

## Case Reports

Modified Gilliam-Doleris hysteropexy  
for juvenile uterovaginal prolapseK. Kai<sup>1,2</sup>, Y. Kai<sup>1</sup>, M. Nishida<sup>1</sup>, K. Nasu<sup>1,2</sup>, S. Iwanaga<sup>3</sup>, H. Narahara<sup>1</sup><sup>1</sup> Department of Obstetrics and Gynecology, Oita University Faculty of Medicine, Oita<sup>2</sup> Department of Obstetrics and Gynecology, Nakatsu Municipal Hospital, Oita; <sup>3</sup> Iwanaga Ladies Clinic, Oita (Japan)

## Summary

**Purpose of investigation:** Pelvic organ prolapse (POP) is common among multiparous, older, and/or obese women, but rare among nulliparous, young, and/or thin women. Uterus-sparing surgery for reproductive-age POP patients offers the potential for preserving fertility. The authors report a juvenile nulliparous POP woman treated with a modified Gilliam-Doleris hysteropexy. **Results:** The 19-year-old Japanese woman was referred to the authors after a vaginal pessary for her uterine prolapse failed; she also had a large ovarian tumor. She was 154 cm tall, weighed 54 kg, and had the body mass index 22.8 kg/m<sup>2</sup>. The POP was stage III. The authors performed a modified Gilliam-Doleris hysteropexy and concomitant right ovarian cystectomy. The patient has been free from recurrent prolapse for five years post-surgery. **Conclusion:** Although POP is rare in nulliparous juvenile women, it can occur with background cumulative risk. The modified technique of Gilliam-Doleris hysteropexy should be listed as a treatment option for juvenile POP patients.

**Key words:** Fertility preservation; Juvenile; Pelvic organ prolapse; Round ligament of uterus; Surgical procedures; Uterine prolapse.

## Introduction

Pelvic organ prolapse (POP) has established risk factors that include multiparity, advanced age, and obesity [1]. POP is uncommon among young women, but congenital anomalies and neurogenic, rheumatologic, and connective tissue diseases are reported to be contributing factors for POP [2]. Little information is available regarding young POP patients without systemic or congenital disease or birth trauma.

For women with uterine prolapse who wish to conceive in the future, conservative management with a pessary should be offered as a first-line treatment. When a pessary has failed and for patients who are sexually active, a hysteropexy is a reasonable surgical option. Among the wide variety of surgical options for hysteropexy, vaginal sacrospinous hysteropexy, in which the cervix is secured to the right sacrospinous ligament, has been the most extensively studied and remains an alternative to vaginal hysterectomy in women who desire future fertility or uterine conservation [3]. However, sacrospinous hysteropexy is inappropriate for women with severe uterine prolapse because of the high risk of recurrence [4]. Here the authors report a nulliparous juvenile POP woman who was successfully treated with modified Gilliam-Doleris hysteropexy procedure.

## Case Report

A 19-year-old nulligravida Japanese woman with coital experience was referred to the authors with a failed vaginal pessary treatment for uterine prolapse and an ovarian tumor. She was 154 cm tall and weighed 54 kg, and her body mass index was 22.8 kg/m<sup>2</sup>. She had no previous notable medical history or pelvic trauma. She did not have any symptoms of constipation. Three years previously, when she had started to work as a waitress at a hotel, her work required her to lift heavy weights. From then, her symptoms of a bulge and vaginal pressure gradually worsened.

A pelvic examination revealed International Continence Society POP quantification stage III uterine prolapse (Aa=+2, Ba=+5, C=+5, gh=2, pb=3, TVL=7, Ap=-3, Bp=-2, D=-5) without any incontinence (Figure 1A). A transvaginal ultrasound evaluation revealed an intra-pelvic tumor with a mixed pattern with a dominant cystic part. The cervix was not elongated and the uterus was of normal anatomic size. Magnetic resonance imaging and positron emission computed tomography revealed a right ovarian tumor measuring 17 cm in diameter.

The authors performed a pelvic reconstruction with a modified Gilliam-Doleris hysteropexy and a right ovarian cystectomy. The round ligaments were grasped three cm from the cornua (Figure 1B). The abdominal fascia, the rectus abdominis, and the peritoneum were perforated with sharp forceps at the level of the midpoint of the abdominal incision and two cm laterally to the midline (Figure 1C). The round ligament was grasped with the same forceps one-third of the distance from its junction with the uterus and was pulled through the perforated tissues (Figure 1D). The same procedure was carried out on the other side. The peritoneum and fascia were closed separately, and the two loops of round ligament were sutured together over the fascia with three no. 1 silk

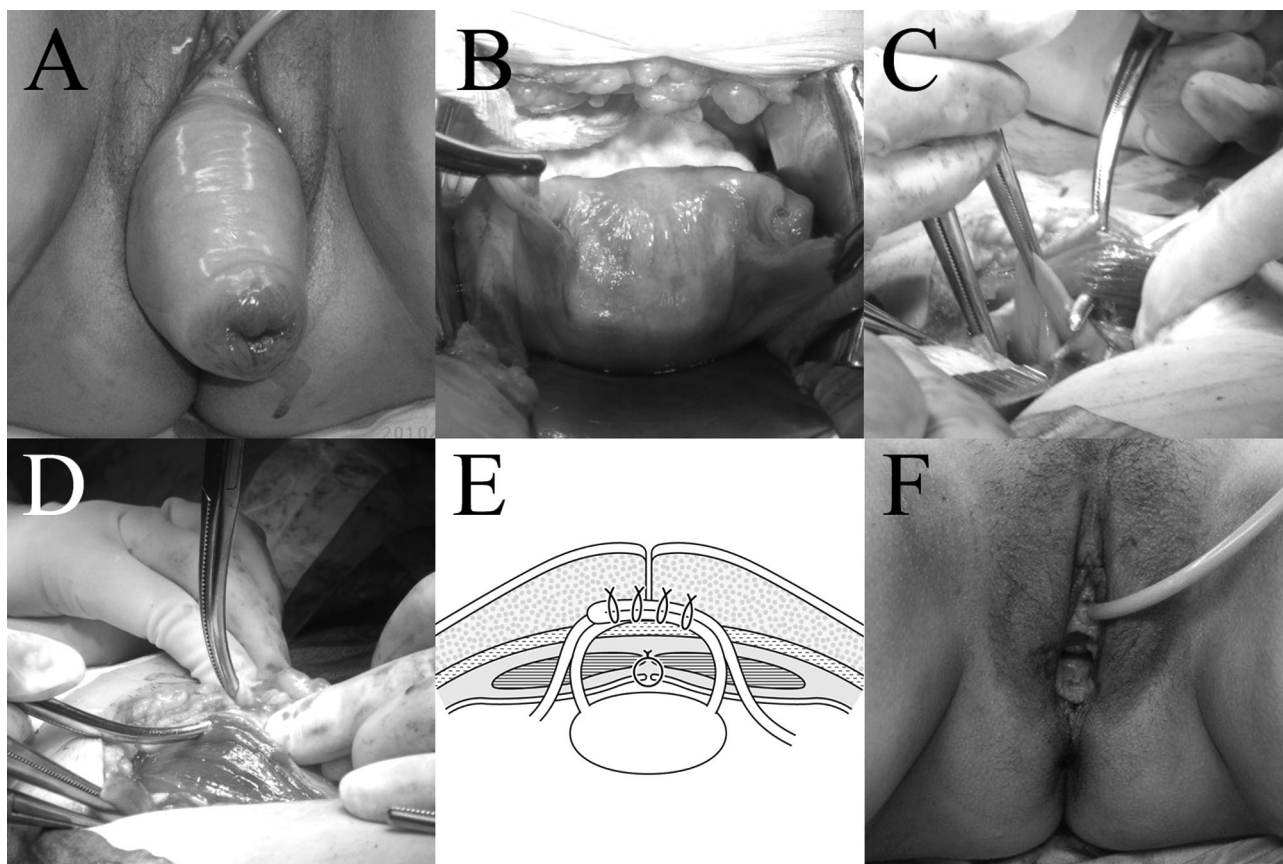


Figure 1. — (A) Preoperative appearance of the patient's uterine prolapse. (B) Grasping the round ligament. (C) Perforation of the abdominal fascia, the rectus abdominis, and the peritoneum with a sharp forceps. (D) The round ligament was pulled through the perforated tissues. (E) The schema of the modified Gilliam-Doleris hysteropexy. (F) Postoperative appearance of the patient.

sutures (Figure 1E). The tension on each round ligament was adjusted to obtain the correct degree of normal anatomical position of uterus (Figure 1F). The pathology of the ovarian tumor was mature cystic teratoma.

The patient was discharged on day 7 without complications. During the patient's follow-up examination every four months, no notable worsening in uterine prolapse was observed over a five-year period.

## Discussion

The authors treated a juvenile nulliparous POP woman with a large ovarian tumor. To their knowledge, there is only one prior case report of neoplastic disease-associated uterine prolapse in a young patient; Davis *et al.* [4] reported the case of a young patient with POP that resulted from massive ascites derived from lymphangiomatosis, and they performed a sacrospinous hysteropexy for primary surgical repair. They avoided using an abdominal suspension procedure because of the previous three failed attempts at repair of an umbilical hernia. In the present case, a large ovarian tumor and daily heavy lifting might have contributed to the occurrence and development of uterine prolapse.

The authors performed a modified Gilliam-Doleris hysteropexy for the present juvenile nulliparous POP patient. Vaginal sacrospinous hysteropexy is inappropriate for patients with greater than third-degree uterine prolapse [5]. The next well-studied procedure is sacrohysteropexy, in which the uterine cervix is secured to the sacral promontory by polypropylene mesh. Barranger *et al.* reported that 28 of 30 (93%) sacrohysteropexy patients had no prolapse beyond the hymen at a mean of 44.5 months [6], but no pregnancy outcomes are available from that study.

Gilliam-Doleris uterine suspension has frequently been performed for young patients with symptomatic uterine prolapse, and this procedure was designed principally for the treatment of retroverted uterus [7]. In the present patient, because the authors felt that the fascia and round ligaments would be able to withstand the abdominal pressure under the presence of estrogen, they applied the Gilliam-Doleris uterine suspension procedure to hysteropexy and achieved a cure that has lasted for over five years. Although the original procedure for a Gilliam-Doleris hysteropexy is performed using a small incision in the abdominal wall, the present authors modified this procedure to comply with an

abdominal ovarian cystectomy.

In conclusion, a modified Gilliam-Doleris hysteropexy is an alternative treatment for women with severe symptomatic POP who want to preserve their child-bearing ability. Although severe POP is rare among nulliparous women, its morbidity could increase as more women delay having children. Because the effects of pregnancy and delivery on any uterine-sparing prolapse repair are poorly understood, all such repairs should be approached with caution.

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Corresponding Author:

K. KAI, M.D.

Department of Obstetrics and Gynecology

Oita University Faculty of Medicine

1-1, Idaigaoka, Hasama-machi

Yufu City, Oita 879-5593 (Japan)

e-mail: kenta9sp@oita-u.ac.jp