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# Robotic Laparoscopic Repair of Isthmocele

**Angelo Finelli[1], Stefano Restaino[2*], Alessandro Lucidi[2], Antonia Iacovelli[1], Isabella Gallotta[1], Maria Roberta Spina[1], Francesco Fanfani[1]**

[1]Department of Medicine and Aging Sciences University "G. d'Annunzio"of Chieti-Pescara, Italy

[2]Gynecological Oncology, Hospital G. Bernabeo, Contrada S. Liberata, Italy

[*]**Corresponding author:** Stefano Restaino, Gynecologic Oncology Unit Hospital "G.Bernabeo" of Ortona, 66026, Ortona (CH), Italy. Tel: +390630154979; Email: restaino.stefano@gmail.com

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## Abstract

Isthmocele, niche, or cesarean scar dehiscence, is a pouch-like defect of the anterior uterine isthmus located at the site of the old cesarean scar, first described by Morris in 1995 [1]. Current data suggest the development of isthmocele in approximately 60% of patients after a primary Cesarean Section (CS) and 100% after 3 CSs [2]. We present a case of a 31-year-old woman with a history of persistent menometrorrhagia with an ultrasound diagnosis for a cesarean scar dehiscence (isthmocele) of 1.5 cm distant 1 cm to the internal ostium of the cervix. We performed an isthmocele repair done by robotic laparoscopy combined with hysteroscopy. The operating time was 35 minutes, blood loss volume was < 50cc, and blood transfusion was not required. There were no postoperative complications. The combined use of hysteroscopy and robotic laparoscopy provides many advantages such minimizing risk of bladder injury. This is the first reported robotic surgery for this kind of disease.

**Keywords:** Cesarean Scar Dehiscence; Hysteroscopy; Isthmocele; Niche; Robotic

## Introduction

In more than 50% of women with history of Cesarean Delivery (CD), a uterine scar defect, also called a "niche," defined as a disruption of the myometrium in the CD uterine scar, can be observed when examined by gel instillation sonohysterography 6-12 months after the CD [3]. The prevalence of isthmocele ranges from 6% to 88% depending on the diagnostic method used, diagnostic criteria, and postoperative evaluation time [3-5]. It has been associated with prolonged menstrual bleeding and postmenstrual spotting, including uterine dehiscence and/or rupture, scar pregnancy and placenta previa and accrete [6-8]. The most frequent complaint relates to intermittent postmenstrual bleeding [9]. Multiple techniques have been described for repair of a uterine scar defect including laparoscopic excision, resectoscope treatment, vaginal revision, and endometrial ablation. A laparoscopic approach has been advocated if the myometrium thickness is less than 3mm to avoid risk of bladder injury and uterine perforation [10].

## Case Report

A 31-year-old woman G1 T1 P0 A0 L1 with a previous CD performed a gynecology evaluation due to persistent menometrorrhagia and intense pain during menses with the diagnose of isthmocele. The patient had only hypothyroidism as other disease. The patient had a BMI of 21. The US discovered an isthmocele of about 1.5 cm and with a distant of 1 cm from the *internal* orifice of the uterus. This was also confirmed by an office hysteroscopic exam. We decided to perform a robotic-laparoscopy isthmocele repair assisted by an hysteroscopic exam, with the excision of the isthmocele and fibrotic tissue.

## Discussion

An isthmocele is a reservoir-like pouch defect on the anterior wall of uterine isthmus located at the site of previous cesarean scar. Women could complain about pelvic pain, vaginal discharge, dysmenorrhea, and dyspareunia. Secondary infertility is also common, likely due to accumulated blood degrading the quality of sperm and cervical mucus [11], but the most frequent symptom is the menometrorrhagia linked to the isthmocele as a reservoir collecting blood during menstruation, with irregular

menses and pain that can persist from 2 to 12 days [12]. In women who have undergone labor, the defect is distal, near the internal cervical os; in women who have had an elective cesarean delivery, the defect is typically found more proximal on the lower uterine segment. The defect can have also been found at the endocervical canal or higher on the lower uterine segment and so currently, there is no standard definition that clearly demarcates the location and size of an isthmocele [13]. Predictors of a large isthmocele were younger maternal age, duration of labor (more likely to have labored >=5 hours), cervical dilation at delivery, lower station at time of cesarean, use of Pitocin, scar closer to the internal os, and a retroverted uterus [14].

Current data suggest the development of isthmocele is approximately 60% of patients after a primary Cesarean Section (CS) and 100% after 3 CSs [2], and to consider we are facing an uptreding of cesarean delivery, in the United States, about 30% of women delivered by CD in 2015 [15]. The surgical approach should be determined by the patient's plans for fertility and by the measurement of niche thickness. For women who do not desire pregnancy and whose niche thickness is >3 mm, surgeons may consider a hysteroscopic approach. Women with symptomatic cesarean scar defects who do not desire fertility may also be candidates for hysterectomy. Patients who desire future fertility, especially those with <3 mm of myometrium at the niche site, should undergo laparoscopic resection and repair with or without the robotic arm, to excise the fistulous tract and reinforce the myometrium with a multiple-layer closure [10,11-16]. The first laparoscopic cesarean scar defect repair in 2003 [17]. The combined use of hysteroscopy and laparoscopy provides many advantages. The bladder can be mobilized during laparoscopy to offer superior visualization of the isthmocele and thus minimizing risk of bladder injury [18]. We want to demonstrate the feasibility of combined use of hysteroscopic and robotic-laparoscopic repair of an isthmocele.

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