

# Spontaneous expulsion of large submucosal uterine fibroid without embolisation – a case study

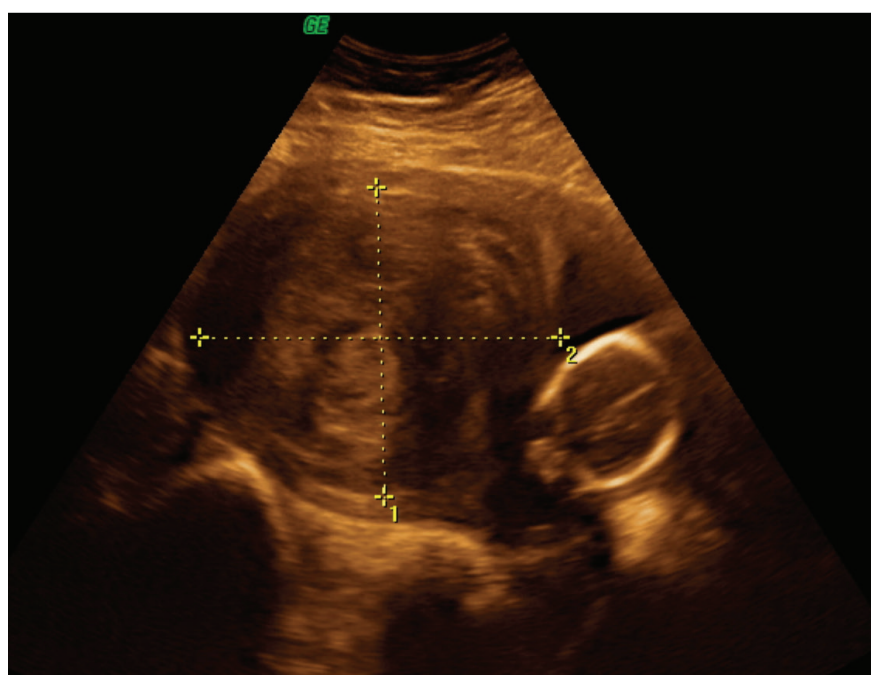
## Abstract

**Background:** This case involved a 35-year-old G6P0 with multiple uterine fibroids detected at 12 weeks gestation. Fibroid growth was monitored throughout pregnancy, and intrauterine growth restriction (< 5th centile) was detected at 20 weeks. Fetal demise occurred at 22+ weeks gestation at which time the largest of fibroids measured 150 x 100 x 118 mm and labour was induced.

**Materials and methods:** Serial ultrasounds following delivery showed features of reduced vascularity and separation of the fibroid from the myometrium, consistent with spontaneous degeneration. Our patient re-presented with severe pain and went on to expel the fibroid spontaneously 41 days post induction of labour. Histopathology confirmed fibroid degeneration.

**Conclusion:** This case demonstrates spontaneous fibroid degeneration and expulsion without embolisation. This may have resulted from the hormonal and mechanical effects of induction of labour. This case also demonstrated the effects of large intrauterine fibroids on fetal growth and increased risk of fetal demise, highlighting the importance of closer monitoring of fetal growth in such pregnancies.

**Keywords:** degeneration, fetal death in utero, self-embolisation, intrauterine growth restriction, uterine fibroid.



**Figure 1:** Sagittal section demonstrating intramural fibroid right lateral wall during pregnancy.

## Case report

A 35-year-old female G6P0 (three early terminations of pregnancy, two early miscarriages) presented to our unit at 12 weeks gestation and chorionic villus sampling was performed at the patient's request (normal karyotype). Multiple fibroids were noted; three intramural fibroids less than 40 mm and a large fibroid on the right lateral wall of the lower uterine segment, measuring

112 x 81 x 86 mm (Figure 1), with significant associated vascularity. Assessment at 20 +0 weeks gestation revealed normal fetal morphology, however biometry was well below the 5th centile, indicating early onset severe intrauterine growth restriction (IUGR). The small fibroids remained unchanged in size but the large fibroid now measured 106 mm x 112 mm x 85 mm.

Close monitoring followed; unfortunately

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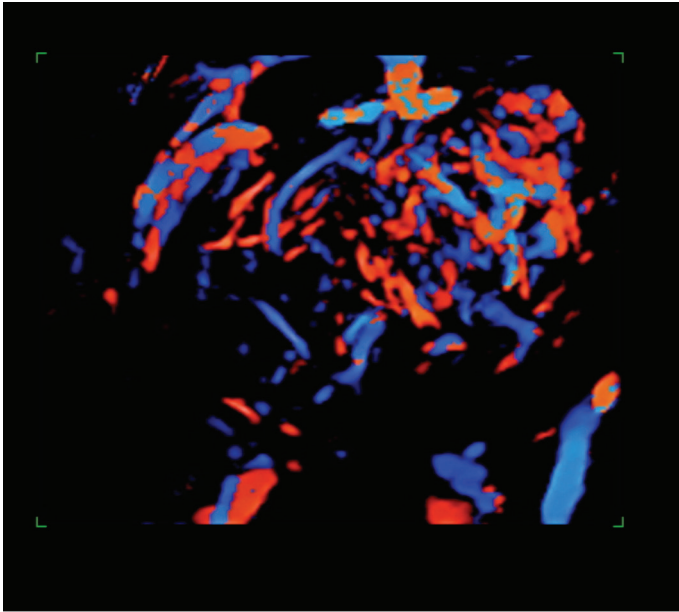
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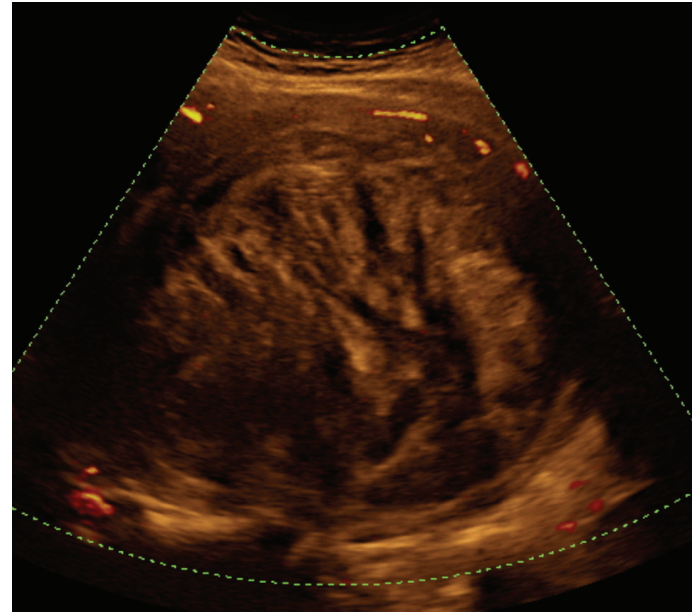
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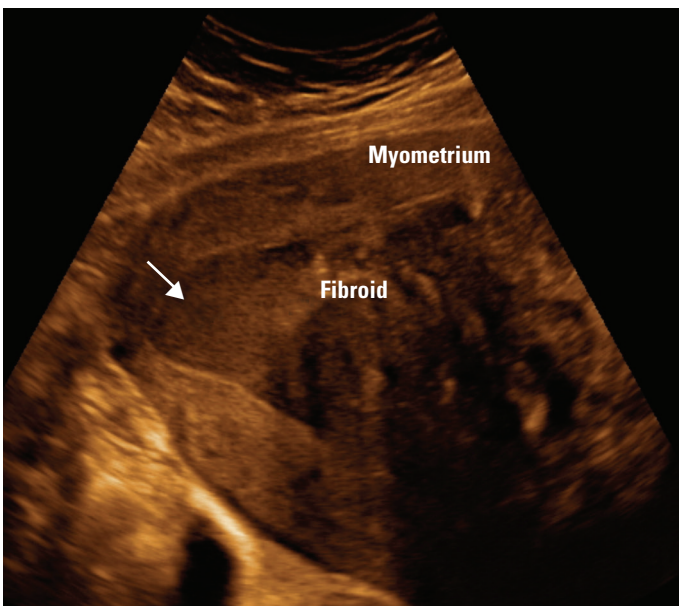
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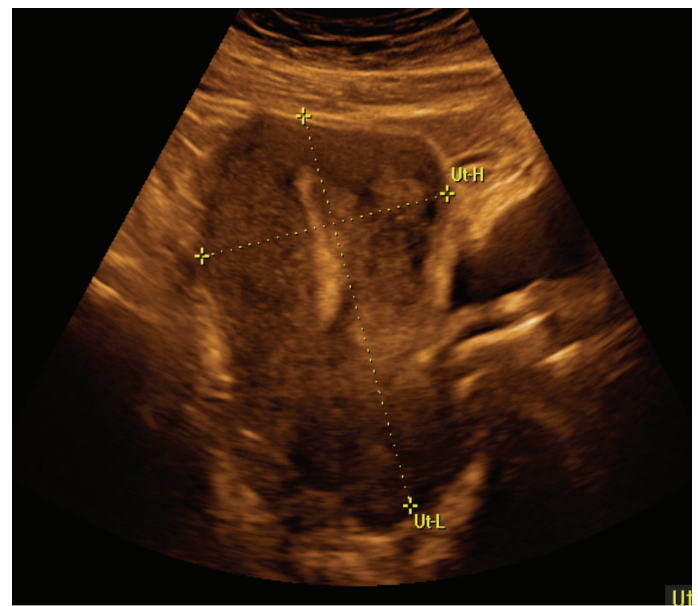
**Figure 2:** 3D reconstruction of vascularity associated with fibroid at time of fetal demise.



**Figure 3:** Fibroid with large area of degeneration and no appreciable associated vascularity.



**Figure 4:** Transverse view: Free fluid (arrow) between the myometrial surface, and the large fibroid demonstrating separation of the two.



**Figure 5:** Sagittal view: Normal appearing uterus and endometrial cavity post fibroid expulsion.

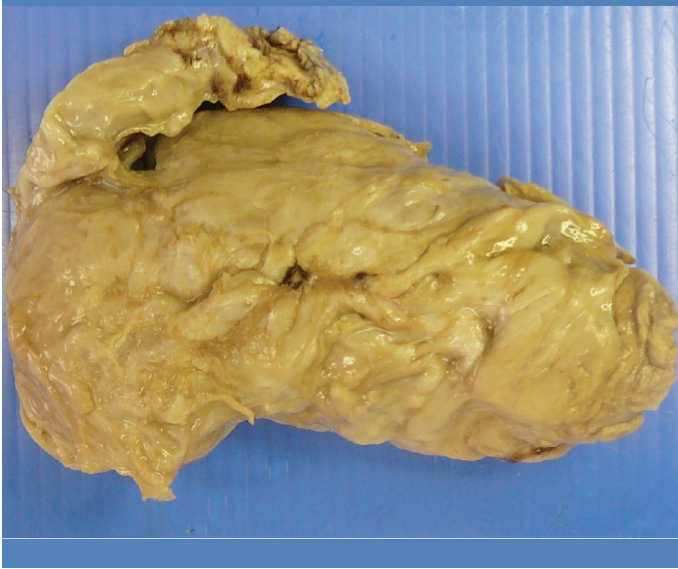
fetal demise occurred at 22 +2 weeks gestation. At this time the fibroid measured 150 x 100 x 118 mm and colour Doppler demonstrated increased vascularisation both peripherally and centrally (Figure 2) now raising concerns regarding potential malignancy.<sup>1</sup> Conservative management followed with misoprostol induction 14 days later. The treating team felt that a delayed induction would increase the chance of an successful vaginal birth.

Three days post delivery, an ultrasound diagnosed retained products of conception. The fibroid now displayed features of central degeneration and a reduction in vascularity (Figure 3). Multiple admissions for significant lower abdominal pain followed, treated with analgesia and IV antibiotics. Serial ultrasounds revealed reduction in fibroid size (77 x 76 x 70

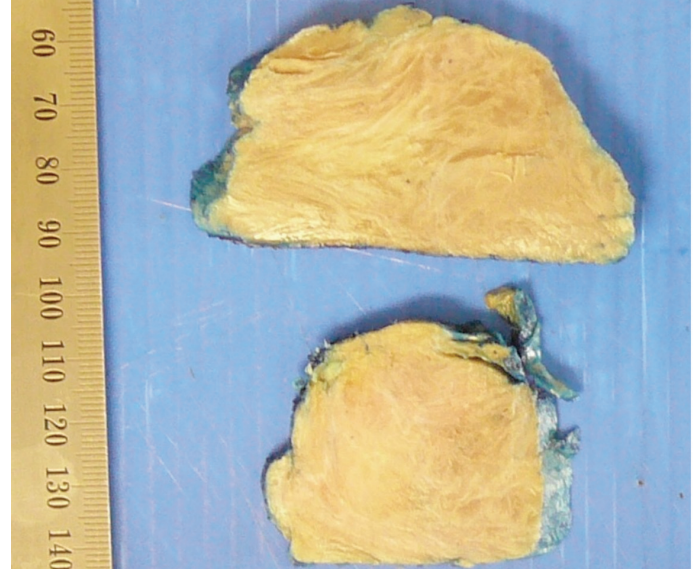
mm 36 days post induction) with features consistent with degeneration and no appreciable vascularity. At this time an apparent separation of the fibroid from the myometrium was noted (Figure 4).

Five days later (41 days post induction) the patient presented with severe lower abdominal pain and urinary retention. Vaginal examination revealed a large necrotic fibroid protruding from the cervix. Under general anaesthetic, the fibroid was twisted on its stalk and removed effortlessly along with more than a litre of pus. Follow up ultrasound revealed a normal uterus and endometrial cavity (Figure 5). The patient went on to make a rapid recovery.

Histopathological examination confirmed a leiomyoma measuring 135 x 90 x 40mm, weighing 240 g (Figures 6, 7).



**Figure 6:** Macroscopic fibroid following expulsion, weighing 240g, measuring 135 x 90 x 40 mm.



**Figure 7:** Cut surface of uterine fibroid.

Microscopic sections confirmed an infarcted leiomyoma (Figure 8). Culture of the purulent fluid drained revealed heavy growth of normal vaginal flora with no anaerobes isolated.

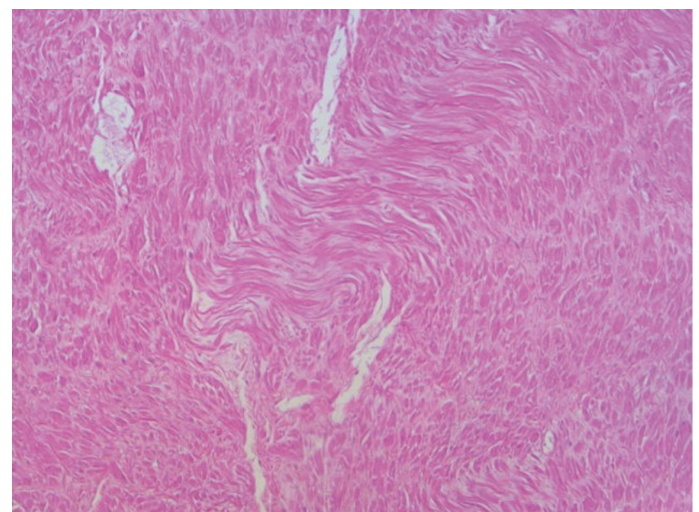
### Discussion

The effect of pregnancy on fibroid growth is variable. Most of the reported complications relate to submucosal fibroids as demonstrated by this case. Sonographic monitoring of fibroid size in pregnancy has shown that 49–60% of uterine fibroids have a < 10% change in volume, 22–32% increase in size, and 8–27 % decrease in size.<sup>2,3,4,5</sup> The most rapid growth occurs during the first trimester, particularly up until 10 weeks gestation.<sup>2</sup> Pregnancy related complications of uterine fibroids include first trimester miscarriage, IUGR, ante- and postpartum haemorrhage and placental abruption, premature rupture of membranes, threatened premature labour, malpresentation, fetal anomalies, and pain.<sup>5</sup> Presentations in pregnancy include acute symptoms of degeneration, and urinary retention.<sup>6</sup> Complications are more likely if the fibroid is greater than 200 cm<sup>3</sup> in volume, and less likely when less than 100 cm<sup>3</sup> in volume.<sup>2</sup>

This case was unusual in that rapid growth continued past the first trimester. At time of diagnosis at 12 weeks gestation, the volume of the fibroid was 408 cm<sup>3</sup>, at 20 weeks 528 cm<sup>3</sup>, and 885 cm<sup>3</sup> after induction of labour.

IUGR was a feature of this case. There is a reported association between uterine fibroids and IUGR (birth weight < 2500 g).<sup>7</sup> It has been suggested that the risk of IUGR increases with size of uterine fibroids. Rosati and colleagues have shown that fibroids greater than 200 cm<sup>3</sup> are associated with delivery of infants below the tenth centile for gestational age.<sup>2</sup>

Our case involved both IUGR and fetal death in utero (FDIU). A two-fold increase in the risk of FDIU in women with uterine fibroids and an IUGR fetus has been reported. The number of uterine fibroids was also related to the risk of FDIU, where women with four or more were at the greatest risk. Fibroid size is also significant, where fibroids larger than 5 cm in diameter are associated with increased risk of FDIU.<sup>8</sup>



**Figure 8:** Microscopic section of uterine fibroid following expulsion consistent with an infarcted leiomyoma.

Uterine artery embolisation is a well established treatment for uterine fibroids. Embolisation of blood supply to the tumour triggers fibroid degeneration, with a reduction in vascularity, followed by ischaemia, and degeneration. The necrotic fibroid tissue is either reabsorbed over time, or transvaginal expulsion occurs.<sup>9</sup> Expulsion following uterine artery embolisation has been described in many case studies and is increasingly recognised as a favourable outcome rather than a complication of the procedure.<sup>9,10,11</sup>

This case is unusual in that our patient experienced degeneration and expulsion spontaneously without embolisation. Based on ultrasound and colour Doppler images, it is likely the fibroid 'self-embolised'. Central degeneration and reduced vascularity was indicative of early ischaemia (Figure 3). The later formation of a fluid level at the myometrial/fibroid interface represented shearing of the mass from the myometrium (Figure 4). Histopathology confirmed this, where microscopic sections showed features of infarction.

There is one documented case of a submucosal cervical fibroid sloughing spontaneously following elective Caesarean delivery at 37 weeks gestation.<sup>12</sup> It is speculated that the conditions of pregnancy and delivery mimic those conditions present following uterine artery embolisation (namely reduced perfusion, uterine contraction, and endometrial sparseness) leading to a sloughing effect.<sup>12</sup> To the best of our knowledge, there is no documented case of an intrauterine fibroid undergoing this spontaneous process in association with labour or delivery, as in this case study.

This case highlights the importance of close surveillance of fibroid growth as well as fetal growth, particularly when fibroids are greater than 200 cm<sup>3</sup> in size. Identification of women with such fibroids should be made early in pregnancy to allow close monitoring. This case demonstrates the rare occurrence of spontaneous embolisation and expulsion of a uterine fibroid. It is possible this process was triggered by rapid hormonal change and mechanical effects of induction of labour. This process resulted in a normal uterus on follow up ultrasound and will likely be associated with a good outcome for future pregnancies.

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