



MASS EFFECT OF UTERINE FIBROIDS IN PREGNANCY: A CASE REPORT AND LITERATURE REVIEW.

Gynaecology

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ABSTRACT

Uterine fibroids are the most common uterine tumours, and are increasingly being detected in pregnancy. Depending on the location and size of the fibroid, it may have significant maternal and fetal consequences, both antenatally and postnatally. The paucity of evidence based management presents a diagnostic and management dilemma when clinicians are faced with large uterine fibroids in pregnancy. We report a rare case of a large subserosal uterine fibroid in pregnancy in a primiparous woman causing significant mass effect, and describe diagnosis, management and maternal and fetal outcomes.

KEYWORDS

INTRODUCTION

Uterine fibroids are by far the most common tumours of the uterus. They have been estimated to affect 40% of the non-pregnant population (Greene, DeRoche, Ingardia, & Curry, 2002), however, because the majority of women are asymptomatic and do not seek treatment their true incidence is ultimately unknown (Zaima & Ash, 2011). In fact, fibroids often remain undiagnosed until women undergo routine ultrasound in pregnancy (Laughlin, Baird, Savitz, Herring, & Hartman, 2009).

Our knowledge of diagnosis and management of fibroids in the non-pregnant woman is abundant. By contrast, the literature examining uterine fibroids in pregnancy is scarcer and often low-quality. It is therefore difficult to describe their impact on pregnancy with any certainty, and harder still to guide management decisions. This is in spite of the fact that uterine fibroids affect up to 13% of pregnancies (Levast, Legendre, Bouet, & Sentilhes, 2016), and that, due to the trend towards increasing maternal age and higher body mass indices, this prevalence is likely increasing. Moreover, the literature suggests that we tend to underestimate the number of pregnancies affected by fibroids (Ouyang, Economy, & Norwitz, 2006), reaffirming that this paucity of high-quality evidence is problematic.

Presented here is a case of a large subserosal fibroid diagnosed incidentally in early pregnancy, complicated by severe symptoms of mass effect. Management was conservative, and excellent maternal and fetal outcomes were achieved.

CASE PRESENTATION

A 32-year-old Caucasian primiparous woman presented to the emergency department at 13+2 weeks gestation with abdominal pain. An early dating scan demonstrated a previously undiagnosed 145 x 139 x 100mm pedunculated posterofundal subserosal fibroid. Sequential ultrasounds demonstrated that the fibroid was increasing in size, with persistent evidence of degeneration. At 22 weeks gestation the fibroid was 206 x 162 x 138mm, with a live well grown fetus in breech position (Figure 1). Over the following few days there were symptoms of mass effect of the large uterine fibroid with a rapid decline in mobility, worsening pain, left-sided lower limb weakness, reflux and shortness of breath.



Figure 1: Transabdominal ultrasound at 22+1 weeks gestation

demonstrating a large 206 x 162 x 138mm pedunculated posterior subserosal fibroid with evidence of degenerative change.

On examination, the uterus was noted to be 34 week-equivalent size and tender over the palpable fibroid. Baseline blood tests were normal aside from a CRP elevated at 86. The impression was pain secondary to fibroid degeneration, and she was discharged with analgesia and referred to the gynaecology outpatient clinic.

An initial pelvic MRI showed only a 5cm intramural anterior fibroid without signs of degeneration; the upper fundal fibroid had been missed as the images did not extend superiorly enough. A follow-up MRI revealed a now 18 x 13 x 13cm fibroid on a 6cm-wide pedicle, the superior aspect of which was subcostal and extending into the epigastric region (Figure 2).

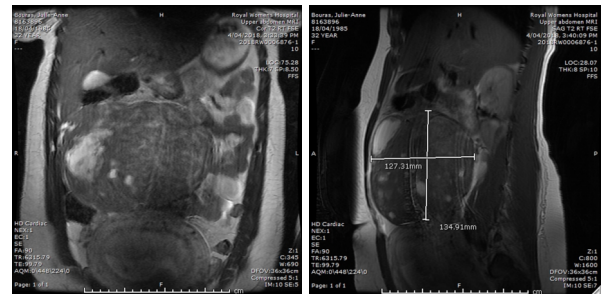


Figure 2: MRI abdomen and pelvis at 15 weeks gestation demonstrating a 18 x 13 x 13cm pedunculated fibroid on a 6cm wide pedicle.

Management options were discussed with the patient and her partner, including myomectomy during pregnancy, termination of pregnancy followed by myomectomy at a later date, or conservative management. A multi-disciplinary management plan was made for sequential growth ultrasounds to monitor fetal wellbeing and fibroid size and close pregnancy surveillance.

The patient was planned for an induction of labour for post-dates at 41+3, however laboured spontaneously at 41+0. She presented at full dilatation and proceeded rapidly to an uncomplicated normal vaginal birth, with a second degree tear that was sutured routinely. She received active management of third stage with a blood loss of 200ml with birth. The baby was well, with Apgar scores of 9 and 9. Post-partum ultrasound at six weeks demonstrated that the subserosal fibroid had almost halved in size to 9cm (Figure 3). A plan was made for laparoscopic myomectomy and morcellation after cessation of breastfeeding.



Figure 3: Transabdominal ultrasound 6 weeks post-partum demonstrating a 97 x 93 x 92mm pedunculated posterior subserosal fibroid significantly reduced in size compared to during pregnancy.

DISCUSSION

Clinical course

Uterine fibroids are extremely common in women of reproductive age. As the growth of uterine fibroids is hormone-dependent, they are seen post-menarche, and predominantly pre-menopause (Cramer & Patel, 1990). Fibroids are thought to be rare in early child-bearing years, while prevalence increases significantly in the third and fourth decades of life (Greene et al., 2002; Zaima & Ash, 2011). Uterine fibroids vary in size, number, location, and type, and women can have multiple fibroids of varying characteristics at any given time (Zaima & Ash, 2011).

As was the situation in this case, we have historically thought that fibroids grow larger in pregnancy due to hormonal changes. However, more recent literature suggests that this is not predictably the case. Fibroid growth varies greatly, however is more likely to increase in the first trimester, and remain stable or even decrease in the second and third trimesters, due to oestrogen receptor downregulation (Zaima & Ash, 2011; Narayan, McCarthy, & Nelson-Piercy, 2016). By 4 weeks post-partum, they have generally reduced to their pre-pregnancy size. This is postulated to be due to post-partum apoptosis, extensive remodelling of the myometrium, and regression of the fibroid-supplying vessels that occurs with uterine involution (Zaima & Ash, 2011).

Reproductive complications

Fibroids impact a woman's reproductive life in various ways. Some studies report that 40% of women with uterine fibroids in pregnancy have associated complications (Ouyang et al., 2006), though this may be overestimated due to selection bias in the available literature (Gupta, Jose, & Manyonda, 2008). An increased rate of threatened and recurrent miscarriage has been observed, predominantly with submucosal fibroids, due to defective implantation (Klatsky, Tran, Caughey, & Fujimoto, 2008). In continuing pregnancies, we see higher rates of premature pre-labour rupture of membranes, premature birth, placental abruption, retained placenta, and post-partum haemorrhage (Zaima & Ash, 2011; Ciavattini et al., 2015; Shavell et al., 2012). Fibroids are also been associated with higher rates of placenta praevia and malpresentation, and cervical or lower segment fibroids can cause labour dystocia. This contributes to the well-established association between fibroids and higher caesarean section rates (Ciavattini et al., 2015; Akbas et al., 2017; Doğan, Özyüncü, & Atak, 2016).

Intrapartum, submucosal fibroids may interfere with the propagation of uterine contractions and therefore impair spontaneous labour (Vergani et al., 1994), however evidence in the literature is conflicting. In cases where spontaneous labour occurs, where there is no disturbance in coordinated uterine contractility, it is logical to assume that the chance of post-partum haemorrhage would be lower. Notably, in this case of a large subserosal fibroid, no interference with spontaneous labour or post-partum haemorrhage was observed. Fetal complications are not well-studied, but are often related to preterm birth. Some studies also suggest higher rates of low birthweight. Fetal anomalies have been observed in some case studies, though without any well-founded association (Zaima & Ash, 2011).

Symptoms

A woman's experience of fibroids in pregnancy is varied, but symptoms are usually attributable to either pressure or degeneration. Pressure symptoms noted in the literature are predominantly urinary frequency or retention (Zaima & Ash, 2011). In the above case, pressure symptoms of constipation, early satiety, gastro-intestinal

reflux, shortness of breath, and meralgia paraesthetica were also observed, which, based on the current literature, appear to be rare. Red degeneration occurs in approximately 5% of cases (Zaima & Ash, 2011; Gupta et al., 2008), and is thought to be due to either the growing fibroid exceeding its own blood supply leading to central necrosis, or a change in orientation of the fibroid with the expanding gravid uterus causing obstruction of the blood vessels and subsequent infarction (Parker, 2007). Red degeneration is usually associated with pain, localised tenderness, nausea and vomiting, a mild fever, and raised inflammatory markers (Zaima & Ash, 2011).

Diagnosis and management

Conservative management is the mainstay of treatment, and should address patient-specific symptoms. The most appropriate analgesia choices are paracetamol and codeine, while opiate analgesia should be avoided, except for refractory pain (Zaima & Ash, 2011). There is some suggestion that antibiotics and progesterone supplementation may also help with symptoms of red degeneration (Vitale, Tropea, Rossetti, Carnelli, & Cianci, 2013). Tocolytic therapy and steroid loading should be utilised in the presence of suspected preterm labour, in accordance with hospital guidelines (Zaima & Ash, 2011; Vitale et al., 2013).

Ultrasound is a well-established, accurate, safe, easily accessible and relatively low-cost imaging modality to assess fibroids in pregnancy. MRI, whilst less accessible and more expensive, has been shown to be useful in very large or numerous fibroids to more clearly define spatial relationship, and to plan for surgery (Alanis, Mitra, & Koklanaris, 2008; Valenti et al., 2019).

Despite minimal evidence to recommend it, antenatal myomectomy is performed frequently, reserved for severe refractory abdominal pain or obstetric complications (Shafiee, Nor Azlin, & Arifuddin, 2012). Whilst there have been numerous case studies where this has been successful (Alanis et al., 2008; Shafiee et al., 2012; Anniyappa, Havaladar, & Purra, 2015; Jhalta, Negi, & Sharma, 2016), overall there is very little high quality research to routinely support this practice (Zaima & Ash, 2011). Pedunculated fibroids thought to have undergone torsion can be considered for operative management, but only if they are on a stalk narrower than 5cm (Jhalta et al., 2016). MRI should be used to aid surgery planning if available. If surgical intervention is necessary, laparoscopic myomectomy has been successfully performed in first and second trimesters and has been shown to have improved outcomes compared with abdominal myomectomy (Vitale et al., 2013; Fanfani et al., 2005). Whilst successful cases of caesarean myomectomy have been reported, it is generally recommended that this practice be avoided due to the high risk of complications, including haemorrhage (Fanfani et al., 2005). Armed with the knowledge that fibroids usually reduce significantly in size by 4 weeks post-partum should serve to bolster this choice.

There is very little literature advising on the timing and management of fibroids during the interval between pregnancies. Myomectomy is a common treatment of uterine fibroids where fertility preservation is required (Zaima & Ash, 2011). There have been reports of successful pregnancy after uterine artery embolisation, however as the data are limited, it is not routine practice (Zaima & Ash, 2011; Karlsen et al., 2018).

CONCLUSION

In summary, whilst rare, large uterine fibroids can occur in women of reproductive age and have significant impacts on maternal and fetal outcomes during pregnancy. Whilst there is limited evidence to guide our management in these specific cases, close pregnancy surveillance, multi-disciplinary team management and a conservative approach can have successful maternal and fetal outcomes.

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