion is a rare phenomenon with various clinical presentations [5]. Early case reports in the European literature date to the mid-50s and the management of such cases has previously been blind dilatation and curettage or hysterectomy [2]. Hysteroscopy was described as a method of management in the early 1980s, but it has met with variable success [1]. In fact, for embedded bony fragments removal by hysteroscopy alone has been either impossible or incomplete [4]. The advent of sophisticated ultrasound scanners added a dimension to the surgical retrieval of foreign bodies and has a potential application to endoscopic gynecologic procedures. We recently managed a patient with retained bony fragments from a second-trimester abortion performed 24 months prior to presentation.

Case report

A 26-year-old woman, gravida 2, para 1-0-1-1, presented for evaluation of a persistent, clear vaginal discharge of 18-month duration, noted after a second-trimester abortion. She was well until October 1990 at which time she was evaluated at another institution for amenorrhea and a 16-week gestation. She underwent a termination of pregnancy at that time performed in an apparent uneventful fashion. She was evaluated 2 weeks after the procedure for persistent, intermittent vaginal bleeding and a vaginal discharge. Her exam was unremarkable and cervical cultures were negative. She was placed on oral contraceptives with minimal change in her bleeding pattern and discharge over a 3-month period of time. Surgical intervention was then recommended. She underwent a dilatation and curettage in April 1991, which yielded moderate endometrial tissue and a normal-appearing endometrial cavity. Histologic evaluation of the endometrial tissue revealed decidualized endometrium. Her bleeding subsided after this procedure, but she continued to have a persistent vaginal discharge. She was treated with a variety of antibiotics without resolution, and in December 1991, she spontaneously passed per vagina a 1-cm × 2-cm calcified foreign body which, on gross inspection, was consistent with a linear, bony fragment. Histologic examination of this specimen revealed calcific densities and laminations consistent with a bone. No further evaluation was performed and the patient apparently did well, complaining only of a persistent vaginal discharge. She was referred to this institution for further evaluation and treatment.

Pelvic examination revealed a normal uterus and adnexa. Speculum examination revealed a minimal, clear vaginal discharge, which on microscopic examination revealed only occasional epithelial cells. Transabdominal and transvaginal pelvic ultrasound examination revealed a normal-appearing uterine body with several echogenic areas at the lower uterine segment consistent with intramural calcifications and suggestive of retained bony fragments (Fig. 1). Fluoroscopic examination of the pelvis failed to reveal any obvious calcifications. Operative hysteroscopy, using a resectoscope and wire loop, was carried out under ultrasound guidance to provide precise localization of the suspected bony fragments and to provide maximum operative flexibility. The bladder was filled with 200 cc of sterile water and the uterine cavity was distended with 1.5% glycine solution as a distending media under continuous gravity-fed flow. Transabdominal ultrasound scanning was performed intraoperatively (Acuson 128, Mountain View, CA). Endoscopic visualization of the endometrial cavity revealed several bony fragments at the lower uterine segment, some free at the endometrial surface, and several partially embedded in the endometrium and myometrium. The superficial fragments were retrieved. The intramural fragments were retrieved under direct visualization using an operating loop and 80 W of power to dissect the
bony fragments free from the myometrium. The endometrial cavity was well visualized under ultrasound guidance due to the marked distention with glycine, permitting ready ultrasound visualization of the bony fragments, operative scope, and wire loop (Fig. 2). Hysteroscopy revealed several bony fragments and spicules embedded in the posterior wall of the myometrium. Otherwise, the uterine cavity was normal in appearance. Twenty-one bony fragments were retrieved. Gross inspection of these fragments revealed several flat and linear pieces of bone (Fig. 3). Histologic examination of the fragments revealed calcified structures consistent with bone and cartilage. Examination of the resected myometrium surrounding the bony fragments revealed woven bone, smooth muscle and benign endometrial glands, and stroma with scattered plasma cells consistent with chronic endometritis. Postoperatively, the patient was cycled on a combination of estrogen and progesterone. She was seen postoperatively 8 weeks after the procedure and there had been a resolution of her symptoms.

Discussion

The use of intraoperative ultrasound guidance has been previously described in the management and surgical retrieval of foreign bodies such as projectiles and metallic and wooden fragments [3]. Its intraoperative use in gynecologic endoscopic procedures has had limited investigation thus far, and has not been previously described for the retrieval of foreign bodies. The present case report suggests that transabdominal ultrasound guidance for the retrieval of intrauterine foreign bodies may provide an excellent method for guiding surgical therapy. Current resectoscopic techniques utilize a uterine-distending media of glycine or sorbitol and a continuous gravity-fed flow, which create an ideal environment in which to visualize the scope, operating tip, and the foreign bodies to be retrieved. This is particularly desirable, as intrauterine fragments are frequently embedded within the myometrium precluding direct visualization endoscopically. If bony fragments are partially or completely embedded, they may not be evident to inspection through the endoscope, as evidenced in this case where these bones were overlooked during a prior hysteroscopy and D & C. Removal of such fragments may require intrauterine resection and be facilitated by intraoperative ultrasound for localization and to verify removal after resection.

Operative hysteroscopy and intraoperative ultrasound guidance provided an optimal method of management in this case of intrauterine foreign bodies. The distending media of glycine created an ideal intrauterine environment in which to image not only the fragments but also the resectoscope and loop; precise guidance to the areas of interest resulted. The use of ultrasound provided a means to document complete removal of all bony fragments at the end of the procedure. Endoscopic intrauterine procedures under intraoperative ultrasound guidance may provide accurate and precise techniques of intrauterine surgery for the treatment of a variety of other gynecologic problems such as myomectomy and resection of uterine septa.