






# Two cases of unusual presentation of hormonal levonorgestrel intrauterine system - Mirena®

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## ABSTRACT

Intrauterine contraceptives containing levonorgestrel, Mirena®, widely used in contemporary gynecology as an effective method of contraception and control of menstrual disorders, have shown to reduce rates of endometrial cancer. In addition, complications such as perforation and migration are rare, requiring rapid intervention. Description: Two atypical cases about the use of intrauterine hormonal device, the first deals with migration of the device to the abdominal cavity, after 1 year and 8 months of insertion, without perforation, with videolaparoscopic withdrawal. The second is a case of primary endometrial cancer in a patient with 3 years of use of Mirena®. Discussion: Migration of the intrauterine device is a rare complication, little reported in the literature, the videolaparoscopic approach is the preferred one and was performed in the case in question. The hormonal intrauterine device is also related to the decreased rates of endometrial cancer and is also used as a preventive method in high-risk women. After reviewing the literature, only six similar cases were described. Conclusion: The intrauterine hormonal device, although safe, may imply rare presentations, such as migration and perforation, which require knowledge and agility of the professional team. The second case presented is a rare event, which makes it aware for women with an unusual hemorrhagic pattern to use Mirena®.

**Keywords:** Intrauterine devices, Endometrial neoplasms, Contraceptive agents, Case reports, Levonorgestrel.

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## INTRODUCTION

The intrauterine contraceptives containing levonorgestrel, which are sold as Mirena®, are widely used in contemporary gynecology, especially as an efficient contraceptive method and as a control for menstrual disorders, such as menorrhagia and dysmenorrhea. According to some authors, the intrauterine devices (IUD) containing levonorgestrel have shown better results in comparison to the ones containing copper, considering lower risk of complications, use discontinuity and inefficiency. The use of LNG-IUS Mirena® has shown reduction of endometrial cancer rates and has been recommended as a prevention measure for endometrial cancer in populations at high risk.

The uterine perforation is a potentially serious complication when it comes to the use of IUDs. The rates are 0.3 to 2.6 for every thousand insertions for intrauterine systems which release levonorgestrel (LNG-IUS) and 0.3 to 2.2 for copper IUDs. It's a very serious complication that demands quick intervention and appropriate action. This paper describes two cases, one of which is related to the migration of Mirena® after uterine insertion, without perforation, submitted to a successful laparoscopic removal, and the second is a development account of endometrial adenocarcinoma on a patient during the use of LNG-IUS Mirena®.

### CASE 1

The patient, G1P1A0, 30 years old, from Sobral/CE, underwent a Mirena® insertion in february 2016, proceeded to ultrasound control which showed a well placed IUD in the endometrial cavity. She sought care after a year and eight months, complaining of light to moderate intensity hypogastric pain. She denied fever or vaginal bleeding. At the examination: abdomen with no signs of peritoneal irritation and specular examination with no evidence of the IUD thread in the cervix. She underwent additional examinations: transvaginal ultrasound with no evidence of the IUD in the endometrial cavity. Afterwards, she underwent a simple abdomen radiography which found the IUD in the abdominal cavity. (Figure 1)

After the diagnostic confirmation, she underwent a laparoscopic procedure for the removal of the device that was found in the left iliac fossa, adhering to the omentum, with no evidence of uterine perforation,

proceeding to its laparoscopic recovery. (Figure 2). Upon her return examination after 30 days of the procedure, the patient did not report any complaints. Her abdomen and specular examination without alterations.



**Figure 1** Abdominal radiography.

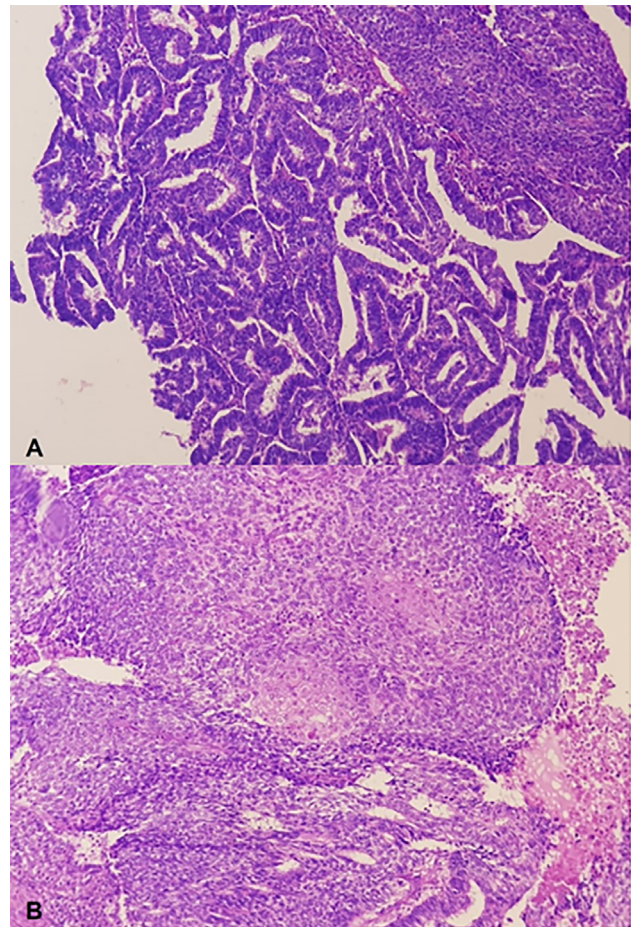


**Figure 2.** Recovered IUD.

## CASE 2

Female patient, 47 years old from Sobral/CE, menarche at 15 years of age, G0P0A0, hypertensive patient, non smoker, non alcoholic, with no cancer condition or genital pathologies running in the family. She has been using LNG-IUS, Mirena®, for three years now. The patient underwent cervix oncotic cytology examinations yearly (OC) and transvaginal ultrasound (USTV) with normal results. She sought medical care twenty days ago when she claimed the occurrence of bloody vaginal discharge which was odorless, painless and without any itching. In speculate examinations we could see an anatomically normal cervix. Nevertheless, we observed necrotic material coming out of the uterine cavity. We proceeded to OC and USTV. The OC was negative for neoplasm and the USTV revealed a uterus with a volume of 174.8 cm<sup>3</sup> with a nodule image of 5.1 cm on the cervix posterior wall with vascularization in its interior. She underwent a pelvis magnetic nuclear resonance (MNR): uterus with a finely heterogeneous signal intensity with rare nodules, a 13mm thick endometrium, and a subtle enlargement of the endometrial canals. She submitted to a diagnostic hysteroscopy which showed the occurrence of a 4-5 cm nodular aspect lesion taking two thirds of the uterine cavity with an atypical vascularization, which suggests endometrial adenocarcinoma. That was confirmed by the histopathological examination. She submitted to total hysterectomy, bilateral adnexectomy and pelvic lymphadenectomy. The anatomopathological exam showed endometrioid adenocarcinoma with a tubular, solid standard with large cells and patches of squamous differentiation, 7.0cm, degree 3 (FIGO), with 50% myometrial invasion along with stromal invasion with the presence of LNG-IUS, Mirena® in the uterine cavity and negative lymphonodes (Clinical state: II degree 3). The immunohistochemistry associated with histological aspects of moderately differentiated adenocarcinoma showed a solid tubular morphological standard panel with large cells and patches of squamous differentiation which was miometrium infiltrating. (Figure 3)

The patient underwent adjuvant treatment with chemotherapy and radiotherapy (teletherapy and brachytherapy). She progressed well, being asymptomatic under clinical follow-up.



**Figure 3.** Histopathological: Endometrioid Adenocarcinoma degree 3. A. Glandular arrangement. B. Solid arrangement, squamous metaplasia. C. Cribriform arrangement.

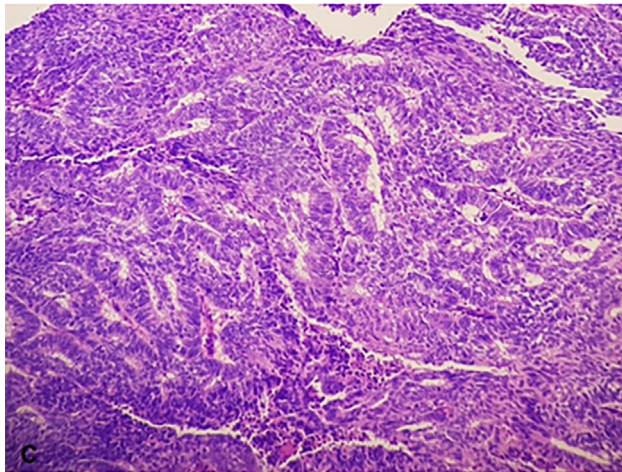
## DISCUSSION

Although rare and little reported, Mirena® intraabdominal migration cases are described in the literature. Such a move may occur during the introduction of the device, by uterine perforation or subsequently, as described in case 1, by follow up of adjacent structures in conformity with the local anatomy without causing any further harm. The migration is possible due to the uterine canal anatomy, which is close to the correspondent ovary without a direct connection, and that provides free access between the uterine and abdominal cavities.

USTV has been considered the best method to diagnose IUD position inadequacies, and it should



be recommended as a routine examination for the prevention of flaws. Although not being routinely recommended in the context of Health Unic System (SUS), the case 1 patient underwent USTV after insertion, which confirms that the presence of the IUD in the peritoneal cavity may have been spontaneous via a possible migration through the uterine canal. When placed in the peritoneal cavity, Mirena® may cause fibrosis formation, abdominal pain, infertility, intestine occlusion, and perforation of neighboring organs such as the bladder, the rectum, and the sigmoid.



This clinical situation is consistent with the case 1 patient, who had adherence and lower abdomen pain. The IUD location, on the left of the pelvic region, reinforced the possibility of perforation of the neighboring organs previously mentioned above. According to the literature, the use of Mirena® reduces the rates of endometrial cancer significantly and in so doing, it is used as a prevention method for this kind of cancer in populations at high risk. This happens due to the action of progesterone, levonorgestrel on its composition, which may contribute to the endometrium atrophy. In 2018, a retrospective series case study showed that the therapy with the IUD releasing levonorgestrel for a conservative treatment of complex atypical hyperplasia or first stage endometrial cancer, resulted in a return to the normal histology for most of the patients. The NOWAC study 10 in cohort with 104,318 Norwegian women, of LNG-IUS strongly reduced the risk of ovary and endometrium cancer in comparison to non users, with no increased risk

of breast cancer. In opposition to what is found in the literature, case 2 shows a rare situation of endometrioid adenocarcinoma under the use of Mirena® IUD in a previously asymptomatic patient who had been using the device for three years. After a literature review, only six similar cases have been identified, so that the development of endometrial cancer with the use of LNG-IUS is still considered a rare event. LNG-IUS is recommended for the treatment of endometrial hyperplasia and endometrial cancer at the early stages. Nevertheless, endometrial cancer may occasionally develop under its use. This case stresses the importance of investigating women who show unusual hemorrhagic standards when using the Mirena® IUD.

## CONCLUSION

The presented cases indicate attention in relation to unusual complaints from hormonal IUD users. The intra abdominal location of Mirena® is a rare event that demands a quick intervention, though, being the video laparoscopic removal the preferential choice upon this approach. Moreover, it's important to stress the possibility of endometrial cancer along with the use of hormonal IUD and the investigation of suggestive complaints on this pathology.

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