



## Uterine Perforation as a Late Complication of Hysteroscopic Endometrial Ablation

Alessandro Libretti<sup>1\*</sup>, Davide Dealberti<sup>2</sup>, Stefano Prigione<sup>2</sup>, Valentino Remorgida<sup>1</sup>

<sup>1</sup>Department of Gynaecology and Obstetrics, Maggiore della Carità Hospital - Novara, School of Gynaecology and Obstetrics, University of Eastern Piedmont, Italy; <sup>2</sup>Department of Gynaecology and Obstetrics, SS Antonio and Biagio and Cesare Arrigo Hospital - Alessandria, Piedmont, Italy

### ABSTRACT

A 52-year-old woman presented twice to the Emergency Department complaining of abdominal pain of unknown origin. At the second admission CT scan revealed peritoneal free fluid and an active uterine bleeding. She was then referred to our Gynecology and Obstetrics Emergency Department. Because of a progressive hemodynamic instability, she underwent an emergency exploratory laparotomy showing hemoperitoneum and a perforated uterus which was removed. The perforation was after related to a thermal damage resulting from a hysteroscopic Endometrial Ablation performed 3 months before. To the best of our knowledge this is the first reported case of late complication (3 months) of a hysteroscopic thermal ablation. We can speculate that at the time of first surgery there was no whole thickness perforation but a severe thermal necrosis that with time has progressed to the uterine serosa causing at the end the uterine perforation and the clinical situation we encountered.

**Keywords:** Hysteroscopy; Uterus perforation; Thermal endometrial ablation; Hysterectomy; Thermal damage; Myomas; Fibromas

**Abbreviations:** CT: Computed Tomography; P1001: TPAL system means the parity of the woman, T: Child born at the end of pregnancy, P: Pre-term born, A: Abortion, Miscarriages, L: Living sons; Hb: Hemoglobin; IV: Intravenous; BPM: Beats per Minute; US: Ultrasound

### INTRODUCTION

RS is a P1001 52-year-old woman. She presented at the General Emergency Department for the first time on the 18<sup>th</sup> of December (2021) complaining of abdominal pain. A no contrast dye CT scan, besides Uterine Fibroids, was normal as well as the blood exams. The General Surgeons on call, after a successful therapy based on pain killers (paracetamol IV) and hydration IV, sent the patient home.

### CLINICAL OBSERVATION

RS is a P1001 52-year-old woman. She presented at the General Emergency Department for the first time on the 18<sup>th</sup> of December (2021) complaining of abdominal pain. A no contrast dye CT scan, besides Uterine Fibroids, was normal as well as the blood exams. The General Surgeons on call, after a successful therapy based on pain killers (paracetamol IV) and hydration IV, sent the patient home. Three days later (December 21<sup>st</sup>)

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**Corresponding author:** Alessandro Libretti, Department of Gynaecology and Obstetrics, Maggiore della Carità Hospital - Novara, School of Gynaecology and Obstetrics, University of Eastern Piedmont, Italy; Tel: +393475916561; E-mail: libretti.a@gmail.com

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**Figure 1:** Area of perforation of the lower posterior uterine wall.

the patient returned to the General Emergency Department with a worsening of symptoms (abdominal pain and asthenia). At this time no relief of pain with various pain relievers was obtained and her blood exams demonstrated anemia (Hb 8.3 g/dL, a drop of three points in 3 days) along with hypotension (103/50) and tachycardia (HR 103 bpm) a new CT scan was requested by General Surgeon (this time with dye). This second CT scan showed massive peritoneal effusion and active uterine bleeding. At this point the General Surgeon referred the patient to our Gynecologic Emergency Department. A pelvic exam was performed that revealed no abnormal findings but pain during vaginal and abdominal palpation. The trans-vaginal US scan confirmed the presence of free fluid in Douglas and abdominal cavity. Two consecutive blood exams performed in a 1 hour time (Hb 6.3 g/dL and later 5.8 g/dL) confirmed active bleeding, a diagnosis of acute shock due to massive bleeding was established and the patients immediately transferred to the operating room while correcting her blood deficit with 3 units of whole blood and tranexamic Acid. At the opening of the abdominal cavity massive hemo-peritoneum was confirmed (blood drainage of 2600 cc). A total abdominal hysterectomy was performed with a further blood loss of 600 cc. The origin of the active bleeding was located to an area of perforation of the lower posterior uterine wall just above the cervix, gross findings in this area, apart the 1.5 cm circular hole of perforation, were those typical of the thermal damage, with crumbly and fragile uterine tissues (**Figure 1**). An area of sigmoid colon, just behind the uterus perforation, was also showing signs of thermal

damage but fortunately with no bowel perforation. Patient returned home three days later with normal vital sign and regular blood exam including an Hb of 8.3 g/dL.

## DISCUSSION

As the patient came to our attention in progressive shock it was not possible to collect an extensive medical history from the beginning. We were able to collect only information on a previous appendectomy (1980) and saphenectomy (2018) and the fact that she has been affected by abnormal uterine bleeding secondary to uterine fibroids since 2020. At the time of surgery, we were not aware that the patient had undergone an hysteroscopic endometrial ablation in September 2021 for her abnormal uterine bleeding with poor results (as she was still bleeding every month). There are several methods to perform an endometrial ablation: perfusion of hot intrauterine solutions, irradiation of intrauterine microwave and under direct hysteroscopic vision (endometrial resection or coagulation) [1]. The hysteroscopic procedure is generally associated with few complications mostly appearing during the first hours after the procedure [2]. Opposite to the endometrial resection in which the endometrium is cut, the thermal ablation consists in the destruction of the endometrium through the delivery of a thermal energy [3]. Uterine perforation during the hysteroscopic thermal ablation of endometrium is a very rare event (0.17%) [4], that occurs during the operation and, if missed and undiagnosed, give symptoms during the very first

hours [5]. To the best of our knowledge this is the first reported case of late complication (3 months) of a hysteroscopic thermal ablation. We can speculate that at the time of first surgery there was no whole thickness perforation but a severe thermal necrosis that with time has progressed to the uterine serosa causing at the end the uterine perforation and the clinical situation we encountered. It is highly likely that an alteration in the normal anatomy and vasculature of the uterus like the presence of uterine fibromas [6] as in this case might have been the predisposing factor for this complication. Another possible cause of massive bleeding following intrauterine procedures might be the uterine artery pseudoaneurysm, [7] but this can be easily suspected by alteration of the uterine artery Doppler evaluation.

## CONCLUSION

We report for the first time the occurrence of a late complication of a hysteroscopic thermal ablation ending in an uterine perforation with a massive hemo-peritoneum and emergency hysterectomy. A thermal damage or perforation is more likely when patients have an altered uterine anatomy such as in the presence of fibroids. This complication must be considered in women who performed hysteroscopy who come with abdominal pain even if the hysteroscopy was performed months ago.

## CONFLICT OF INTERESTS

No financial interest or any conflict of interest exists.

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