

Large Fibroids And Pregnancy Outcomes At A DGH

George Haroun, Delyth Rich, Hayley Saunders, Iain Stokes | Nevill Hall Hospital | ABUHB

Discussion

- Although evidence supporting the theory that large fibroids in pregnancy lead to severe fetο-maternal outcomes is controversial^[1], these cases demonstrate the potential for such complications to develop. The cases varied in the classification, location and size of the respective fibroids; however, each case resulted in different complicated obstetric outcomes.
- Case 1 with the late miscarriage had a subserosal fibroid that was found to be unrelated to the endometrium on a postpartum MRI scan. A systematic review has shown that subserosal fibroids with more than 50% of their bulk existing outside the myometrial border are unlikely to affect pregnancy outcomes^[2]. Consequently, the assumption that the fibroid is the main cause of the PPROM and subsequent miscarriage could not be supported.
- Case 2 was the only patient who received preconceptual prophylactic management of her fibroid. Research has linked the myomectomy procedure to extensive adhesions^[2] and that was obvious during the C-section. However, adhesiolysis was achieved without visceral injury. It is known that the reparation of the myometrial defect after an open myomectomy is more reliable than laparoscopic myomectomy due to easier access^[3]; therefore the risk of uterine rupture is thought to be reduced. Despite the fact that the cavity was breached during the myomectomy, this patient appeared to experience fewer complications than the other three.
- Case 3 presented to the hospital already in labour and was not known to the medical staff. There is evidence supporting the fact that the location of a fibroid in the lower segment of the uterus increases the rate of delivery by C-section, possibly due to mechanical obstruction of the birth canal^[4]. In addition, the location of the fibroid in this case created difficulty delivering the infant even after making several incisions to the uterus. However, the same research could not demonstrate any link between the size of the fibroid and the mode of delivery^[4]. A similar case at the same hospital, reviewed in 2002, demonstrated the possibility of 180° axial rotation of the uterus in the presence of a large anterior fibroid^[9].
- Case 4 was known to have multiple uterine fibroids prior to conception and a management plan was put in place to treat them. Although the patient conceived without treating the fibroids, the knowledge of the fibroids characteristics allowed for additional obstetric surveillance and appropriate planning for mode and place of birth. Elective surgical delivery with full prophylactic preparation for uterine artery embolisation was arranged. A retrospective cohort study has associated the presence of large fibroids with PPROM^[5]. Furthermore, this complication occurred in 100% of the study population who had 3 or more fibroids over 5cm in size. The same study showed that these women experienced postpartum haemorrhage 4 times more frequently (12.2%) than women without fibroids (3.2%).

Conclusion

The presence of fibroids in women of childbearing age is common so it is not unusual to detect them in pregnancy; however, this case series demonstrates that the characteristics of large fibroids influence specific obstetric outcomes. Although embolisation was not performed in any of the analysed cases, its availability during the delivery of the patient in Case4 gave the clinicians more confidence in achieving a better outcome for the patient and her newborn. The only case that was not associated with any complications was Case2. Preconception myomectomy might be one way to prevent complications in a future pregnancy if the patient is willing to take the low risk of uterine rupture. The healthcare provider should raise concerns about possible complications associated with large fibroids in pregnancy, especially their effect on fetal presentation, the increased risk of PPROM, PPH and the increased risk of delivery by C-section. A DGH could be ready to manage some patients with large fibroids at birth but the risks taken and alternative management measures should be considered at all times. Therefore, an individualised management plan regarding mode and place of birth should be instigated.

Works Cited

1. Lee H, Narwitz G, Shaw J (2010) Contemporary management of fibroids in pregnancy
2. Klatsky P, Tran N, Caughey A, Fujimato V (2008) Fibroids and obstetric outcomes: A systematic literature review from conception to delivery. *American Journal of Obstetrics and Gynecology* 198 (4) 357-366
3. Goldberg J, Pereira L (2006) Pregnancy outcomes following treatment for fibroids: Uterine Artery Embolisation vs laparoscopic myomectomy. *Current Opinion in Obstetrics and Gynaecology* 18 402-406
4. Lam S, Best S, Kumar S (2014) The impact of fibroid characteristics on pregnancy outcome. *American Journal of Obstetrics and Gynecology* 211 (4) 395
5. Shavell V, Thakur M, Sawant A, Kruger M, Jones T, Singh M, Puschek E, Diamond M (2012) Adverse obstetric outcomes associated with sonographically identified large uterine fibroids. *Fertility and Sterility* 97 (1) 107-110
6. Day Baird D, Dunson DB, Hill MC, et al. High cumulative incidence of uterine leiomyoma in black and white women: ultrasound evidence. *Am J Obstet Gynecol.* 2003;188:100–107
7. Aharoni A, Reiter A, Golan D, et al. Patterns of growth of uterine leiomyomas during pregnancy. A prospective longitudinal study. *Br J Obstet Gynaecol.* 1988;95:510–513
8. Rosati P, Exacoustòs C, Mancuso S. Longitudinal evaluation of uterine myoma growth during pregnancy. A sonographic study. *J Ultrasound Med.* 1992;11:511–515
9. Rich, D.A. and Stokes, I.M. (2002), Uterine torsion due to a fibroid, emergency myomectomy and transverse upper segment caesarean section. *BJOG: An International Journal of Obstetrics & Gynaecology*, 109: 105–106. doi:10.1111/j.1471-0528.2002.t011-1-01067.x

Case overviews

Subserosal fibroid	Case 1 This patient was found to have a large subserosal fibroid at 12 weeks gestation of size 12.5cm. The patient had premature, prelabour rupture of membranes (PPROM) at 17w2d. The first ultrasound scan (USS) showed a fundal placenta, anhydramnios and a fundal fibroid that had increased in size to 15.6cm. At 18w4d the patient had spontaneous miscarriage at home. Retained products of conception were surgically evacuated afterwards. Two months after the miscarriage the fibroid was assessed by MRI and the patient had embolisation for treatment.
Preconception myomectomy	Case 2 This patient had a history of a 7cm intramural anterior wall fibroid, removed in 2014. The endometrial cavity was breached during the open myomectomy. A date was booked for delivery by elective caesarean section. The patient underwent an elective c-section at 37 weeks with no adverse events. At c-section there were dense adhesions. The fetus was in transverse lie and delivered in breech presentation. It weighed 3140g and had an Apgar score of 9 at 1 minute and 10 at 5 minutes.
Intramural fibroid	Case 3 This patient was admitted in labour at 40w4d gestation. A fibroid was diagnosed early in pregnancy. During the second stage of labour the fetal head did not descend. A decision to proceed to C-section was made. During C-section the surgeon faced difficult expulsion of the fetal head due to the location of the fibroid. A midline skin incision, an inverted T incision and a high classical uterine incision were made successively to deliver the fetus by breech extraction. The 12cm intramural fibroid interfered with the closure of the uterus; therefore, a myomectomy was performed.
Multiple fibroid uterus	Case 4 This patient had multiple fibroid uterus prior to conception, the largest measuring 6cm. She was referred to a radiologist for uterine artery embolisation but she failed to attend. The patient later conceived without treatment. She attended at 31 weeks with a confirmed PPROM. Delivery was therefore expedited for 34 weeks gestation at a hospital with embolisation facility. At 34 weeks, supraumbilical midline laparotomy, with a classical uterine incision was performed after a prophylactic placement of internal iliac artery balloon catheters was undertaken. A 2392g infant was delivered by breech extraction with good Apgar scores. Major obstetric haemorrhage of 3806 ml was managed with autologous cell salvaged blood and packed red cells.

Case details

- **Case 1:** The patient was found to have a large fibroid at 12w2d gestation of size 12.5x9cm. She had PPROM at 17w6d and was admitted to the hospital for antibiotics and serial USS. Speculum examination at that point showed a long, posterior and closed cervix. The first USS following that event was performed at 18w2d and showed a fundal placenta, anhydramnios and a fundal fibroid that had increased in size to 13x15.6cm. All risks associated with findings and possible complications were discussed with the patient and she was discharged home with instructions for self-monitoring and observation. At 18w4d the patient was admitted to the gynaecology ward through A&E due to miscarriage. She had passed the fetus and the placenta at home. The patient was later discharged home. Two weeks after the miscarriage the patient was readmitted for retained products of conception and she chose to have surgical evacuation, which was subsequently done without adverse events. The pathology report showed an eccentrically attached umbilical cord with no macroscopically identified discrete lesions of either the umbilical cord or the placenta. Microscopically, the report confirmed acute chorioamnionitis without evidence of villitis or acute funisitis. Two months after the miscarriage the patient had an MRI scan that confirmed the presence of an anterior subserosal fibroid, the endometrium was seen separate from it. The patient eventually decided to go for embolisation of the fibroid after thorough discussion with the consultant gynaecologist.
- **Case 2:** The patient was 8 weeks pregnant when she was booked on her last pregnancy. This was her 3rd pregnancy with a history of 1 vaginal delivery in 2011 and a 6 weeks complete miscarriage in 2016. She was known to have a 7cm anterior wall intramural fibroid that was removed in 2014. The endometrial cavity was breached during the myomectomy procedure according to a letter sent to us by her surgeon. The patient was also known to have Arrhythmogenic Right Ventricular Dysplasia for which she was thoroughly investigated and her cardiologist had not expressed concern. Serial scans were requested throughout her pregnancy, a cardiologist review was arranged and a date was booked for delivery by elective caesarean section. The cardiologist had no concerns about the patient's cardiac condition and, therefore, discharged her from their clinic. The serial obstetric scans showed normal fetal growth with good Doppler indices on all occasions. The patient presented once during her pregnancy suspecting PPROM but this was ruled out and she was discharged home. She underwent an elective c-section at 37 weeks with no adverse events. At c-section there were dense adhesions and the bladder was found to be high over the anterior uterine wall. The lower segment was well developed and it was thick. The fetus was in transverse lie and delivered in breech presentation. It was a female neonate 3140g in weight and of an Apgar score of 9 at 1 minute and 10 at 5 minutes. The patient recovered quickly and was discharged from hospital after 2 nights.
- **Case 3:** This was a G1P0 patient, booked at another hospital. Upon admission to Nevill Hall Hospital she informed the doctor that she had a fibroid diagnosed early in pregnancy and she was told that it should not interfere with her labour. The patient entered the active phase of labour and her cervix gradually dilated until full dilation within 8.5 hours. The fetal head, however, did not descend as expected and remained at -1 station even after 2 hours of active 2nd stage of labour. A decision was made to attempt instrumental delivery or caesarean section should it fail. The patient was reassessed under regional anaesthesia and decision to proceed for c-section was made because of the station of the fetal head that persisted at -1. During c-section the surgeon faced difficult delivery of the fetal head because it was located below the large 12cm fibroid while the rest of the body was above it. There was another smaller fibroid 6-7cm in size on the right side of the uterus as well as several others in the fundus and on the posterior uterine wall. As more space was needed to deliver the fetus, an inverted T incision was made on the uterus but that did not help, even with delivering the neonate in breech. At that point 2 more consultants had attended to assist. A midline skin incision was made, followed by a high classical uterine incision and a live male fetus was eventually delivered by breech extraction in good condition with the cord wrapped once around his neck. The placenta was delivered completely by CCT. It was difficult for the surgeon to close the transverse uterine incision; therefore, the decision was made to perform a myomectomy of the large fibroid which was interfering with the closure. The rest of the operation was carried out as usual. A drain was kept in the abdomen and a Bakri balloon was left in the uterus. Due to excessive blood loss (1700ml) the patient had autologous blood of 559ml returned. The patient was under close observation and monitoring in HDU and was later transferred to the postnatal ward without consequences. The patient recovered well and was discharged 3 days later in good condition.
- **Case 4:** The patient was referred via her GP for a palpable pelvic mass prior to this pregnancy. USS confirmed the presence of multiple intramural and subserosal fibroids, with the largest measuring 6cm. The patient expressed a wish to plan a new pregnancy and was referred for a radiologist opinion regarding suitability for uterine artery embolisation. However, she failed to book an MRI scan for characterisation of her fibroids on 2 occasions and follow up was therefore not arranged. The patient later attended the early pregnancy unit with vaginal bleeding, when a live, intrauterine pregnancy of 7w3d was confirmed. Fetal growth and Doppler indices were normal throughout her pregnancy. At 20w2d, a 7cm fibroid within the cervical region was noted. This subsequently was reported as an anterior fibroid occupying the entire lower uterine segment, extending to the cervix. An appointment for MRI at 32-34 weeks was arranged, along with instructions for an elective upper segment caesarean delivery with interventional radiology input at 36 weeks and prophylactic steroid cover. However, the patient attended at 31 weeks with a confirmed PPROM, treated with oral antibiotics and tocolytics. A prophylactic infusion of parenteral iron was administered at 32 weeks and delivery was expedited for 34 weeks. On the day of delivery, a prophylactic placement of internal iliac artery balloon catheter was undertaken under epidural anaesthesia. Subsequently, general anaesthesia was administered for a supraumbilical midline laparotomy, with a classical uterine incision. There was a breech extraction of a female infant, weighing 2392g, with good Apgar scores. Following placental delivery, uterine atony led to MOH of 3806 ml. 450 ml of autologous cell salvaged blood was returned and a total of 5 units of packed red cells were transfused. 24 hours post-surgery, the patient went on to develop sepsis and was treated with intravenous Tazocin and Gentamycin. A CT scan suggested appearances consistent with retained products of conception +/- endometritis, although RPOC were later ruled out. The patient went on to experience a deterioration in her postpartum mental health on day 6. She reported a desire to end her life, resulting in an urgent referral to the psychiatric liaison team and commencement of Selective Serotonin Re-Uptake Inhibitors. However, no ongoing concerns were highlighted following this episode. The patient was discharged home, although the neonate remained under the care of the neonatologists. Six weeks postpartum, the patient was referred by her GP and once again treated with IV antibiotics for endometritis.

Aim

To evaluate the readiness of a district general hospital for management of pregnancies with large fibroids

Hypothesis

- Access to embolisation should be available
- Delivery of patients with large fibroids at district general hospitals should be avoided due to increased risk of complications
- A preconception myomectomy secures a better outcome in a subsequent pregnancy

Background

The presence of fibroids in women of childbearing age is common (between 40 and 60% by age 35^[6]) so it is not unusual to detect them in pregnancy. Most of the fibroids remain unchanged in size^[7,8] (60-78%) but some of them (22-32%) grow to volumes that could impose fetο-maternal risks^[7]. This is a case series involving four cases of pregnant women with known history of large uterine fibroids, they all presented to a district general hospital (DGH). One of them conceived after a myomectomy during which the uterine cavity was breached and the other three were diagnosed with existing uterine fibroids antenatally. They all attained different pregnancy outcomes. Although evidence supporting the theory that large fibroids in pregnancy lead to severe fetο-maternal outcomes is limited, these cases demonstrate the potential for such complications to develop. The cases varied in the classification, location and size of the respective fibroids; however, each case resulted in different complicated obstetric outcomes.

Methods

Retrospective analysis

- This is a retrospective analysis of four cases, three of which had a history of current fibroids in pregnancy and one with a history of preconception myomectomy.
- The data were reviewed, analysed and assessed for their connection to adverse pregnancy outcomes contributed to by the presence of fibroids. These outcomes include malpresentation, premature, prelabour rupture of membranes (PPROM), Postpartum Haemorrhage (PPH) and preterm labour.