

# Cesarean section incision along the posterior uterine wall – an obstetric and surgical complication of an obstructed pelvis due to previous endometriosis

## Císařský řez podél zadní stěny dělohy – porodnická a chirurgická komplikace neprůchodné pánve v důsledku předchozí endometriózy

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**Summary:** Pelvic endometriosis is a well-known clinical risk factor for pelvic inflammation and adhesions. We present a complex case of a woman undergoing a cesarean section where the traditional incision on the anterior lower uterine segment was not possible due to a congested pelvis. The newborn was delivered using a posterior uterine wall incision with rotation of the round ligament.

**Key words:** pelvic endometriosis – posterior cesarean section – pelvic adhesion

**Souhrn:** Pánevní endometrióza je dobře známým klinickým rizikovým faktorem pánevního zánětu a srůstů. Prezентujeme zde komplikovaný případ ženy po císařském řezu, kdy tradiční řez na předním dolním děložním segmentu nebyl možný z důvodu městnavé pánve. Novorozenec byl porozen pomocí řezu zadní stěny dělohy s rotací okrouhlého vazů.

**Klíčová slova:** pánevní endometrióza – zadní císařský řez – pánevní adheze

### Introduction

Deep endometriosis is present in 1% of women of reproductive age and generally causes very intense pain due to the rich innervation of the structures involved (sensitive A-delta, C, cholinergic, and adrenergic fibers) [1]. The lesions infiltrate the smooth muscle layers of the intestines, bladder, and vagina, giving rise to a desmoplastic reaction. The lesions appear nodular or plaque-like [2].

The symptoms of deep endometriosis (dysmenorrhea, dyspareunia, chronic pelvic pain, rectal bleeding) are often disabling to the intestinal and urinary tracts, significantly compromising the patient's quality of life. The diagnosis can be confirmed by diagnostic investigations such as ultrasound and magnetic resonance imaging (MRI). Transvaginal ultrasound can be performed to verify suspicion of endometriosis

when abdominal and pelvic physical examinations are negative, and it is useful in identifying endometriomas and deep endometriosis. Pelvic MRI should not be suggested as a first-level investigation for the diagnosis of endometriosis in women with typical signs and symptoms; rather, it should be used to evaluate the extent of deep endometriosis of the intestines, bladder, and ureters [3,4]. The absolute indications for

surgery are failure of medical therapy, intestinal obstruction, and hydronephrosis. Surgical techniques for the treatment of intestinal endometriosis include excision of the endometriotic nodule and its removal together with the

surrounding rectal wall (discoid resection) or intestinal resection [5–7].

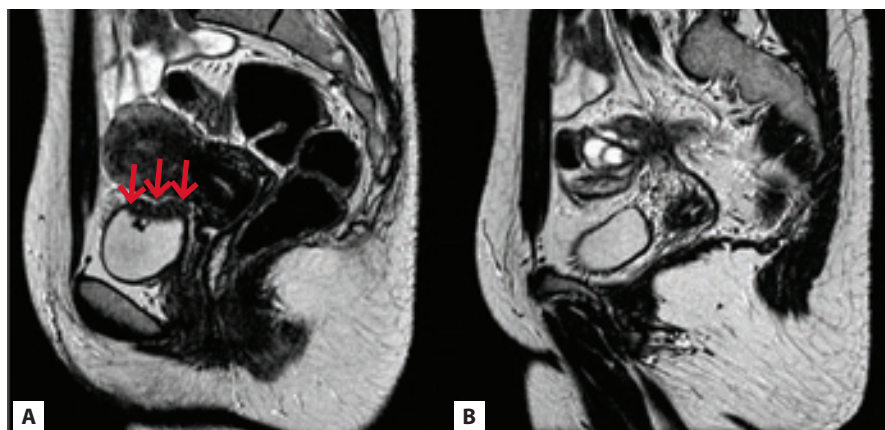
In the following case, the absence of symptoms seemed quite surprising considering the significant adhesions with an obstructed pelvis, although stage IV

endometriosis did not compromise the function of the organs, including the reproductive organs.

### Case report

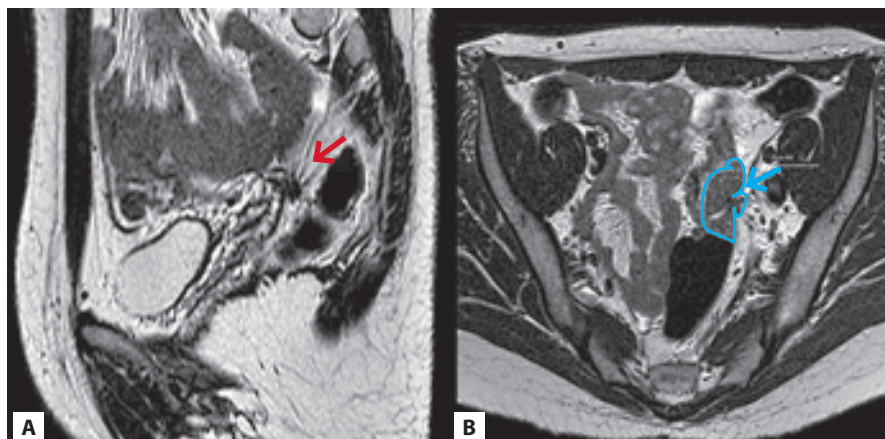
A 35-year-old woman who presented with pelvic pain, dysmenorrhea, and rectal bleeding underwent diagnostic checks and was subsequently operated on for deep endometriosis. A pelvic T2-weighted MRI with contrast medium performed prior to surgery documented the following: endometriotic localization at the level of the bladder dome, deep pelvic endometriosis (stage IV, AFS and ASRM classification) involving the round ligament, ovaries and sigma, and deep pelvic endometriosis infiltrating the full thickness of the distal sigmoid loops [6,7] (Fig. 1–3).

Surgical intervention consisted of the removal of endometriosis with excision of the endometriotic nodules of the paraovarian dimples, uterosacral endometriosis, and endometriosis of the blad-



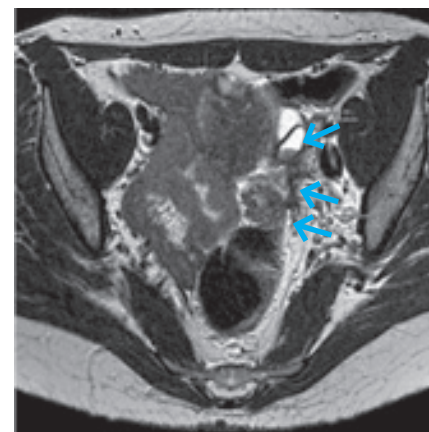
**Fig. 1.** Sagittal T2-weighted MRI with contrast medium showing hypointense tissue protruding into the lumen as per endometriotic localization at the level of the bladder dome (red arrows) (A). Sagittal T2-weighted MRI with contrast medium. Note the deep pelvic endometriosis (stage IV, AFS and ASRM classification) involving the round ligament, the ovaries and the sigma (B).

Obr. 1. Sagitální T2-vážená MR s kontrastní látkou ukazující hypointenzivní tkáň vyčnívající do lumen podle endometriotické lokalizace na úrovni klenby močového měchýře (červené šipky) (A). Sagitální T2-vážená MR s kontrastní látkou. Všimněte si hluboké pánevní endometriózy (stadium IV, klasifikace AFS a ASRM) zahrnující okrouhlé vazivo, vaječníky a sigma (B).



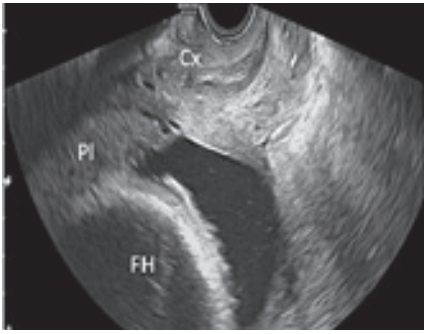
**Fig. 2.** Sagittal T2-weighted MRI demonstrating a spiculated, needle-like localization of endometriosis on the uterosacral ligament and on the peritoneal reflection plane (A) (red arrow). Axial T2-weighted MRI detecting a localization of deep pelvic endometriosis infiltrating the full thickness of the distal sigmoid loops (blue line and blue contour) (B).

Obr. 2. Sagitální T2-vážená MR prokazující spikulární, jehlovitou lokalizaci endometriózy na uterosakrálním vazivě a na peritoneální reflexní rovině (A) (červená šipka). Axiální T2-vážená MR detekující lokalizaci hluboké pánevní endometriózy infiltrující celou tloušťku distálních sigmoidních kliček (modrá čára a modrý obrys) (B).



**Fig. 3.** Axial T2-weighted MRI detecting a left ovarian endometrioma with shading effect on the left (hypointense level descending from hemoglobin degradation products) and paraovarian endometriosis infiltrating the sigmoid colon (blue arrows).

Obr. 3. Axiální T2-vážená MR detekující endometriom levého vaječníku se stínícím efektem vlevo (hypointenzní stupeň tvořený produkty rozpadu hemoglobinu) a paraovariální endometriózu infiltrující sigmoideum (modré šipky).



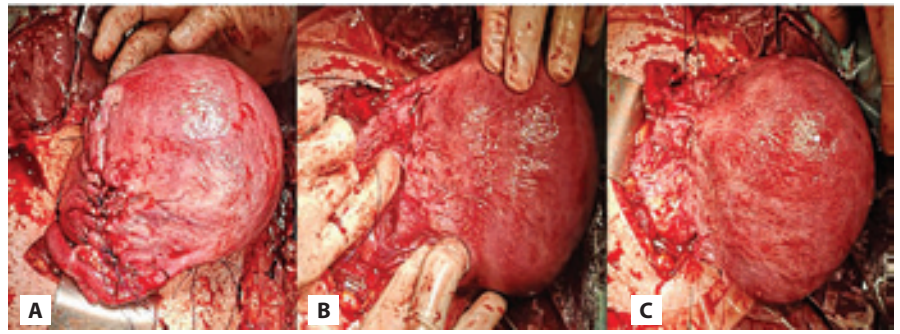
**Fig. 4.** Transvaginal ultrasound performed at 38.5 weeks' gestation detecting a placenta previa, partial type. Cx – cervix, FH – fetal head, Pl – placenta.

Obr. 4. Transvaginální ultrazvuk provedený ve 38,5 týdnu gestace detekující placentu previa, parciální typ. Cx – děložní čípek, FH – hlava plodu, Pl – placenta.

der. A sigmoid rectum resection was also necessary due to the presence of multiple endometriotic localizations at the level of the sigmoid rectum with involvement of the submucosal layer. At the end of the operation, salpingochromoscopy was performed with methylene blue, demonstrating bilateral tubal patency. The post-operative period was uneventful, and in the following years, the patient had no problems.

Seven years later, the patient became pregnant with an uneventful course and fetal growth within the normal range. Ultrasound evaluation using the transvaginal approach detected a placenta previa, major type (placenta entirely covering the internal cervical os); therefore, a planned cesarean section with the fetus in cephalic presentation was scheduled to be performed at 38.5 weeks of gestation (Fig. 4).

In the operating room, the anatomical situation was considered complex due to the presence of extensive abdomino-pelvic adhesions leading to an obstructed pelvis. The opening of the abdominal wall was very difficult due to numerous tenacious omental-intestinal-parietal adhesions that completely occluded the pelvis and parieto-colic flex-



**Fig. 5.** The lower uterine segment was incised along the posterior wall. Continuous entangled suturing of the posterior uterine wall, with left round ligament rotated anteriorly to the right (A). Further lysis of adhesions between bladder and lower uterine segment to allow correct rotation of the uterus. Note that the bladder is rotated posteriorly with respect to the anterior uterine wall (B). The uterus in physiological positioning following repositioning. Note the absence of the anterior uterine closure of the lower uterine segment (C).

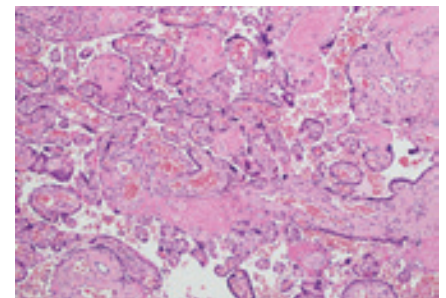
Obr. 5. Dolní děložní segment byl naříznut podél zadní stěny. Kontinuální zapletení šití zadní stěny dělohy, s levým okrouhlým vazem rotovaným zepředu doprava (A). Další lýza adhezí mezi močovým měchýřem a dolním děložním segmentem pro umožnění správné rotace dělohy. Všimněte si, že močový měchýř je rotován dozadu vzhledem k přední stěně dělohy (B). Děloha ve fyziologické poloze po repozici. Všimněte si absence předního uzavření dolního děložního segmentu (C).

ures. Therefore, the obstructed pelvis prevented the visualization of the pregnant uterus. The adhesions were carefully lysed. Numerous varicose veins were found, and the adhesions were isolated between the uterine body, bladder, and left round ligament, which appeared in a right antero-medial position due to uterine rotation. Further careful lysis of adhesions was carried out until the uterine portion of the abdominal organs was freed. A modified cesarean section was then performed by a uterine incision made on the posterior wall of the uterus, which was fixed in a 180° rotation (from left to right) in a posterior-anterior direction. The uterus was repositioned into its physiological position (Fig. 5).

Histological examination of the placenta demonstrated hypercapillarization of the terminal villi and presence of immature intermediate villi (Fig. 6).

### Discussion

The reported case is abnormal both clinically and symptomatically. Major surgery for endometriosis was reported without clinical sequela. The patient was



**Fig. 6.** Histological section of the placenta demonstrated chorionic villi morphologically of the third trimester, hypercapillarization of the terminal villi, and presence of immature intermediate villi. Nodes and syncytial bud formation, as per hypoxic suffering. A single focus of villus intervillitis is highlighted (VUE ungradable – possible low-grade). Three-vessel umbilical cord with focal Wharton's jelly edema.

Obr. 6. Histologický řez placentou prokázal choriové klky morfologicky třetího trimestru, hyperkapilarizaci terminálních klků a přítomnost nezralých intermediálních klků. Uzliny a tvorba syncytiálních pupenů podle stupně hypoxie. Bylo zvýrazněno jediné ohnisko intervillositidy klků (VUE negradovatelné – možný nízký stupeň). Pupeční šňůra se třemi cévami s fokálním Whartonovým rosolovým edémem.

asymptomatic in the following years and took hormone therapy until she decided to become pregnant. No anatomical abnormalities were found at all follow-up ultrasound examinations. In fact, such a described postoperative anatomical abnormality is very difficult to diagnose, and since the patient was asymptomatic, no further diagnostic investigations were performed other than ultrasound examination at the scheduled annual check-up.

The pregnancy had a physiologic course and ultrasound diagnosis of a highly vascularized placenta previa, which raised the question of placenta accreta spectrum (PAS). The presence of placenta previa, a previous cesarean section, and maternal age are the main risk factors for the occurrence of PAS [8,9]. In particular, scientific literature shows a direct correlation between previous uterine surgery and abnormal placental adhesion [10,11]. In the present case, two of the three major risk factors for the diagnosis of PAS were present: the patient underwent a cesarean section at 42 years of age with a diagnosis of highly vascularized placenta previa. However, the patient was a nullipara, i.e. a woman who had never been pregnant and therefore had no cesarean section, which also excludes another risk factor such as multiplicity. The patient had not undergone previous uterine surgery such as myomectomy; in fact, the endometriosis surgery the patient had undergone did not anatomically involve the uterus. The risk of PAS increases exponentially as the number of cesarean sections increases.

Transvaginal ultrasound is the "gold standard" for the diagnosis of PAS. If the diagnosis of PAS is suspected on transabdominal ultrasound at 20–22 weeks, it should be confirmed by transvaginal ultrasound. The ultrasound diagnosis of low insertional placenta was made at the beginning of the second trimester and the patient was followed over time to assess the process called "placental

migration." Several studies have shown the likelihood of PAS persistence at delivery based on how many millimeters the placental flap covers the internal cervical os. If the placenta covers the internal cervical os > 25 mm at transvaginal ultrasound between 18 and 23 weeks, most likely the placenta remains as previa to term. Additional transabdominal and transvaginal ultrasound are performed at 32 weeks of gestation to confirm the diagnosis and provide appropriate counseling.

The diagnosis of placenta previa with rich vasculature but without signs of PAS was supported by the absence of ultrasound features in 2D ultrasound of the gray scale: loss or irregularity of the hypoechogenic retroplacental zone (clear space), presence of focal exophytic masses invading the bladder, and abnormal vascular lacunae. Even color Doppler evaluation did not clearly show the diagnostic criteria, such as turbulent flow in the lacunae, hypervascularity of the uterine-serosal vascular interface, and vasodilatation of the peripheral subplacental zone [12]. The patient had a normal physiologic course, no contractions or blood loss, and therefore no further investigations were performed; in fact, the surgery for endometriosis had not involved the uterus, so there was no indication for further investigation. MRI probably could have helped in the diagnosis in this case.

The role of MRI is controversial [13], because it is a more expensive method than ultrasound and requires more experience than sectoral expertise in the evaluation of abnormal placental invasion [8]; moreover, the sensitivity and specificity obtained by MRI are comparable to those of ultrasound [14]. In this case, MRI was not performed because the suspicion of abnormal placental insertion, the absence of symptoms, and the absence of previous surgery not related to the uterine body were not found.

Delivery planning followed the indications suggested in the literature for pla-

centa previa surgery, although many patients with placenta previa may present for emergency preterm cesarean section due to sudden onset of bleeding. A multidisciplinary team was involved, including an experienced gynecologic surgeon, an alerted transfusion center, a urologist, and a facility with an interventional radiologist [15]. The team of experienced surgeons was also planned because of previous endometriosis surgery in which numerous adhesions of the abdomino-pelvic organs were expected.

## Conclusion

The pregnancy had a physiologic course and ultrasound diagnosis suspected of highly vascularized placenta previa without obvious signs of PAS. The role of MRI in pregnancy for the diagnosis of placental anomalies is controversial. In the case presented, it was not considered because of the absence of risk factors; there were also no conditions to believe such large adhesions involved the uterus. MRI probably would have helped in the diagnosis of abnormal uterine position.

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