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Postpartum Vaginal Prolapse of an Infarcted Submucosal Leiomyoma After Forceps-Assisted Vaginal Delivery: A Case Report

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Abstract

Submucosal leiomyomas occasionally prolapse through the cervix, and in the puerperium, this may be mistaken for retained products of conception. We report the case of a 33-year-old woman, gravida 10 para 1, whose only previous delivery was in 2011, with eight subsequent first-trimester miscarriages. An anterior wall submucosal fibroid had been identified antenatally. She underwent forceps-assisted vaginal delivery at term. On postnatal day five, she presented with pain, bleeding and low-grade pyrexia, treated empirically as presumed puerperal infection, and had a secondary postpartum haemorrhage. Ultrasound on day six showed the anterior wall fibroid measuring 79 × 73 × 69 mm, together with a separate vascular heterogeneous area in the fundal cavity in which retained products could not be excluded. At approximately seven weeks, transvaginal ultrasound showed an avascular 44 × 33 × 47 mm mass at the lower segment and cervix, with the fibroid no longer seen in its previous position. Contrast-enhanced magnetic resonance imaging demonstrated a non-enhancing 86 × 47 × 56 mm lesion attached to the anterior myometrium by a stalk, prolapsing through the cervix into the vagina, consistent with carneous degeneration. The mass was removed vaginally with endometrial sampling. Histopathology confirmed an infarcted leiomyoma without atypia or malignancy. She recovered well and was discharged. These serial findings are consistent with postpartum displacement and prolapse of a submucosal fibroid, and illustrate that a prolapsing fibroid and suspected retained products may coexist.

Categories: Obstetrics/Gynecology, Radiology, Pathology
Keywords: carneous degeneration, infarcted leiomyoma, prolapsed fibroid, puerperium, retained products of conception (rpoc), secondary postpartum haemorrhage, submucosal leiomyoma, vaginal myomectomy

Introduction

Uterine leiomyomas are the most common benign gynaecological tumours and may complicate pregnancy, delivery, and the puerperium [1,2]. Pregnancy alters their size and vascularity, and degenerative change, including red or carneous degeneration, can occur when blood supply becomes insufficient.

Prolapse of a submucosal leiomyoma through the cervix is uncommon in the puerperium. Reported cases describe postpartum prolapse, expulsion or migration of fibroids, sometimes weeks after delivery [3-5]. Proposed mechanisms include uterine involution, altered cavity configuration, cervical changes, and degeneration of the tumour [5].

Postpartum pain, bleeding, and a heterogeneous intracavitary mass are commonly attributed to retained products of conception or endometritis [6,7]. A degenerating submucosal fibroid can mimic or coexist with these conditions on early imaging. We describe a submucosal fibroid whose postpartum movement within the uterus and then through the cervix was documented across serial imaging. The report follows the Case Report (CARE) guidelines [8].

Case Presentation

A 33-year-old woman was gravida 10, para 1 at the time of the index pregnancy. Her only previous delivery was a vaginal delivery in 2011, complicated by retained placenta requiring manual removal, postpartum haemorrhage, and transfusion of one unit of red blood cells. She subsequently had eight first-trimester miscarriages over 14 years, with no intervening live births.

During the index pregnancy, ultrasonography demonstrated an anterior wall submucosal fibroid measuring 31 × 46 × 41 mm (Figure *1*). She underwent forceps-assisted vaginal delivery at term for cardiotocograph concerns. She subsequently experienced a secondary postpartum haemorrhage.

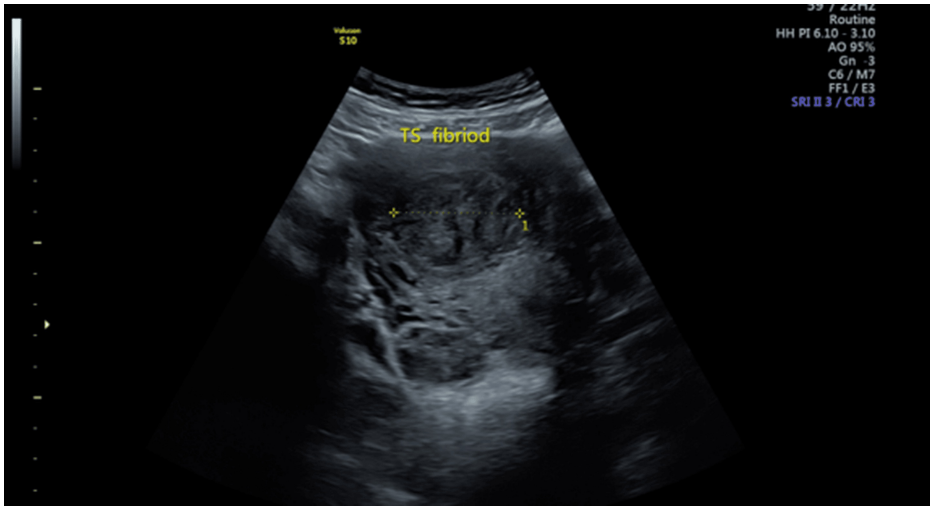


FIGURE 1: Antenatal transverse ultrasound demonstrating the submucosal fibroid.

On postnatal day five, she developed sudden-onset lower abdominal pain of moderate intensity (4-5 on a 10-point scale), moderate vaginal bleeding requiring a pad change approximately every two hours, and a low-grade pyrexia. She was haemodynamically stable with otherwise normal observations; the abdomen was non-tender, and no mass was visible at the cervix. White cell count, C-reactive protein, and serum lactate were normal, and a presumed puerperal infection was treated empirically with oral co-amoxiclav.

Transabdominal ultrasound on day six showed an enlarged uterus measuring 139 × 90 × 111 mm, with the fibroid within the anterior uterine wall measuring 79 × 73 × 69 mm (Figure *2A*). Separately, a heterogeneous area with a 20.6 mm anteroposterior diameter within the fundal endometrial cavity showed vascularity on Doppler interrogation, and retained products of conception could not be excluded (Figure *2B*). These were two distinct imaging findings at different sites within the uterus. The endometrium was difficult to assess because of the fibroid. Tranexamic acid was commenced, and the bleeding settled. Surgical evacuation was deferred: the fibroid distorted the uterine cavity and was considered to make instrumentation hazardous, and magnetic resonance imaging (MRI) characterisation was preferred before intervention.

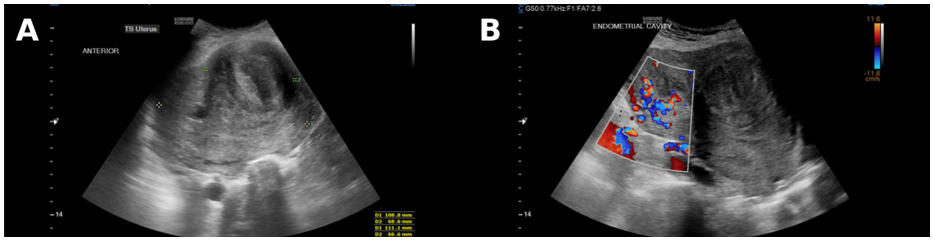


FIGURE 2: Transabdominal ultrasound on postnatal day six.

(A) Transverse view of the uterus showing the fibroid within the anterior uterine wall. The calipers in this image record the third dimension of the uterus and fibroid; the full dimensions are given in the text. (B) Colour Doppler interrogation of the endometrial cavity demonstrating vascularity within the heterogeneous fundal area, raising the possibility of retained products of conception.

At approximately seven weeks postpartum, she was reassessed. Transvaginal ultrasound showed a postpartum uterus measuring 125 × 51 mm (Figure *3*), with a heterogeneous avascular area of 44 × 33 × 47 mm at the anterior lower segment and cervix. The previously reported fibroid could no longer be demonstrated in the anterior uterine wall; the external cervical os appeared open, and MRI was advised. Haemoglobin was 115 g/L, white cell count and C-reactive protein were within normal limits, and serum beta-human chorionic gonadotropin was less than 2.3 IU/L, consistent with a non-pregnant level.

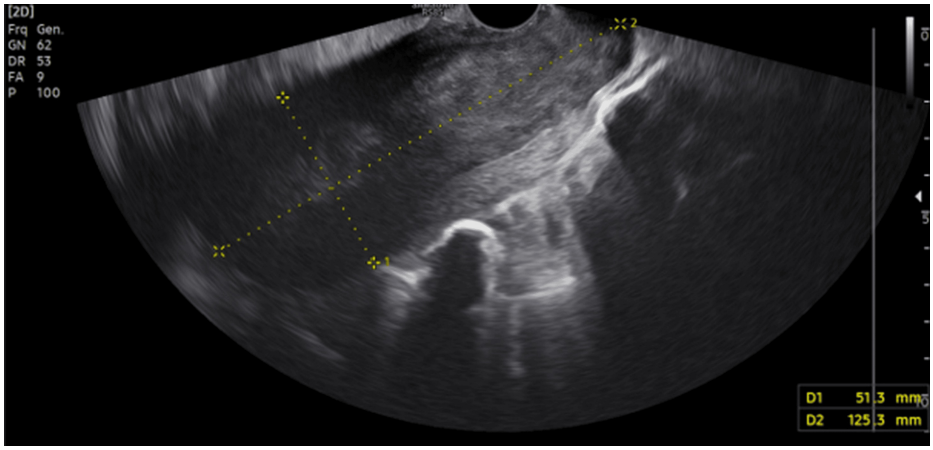


FIGURE 3: Transvaginal ultrasound at approximately seven weeks postpartum.

The involuting postpartum uterus, with measurement calipers in position.

Contrast-enhanced MRI of the pelvis demonstrated a T2-hypointense lobulated lesion in the lower endometrial cavity, prolapsing into the cervix and further into the vagina, measuring 86 × 47 × 56 mm (Figure *4*). The lesion was hyperintense on pre-contrast T1-weighted imaging, showed no post-contrast enhancement, and was attached to the anterior myometrium by a stalk 1-1.5 cm thick. The fundal endometrium measured 10 mm and the ovaries were unremarkable. The appearances were reported as a submucosal fibroid with carneous degeneration arising from the anterior wall.



FIGURE 4: Sagittal T2-weighted pelvic magnetic resonance imaging demonstrating the prolapsing submucosal leiomyoma.

The arrow indicates the lobulated hypointense lesion extending from the lower uterine cavity through the cervix into the vagina.

Examination under anaesthesia with hysteroscopic assessment was performed (Figure *5*), and the prolapsed fibroid was removed vaginally at approximately seven weeks postpartum, together with endometrial sampling. The stalk and its attachment to the anterior uterine wall were directly visualised, and hysteroscopic inspection confirmed complete removal.

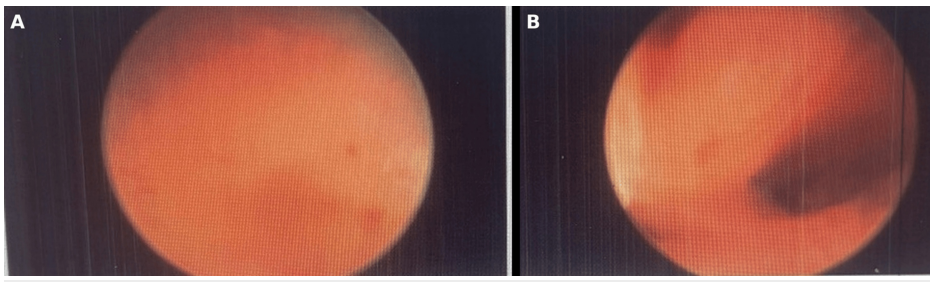


FIGURE 5: Hysteroscopic assessment of the uterine cavity.

(A, B) Views of the cavity during examination under anaesthesia.

Macroscopically, the specimen was a tan-brown piece of solid tissue measuring 100 × 65 × 40 mm, with the cut surface of a fibroid, brown in colour, and consistent with infarction, without fresh haemorrhage or viable

tumour (Figure 6). Microscopy confirmed an infarcted leiomyoma with no atypical necrosis, cellular atypia, or malignancy. The endometrium was inactive, with occasional scattered plasma cells that may have been related to the recent pregnancy or indicated chronic endometritis, without hyperplasia, atypia, or malignancy. No chorionic villi or retained products of conception were reported. Photomicrographs of the histopathology specimen were requested from the cellular pathology department but could not be obtained; the microscopic findings are therefore reported from the formal histopathology report.

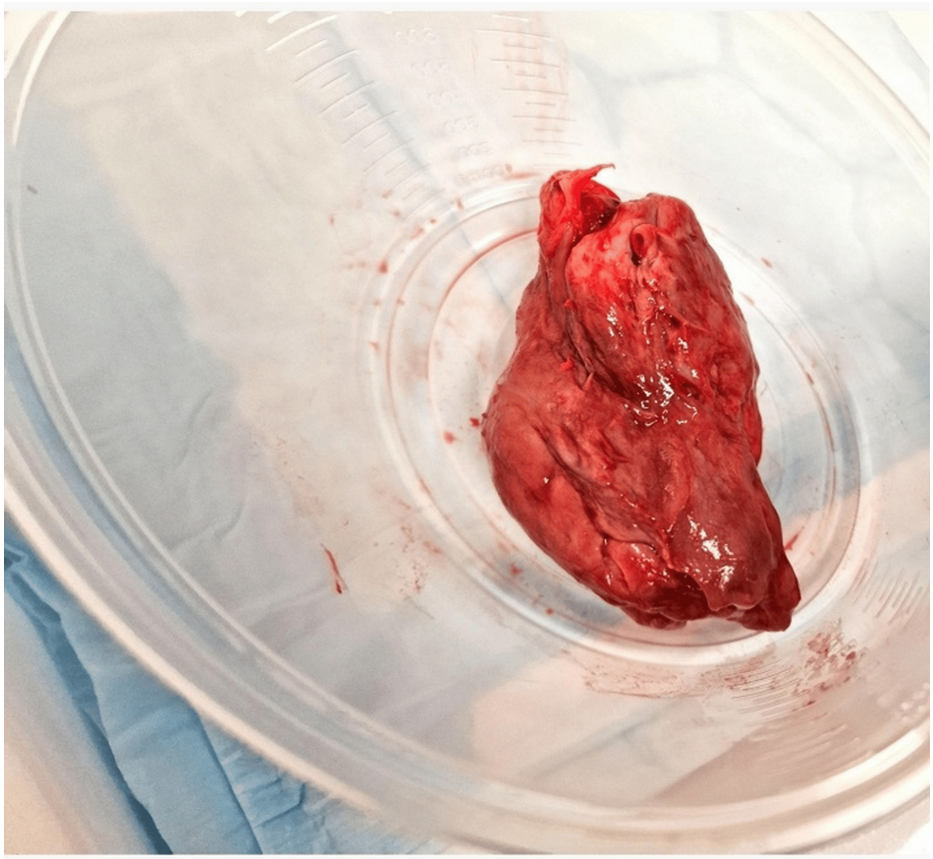


FIGURE 6: Gross appearance of the excised infarcted leiomyoma.

The specimen measured 100 × 65 × 40 mm.

She recovered well from the procedure, was informed of the benign histology and was discharged to the care of her general practitioner. The clinical course is summarised in Table 1.

Time	Clinical event
2011	Vaginal delivery complicated by retained placenta, manual removal, postpartum haemorrhage, and transfusion of one unit of red blood cells
2011 to index pregnancy	Eight first-trimester miscarriages; no live births
Antenatal	Fundal submucosal fibroid, 31 × 46 × 41 mm
Delivery	Forceps-assisted vaginal delivery for cardiotocograph concerns; sepsis in labour; oral antibiotics
Early postnatal	Secondary postpartum haemorrhage
Day five	Sudden-onset lower abdominal pain
Day six	Ultrasound: anterior wall fibroid 79 × 73 × 69 mm; vascular 20.6 mm area in fundal cavity, retained products not excluded
Seven weeks	Transvaginal ultrasound: avascular 44 × 33 × 47 mm mass at lower segment/cervix; fibroid no longer in fundal wall; os open. Blood tests normal
Seven weeks	MRI: non-enhancing 86 × 47 × 56 mm lesion on anterior-wall stalk, prolapsing through cervix into vagina; carneous degeneration
Seven weeks	Examination under anaesthesia, hysteroscopic assessment, vaginal removal and endometrial biopsy
Histopathology	Infarcted leiomyoma, 100 × 65 × 40 mm, no atypia or malignancy; inactive endometrium
Follow-up	Recovered well; discharged to general practitioner

TABLE 1: Clinical timeline.

Discussion

This case documents, across serial imaging studies, the postpartum movement of a submucosal leiomyoma within the uterus and then through the cervix into the vagina, culminating in infarction. Serial imaging of this sequence is rarely available, and it is consistent with the proposed role of involution in postpartum fibroid prolapse [3,5].

As the uterus involutes, the cavity shrinks and the relationship between a submucosal fibroid and the endometrial surface changes. A broad-based lesion may become pedunculated, and uterine contractions may then drive it towards the open postpartum cervix [5]. Stretching or torsion of the pedicle may compromise blood supply; these mechanisms were not directly observed in this case and are offered as plausible explanations rather than demonstrated events. Carneous degeneration was the radiological impression on MRI, while infarction was the histological diagnosis; the two are related but are not interchangeable terms. The absence of post-contrast enhancement indicates that the lesion was devascularised by the time of imaging.

At six days, two abnormalities were present simultaneously: the anterior wall fibroid, and a separate vascular area within the fundal cavity in which retained products could not be excluded. The presence of the fibroid made the remainder of the cavity difficult to assess, and the coexistence of the two findings complicated interpretation of the bleeding. No chorionic villi were subsequently reported on endometrial sampling, so retained products were never confirmed. The lesson is not that a fibroid can be mistaken for retained products, but that the two may coexist, and that the presence of one does not exclude the other.

The discrepancy in reported dimensions should be interpreted cautiously. Measurements differed between antenatal ultrasound, postnatal ultrasound, MRI, and the macroscopic specimen. The fibroid measured 74 × 57 × 50 mm at 12 weeks and 83 × 79 × 66 mm at 25 weeks, so the day six measurement of 79 × 73 × 69 mm is closely comparable to the last antenatal measurement rather than representing unexplained interval growth. The difference between the seven-week transvaginal measurement and the MRI measurement is more likely to reflect incomplete sonographic visualisation of a lesion spanning the lower segment, cervix, and vagina, whereas MRI captured the lesion in its entirety and corresponded more closely to the excised specimen.

Contrast-enhanced MRI was decisive after limited ultrasound views, defining the stalk, its anterior wall origin, and the path through the cervix, which is consistent with its described role in prolapsed leiomyoma [7]. Because the lesion was accessible, vaginal removal was definitive and avoided hysteroscopic resection or

laparotomy. This was particularly relevant given her history of eight pregnancy losses and a 14-year interval since her only previous delivery. Histology remains essential, as the appearance of a necrotic prolapsed mass cannot exclude sarcoma or other pathology.

Limitations include the absence of quantified blood loss and detailed laboratory values from the acute postnatal period, the unavailability of histopathology photomicrographs, and follow-up limited to discharge from gynaecology care. Imaging was also performed at discrete timepoints using different modalities, so continuous displacement of the lesion and its unequivocal identity across all examinations cannot be proven.

Conclusions

A submucosal leiomyoma may change position within the uterus and prolapse through the cervix during the puerperium. In this patient, the lesion moved within the uterus and then through the cervix into the vagina over approximately seven weeks, becoming infarcted in the process, although continuous migration of the same lesion cannot be proven from imaging at discrete timepoints. Early postpartum imaging demonstrated a separate intracavitary abnormality in which retained products of conception could not be excluded, and later imaging clarified the diagnosis. In women with a known submucosal fibroid who present with postpartum bleeding, pain, or a cervical or vaginal mass, fibroid prolapse merits consideration alongside retained products of conception, and the two may coexist. MRI can define the lesion and its attachment when ultrasound views are limited; vaginal removal can be definitive for an accessible prolapsed lesion and may preserve uterine anatomy and fertility potential; and histopathological examination remains necessary to confirm the diagnosis and exclude malignancy.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Shireen Baqir, Emad Abulmagd

Acquisition, analysis, or interpretation of data: Shireen Baqir, Eric Shey Ngum, Emad Abulmagd, Niruthan Thirunavukkarasu

Drafting of the manuscript: Shireen Baqir

Critical review of the manuscript for important intellectual content: Eric Shey Ngum, Emad Abulmagd, Niruthan Thirunavukkarasu

Supervision: Emad Abulmagd

Disclosures

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