

# Management of nonpuerperal uterine inversion using a combined laparoscopic and vaginal approach

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**U**terine inversion is a rare complication of the postpartum period and an extremely rare event in nonpregnant women.<sup>1</sup> Nonpuerperal uterine inversion is mainly caused by a submucous myoma; however, other causes may also be involved, such as malignant uterine tumors (15%).<sup>2,3</sup>

## CASE REPORT

A 40-year-old woman, who had previously delivered 4 infants vaginally and who had undergone 3 hysteroscopic resections of benign submucous leiomyomas, responsible for vaginal bleeding during the last year, presented with lower abdominal pain, radiating to the vagina. The pain had become increasingly aggravated during the preceding week. A protruding mass of approximately 7 cm was found on speculum examination, with minimal bleeding and inability to visualize the cervix. The size of the uterus was difficult to appreciate by bimanual abdominopelvic examination because of the distended abdomen and abdominal pain. Transvaginal ultrasonography revealed a uterus measuring 60 × 92 mm, with an endometrium 8 mm thick and a cervicoisthmic mass of 70 mm, suggesting the diagnosis of a

Although described as a postpartum complication, uterine inversion may also occur in nonpregnant women. We report a case of nonpuerperal uterine inversion, because of a large exteriorized submucous myoma in a 40-year-old woman, which was surgically managed by hysterectomy using a combined laparoscopic and vaginal approach.

**Key words:** fibroid, laparoscopic hysterectomy, nonpuerperal uterine inversion, submucous myoma, vaginal hysterectomy

prolapsing submucous pedunculated myoma. As this hypothesis was considered accurate, neither magnetic resonance imaging (MRI) nor computed tomography were performed. Following the patient's request for definitive treatment, a total laparoscopic hysterectomy was planned.

Laparoscopic exploration showed complete invagination of the uterus through the vagina (Figure 1), confirming the diagnosis of a stage 2 uterine inversion. After ligation of the uterine arteries at their origin, the round, broad, and uterosacral ligaments and the fallopian tubes were coagulated and sectioned (Video). The procedure was then completed using a vaginal approach; circular colpotomy was performed following the line separating the normal-colored vaginal wall and the ischemic tissue, which had undergone marked color change after uterine artery ligation (Figure 2). The uterus was then retrieved, and vaginal closure was performed using interrupted resorbable sutures. The patient was discharged at postoperative day 3 and showed favorable outcomes. Pathologic examination confirmed uterine inversion resulting from a 7 cm myoma attached to the uterine fundus (Figure 3). Although the majority of the endometrium was removed by prolonged abrasion, small persistent fields of cylindrical mucosecretory glandular epithelium free of carcinoma cells remained.

150 cases reported from 1887 to 2006, and the large majority occurring in women over 45 years old.<sup>1</sup> In 85% of the cases these were due to benign uterine pathologies, whereas in 15% of cases they were related to malignant tumors. Uterine sarcomas (leiomyosarcoma, rhabdomyosarcoma, sarcoma of the endometrial stroma) were more frequently reported than endometrial carcinoma or mixed müllerian tumors.<sup>2</sup> Uterine inversion has previously been reported in only 5 women under 45 years of age, of whom 3 presented with rhabdomyosarcomas, 1 with endometrial carcinoma, and only 1 with a benign submucous myoma.<sup>3</sup>

Pathophysiology of uterine inversion appears to be multifactorial, including thinness of the uterine wall, rapid tumor growth, the enlarged size of the tumor located either at or adjacent to the uterine fundus, a small tumor pedicle, and distention of the uterine cavity leading to cervical dilatation. The main clinical symptoms are abnormal vaginal bleeding; lower abdominal pain or vaginal pressure; and in rare cases, acute urinary retention by urethral compression. Clinical diagnosis of uterine inversion might be made difficult where the cervix is hidden behind the tumor and the uterine fundus cannot be palpated; consequently pelvic ultrasonography, computed tomography, and MRI can be beneficial in diagnosis. Uterine inversion may be classified into 4 stages: (1) incomplete inversion of the uterus with the uterine fundus in the cavity; (2) complete inversion of the uterine fundus through the cervix; (3) complete inver-

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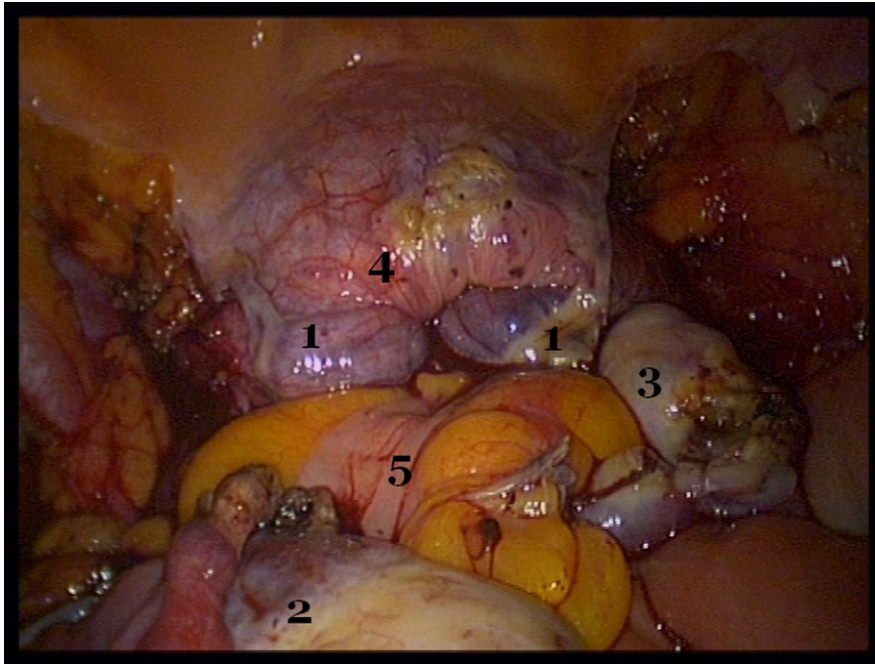


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## COMMENT

Uterine inversion in a nonpregnant woman is a rare occurrence, with only

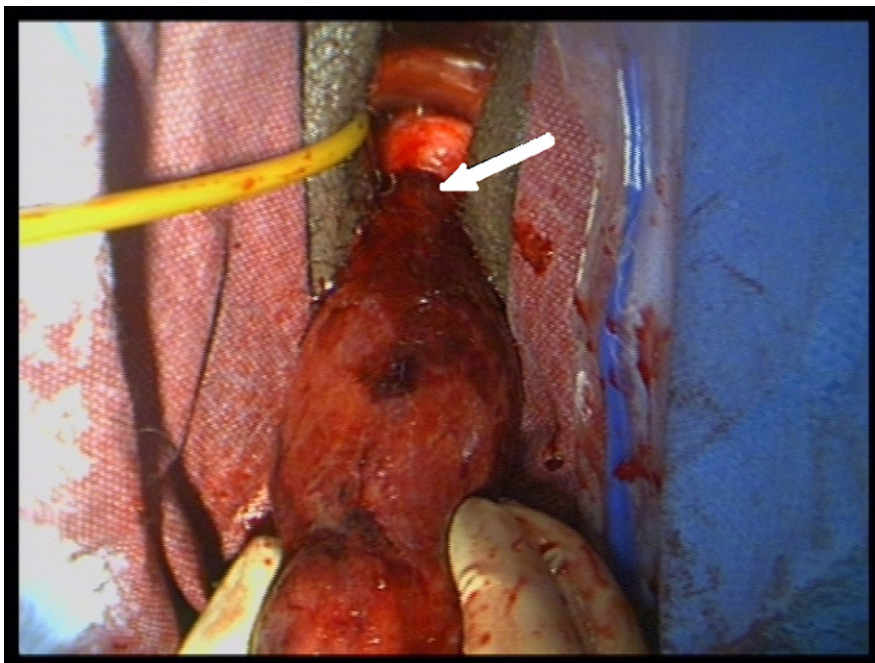
**FIGURE 1**  
Laparoscopic exploration showing the complete invagination of the uterus through the vagina



Broad and round ligaments are coagulated and sectioned. 1, round ligaments; 2, left ovary; 3, right ovary; 4, bladder; 5, rectum.

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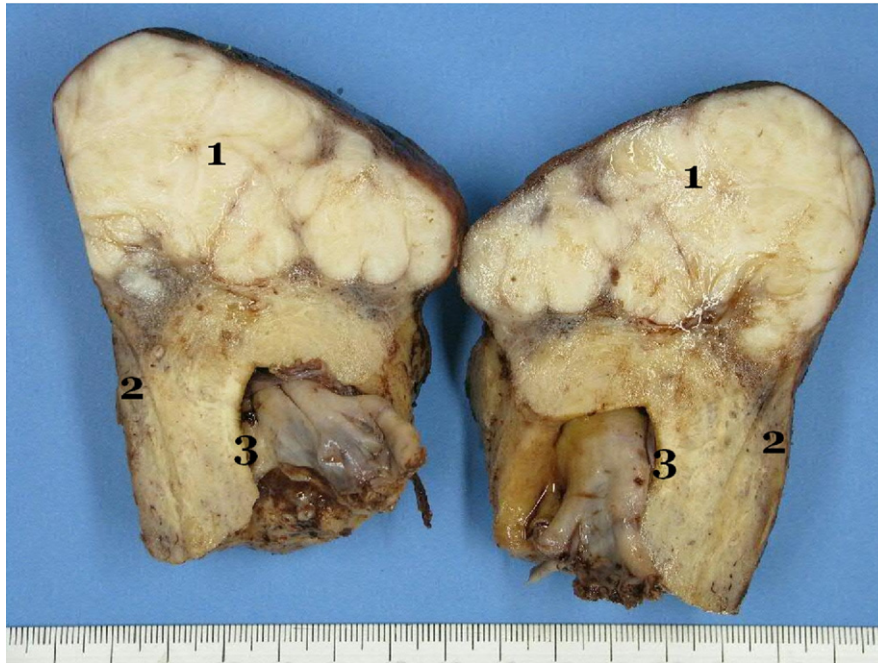
**FIGURE 2**  
Vaginal route



White arrow indicates the line separating normal colored vaginal wall and ischemic tissues having undergone marked color change after uterine artery ligation.

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**FIGURE 3**  
**Uterine inversion**



Uterine inversion because of a 7 cm myoma appended on the uterine fundus. 1, myoma; 2, endometrium; 3, uterine serosa.

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sion with the fundus protruding through the vulva; and (4) complete inversion through the vulva of both the uterus and the vagina.<sup>4</sup>

Hysterectomy is usually performed in women with no further desire of pregnancy.<sup>5</sup> The vaginal approach requires either incision of the anterior or posterior vaginal wall or that of the constricted cervical ring and posterior uterine wall. This latter procedure should, however,

be avoided in malignant uterine tumors.<sup>6</sup> A second approach uses the abdominal route and requires restitution of the prolapsed uterus through the constricted cervical ring by traction using Allis clamps.<sup>6</sup> However, identification of the limit between the cervix and the vagina may be particularly laborious.<sup>7</sup> In our case, the laparoscopic approach allowed thorough abdominal examination, diagnosis of uterine inversion,

and complete devascularization of the uterus, thus facilitating the identification of the limit between the ischemic reversed cervix and the normal vascularized vagina. This limit was subsequently used to guide the colpotomy performed by vaginal route.

Nonpuerperal uterine inversion is a rare event, and clinical diagnosis may be challenging. Total hysterectomy by combined laparoscopic and vaginal route is a valid and feasible approach in women with no pregnancy intention. Surgeons should be aware that intraabdominal morcellation should be avoided, due to a risk that the protruded mass may be a malignant uterine tumor. ■

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