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Intrauterine expulsion of a submucosal fibroid following transcervical radiofrequency fibroid ablation

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SUMMARY

A woman in her 40s presented with complaints of watery discharge (sloughing).

These symptoms developed three months after treatment of her Fédération Internationale de Gynécologie et d'Obstétrique (FIGO) type 2 fibroid with the transcervical use of intrauterine ultrasound-guided radiofrequency ablation, the Sonata system (Gynesonics). Previous symptoms of heavy menstrual bleeding significantly decreased three months after transcervical ablation. In spite of this, the patient presented with complaints of sloughing. Examination by transvaginal ultrasound revealed an intracavitary fibroid. Additional hysteroscopy identified a FIGO type 0 fibroid with a necrotic aspect. Eventually, the intracavitary fibroid was removed by hysteroscopic myomectomy, and complaints of sloughing vanished completely. The necrotic fibroid tissue was confirmed by the pathologist.

Intrauterine expulsion of a (submucosal) fibroid after treatment with the Sonata system should be discussed with patients during pre-treatment counselling as a possible consequence of this treatment. Thus, patients can recognise symptoms of intrauterine expulsion of the ablated fibroid in a timely manner.

BACKGROUND

Uterine fibroids are among the most common benign gynaecological tumours, with an increasing prevalence with premenopausal age.^{1–3} Uterine fibroids can be asymptomatic; however, 30% of women experience symptoms. There is a variety of possible symptoms, including heavy menstrual bleeding, abdominal pain, dysmenorrhoea and dyspareunia.^{4,5}

In the management of fibroids, radiofrequency ablation (RFA) performed transcervically with the Sonata System (Gynesonics) is a relatively new minimally invasive treatment option. The Sonata system uses intrauterine ultrasound to guide RFA. It is designed to provide up to 150 W of power to maintain a needle tip temperature of 105°C, with the temperature time automatically set to match the ablation size appropriate for the fibroid.⁶

There have been several studies showing that this uterine-sparing treatment is effective and safe in the treatment of fibroids.^{7,8} Using the Sonata system, our gynaecology department has ablated intramural fibroids of FIGO types 2–5, 3, 4 and 5 since 2011. Moreover, several FIGO type 2 fibroids too large for a single hysteroscopic myomectomy have been treated with the Sonata system. It has occurred

that submucosal and even intramural fibroids were completely expelled into the uterine cavity after treatment with the Sonata system, causing watery discharge (sloughing) several months after treatment.

This case reports on a FIGO type 2 fibroid, which showed complete expulsion into the uterine cavity several months after radiofrequency ablation with the Sonata system. Hysteroscopic removal of the intracavitary fibroid was performed. Moreover, this case report aims to illustrate the possible consequence of intrauterine expulsion of fibroids after transcervical radiofrequency ablation and its management. Thus, we will be able to offer our patients comprehensive pre-treatment counselling with realistic expectations. With this, early recognition of symptoms related to intrauterine expulsion will allow patients to receive proper care sooner.

CASE PRESENTATION

A woman in her 40s, with a history of hypertension, three vaginal deliveries and two hysteroscopic myomectomies performed elsewhere, presented at the gynaecology outpatient clinic. Symptoms of heavy menstrual bleeding increased over the past three years, resulting in a Pictorial Blood Assessment Chart (PBAC) score of 650 points (PBAC scores >150 indicate heavy menstrual bleeding). Heavy menstrual bleeding was accompanied by frequent loss of blood clots, dysmenorrhoea and abdominal discomfort.

In spite of continuous use of ethinylestradiol/levonorgestrel 50 mcg/125 mcg, the severity of her menstrual bleeding had not diminished. Transvaginal ultrasound detected three fibroids, including a FIGO type 2 fibroid of 36×37×40 mm in the

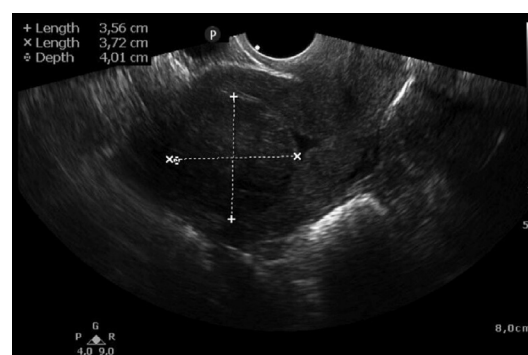


Figure 1 Transvaginal ultrasound showing the FIGO type 2 fibroid before treatment.



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Case report

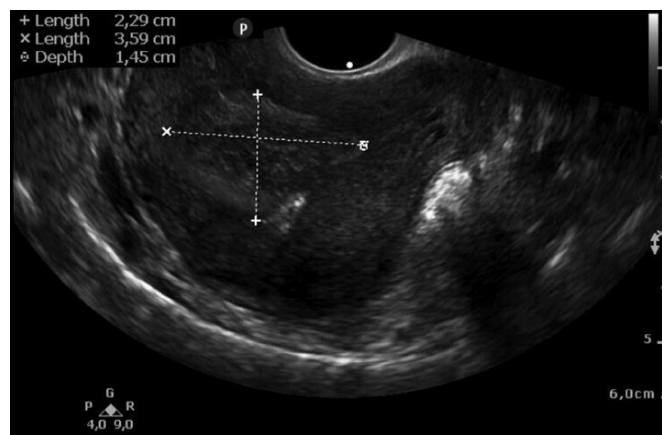


Figure 2 Transvaginal ultrasound showing the fibroid after treatment with the Sonata system, reduced in size and expelled into the uterine cavity.

posterior wall of the uterus (figure 1) and two FIGO type 5 fibroids of 11×19×21 mm and 27×33×30 mm, located in the anterior and posterior walls, respectively.

In this case, treatment options were limited since there was a strong desire for uterine preservation and minimally invasive treatment. As this patient mainly suffered from heavy menstrual blood loss, a hysteroscopic treatment of the FIGO type 2 fibroid was a possible first step in treatment. Assuming that this type 2 fibroid caused a greater increase in menstrual blood loss than those located more subserosal. Due to the size (36×37×40 mm) and location of the fibroid, single hysteroscopic myomectomy would probably not be sufficient to remove the fibroid totally. Complete removal of the fibroid would require multiple sessions.

After information about other treatment options was provided (shared decision-making), this patient chose treatment with the Sonata system for her FIGO type 2 fibroid.

She desperately wanted to preserve her uterus and prevent unnecessary invasive treatment. One month after the initial consultation, treatment with the Sonata system was performed in an outpatient operating room under procedural propofol sedation. While performing the intrauterine ultrasound with the Sonata system prior to the fibroid ablation, the fibroid was verified to be FIGO type 2 and the fibroid was carefully mapped.

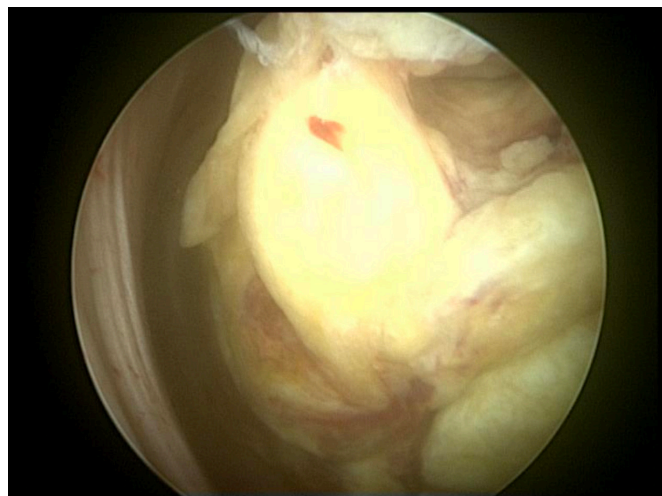


Figure 3 Hysteroscopy showing the fibroid expelled into the uterine cavity with an atrophic appearance.

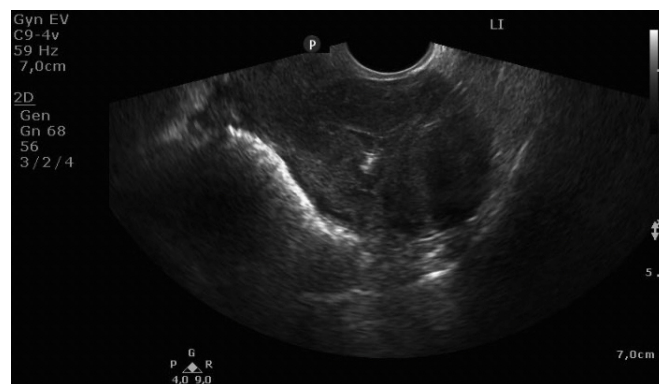


Figure 4 Transvaginal ultrasound 2 months after hysteroscopic resection of the fibroid which was expelled into the uterine cavity after treatment with the Sonata system.

Three separate radiofrequency ablations of 3:00, 1:48 and 3:18 min were needed to cover the whole fibroid. The entire fibroid was successfully ablated in 8:06 min, as indicated by the ablation effect clearly visible on the intrauterine ultrasound.

During a check-up by phone two and a half weeks later, the patient reported that she had been experiencing abdominal cramps for two days after treatment, which could be alleviated with naproxen. Furthermore, an intermittent loss of fluid was reported. Further recovery after the procedure was satisfactory for the patient. A postoperative check-up was conducted three months after Sonata treatment. At that moment, the patient complained of a continuous watery discharge with a yellow colour and a foul smell, which she had not previously experienced before treatment. Heavy menstrual bleeding was no longer prominent, although pre-existing dysmenorrhoea had worsened.

INVESTIGATIONS

Transvaginal ultrasound during examination three months postoperatively revealed an intrauterine fibroid that measured 23×36×32 mm (figure 2). As a result of the transcervical ablation, the submucosal fibroid had decreased significantly in size and appeared to have fully expelled into the uterine cavity. Due to severe pain during previous hysteroscopies, it was chosen to perform a diagnostic hysteroscopy under procedural anaesthesia, and if feasible, immediate therapeutic hysteroscopic removal of the intrauterine fibroid could be performed in the same session. On performing the hysteroscopy, a FIGO type 0 fibroid was diagnosed with an atrophic appearance (figure 3).

TREATMENT

Following the diagnosis of the FIGO type 0 fibroid during diagnostic hysteroscopy, the removal of the intrauterine fibroid was performed immediately. Hysteroscopic myomectomy was performed using the Myosure XL (Hologic). Total fluid loss during this procedure was 1000 cc, and the total shaving time was 13.5 min. The fibroid tissue was obtained for pathological examination after the procedure.

OUTCOME AND FOLLOW-UP

During an appointment by phone two weeks later, the patient reported slight blood loss for a week, but daily activities were resumed almost promptly. As a result of treatment, the watery discharge and complaints of dysmenorrhoea vanished completely. The pathological report revealed a fibroid with degenerative

changes, without atypia and no signs of malignancy, consistent with the observations during hysteroscopy.

Radiofrequency ablation induces coagulative necrosis in the fibroid, causing noticeable atrophic changes during hysteroscopy and changes in fibroid tissue as seen by the pathologist.⁹

After two months, a satisfied patient returned to the outpatient clinic for a check-up; the watery discharge was still completely absent. There was a profound decrease in the severity of menstrual blood loss (PBAC score <150 points), blood clots were no longer present, nightly changes of tampons and pads were eliminated, the duration of her periods had been halved, and the contraceptive pill was altered to a lower dose; ethinylestradiol/levonorgestrel 30 mcg/150 mcg. Transvaginal ultrasound showed a uterus without suspicion of intrauterine abnormalities (figure 4). The two remaining FIGO type 5 fibroids showed no significant differences in size.

DISCUSSION

Several options exist in the management of fibroids with a mainly intramural location, such as hysterectomy, uterine artery embolisation and laparoscopic/laparotomic myomectomy.¹⁰

An alternative, uterine-sparing, minimally invasive treatment was developed, the Sonata system.⁶ Since the Sonata system is still a relatively new treatment, little is known about the possible consequences of the treatment. The most common postoperative adverse effects described are postoperative pain or (increased menstrual) vaginal bleeding and dysmenorrhoea.^{11 12}

Recently, a retrospective publication reported on the outcomes after treatment with the Sonata system. It is the first publication to account for a relatively large number of hysteroscopic myomectomies as a consequence of treatment with the Sonata system on submucosal and intramural fibroids. The reintervention rate in this study was found to be significantly higher than previously seen in studies.^{8 13 14} Of the 53 patients treated in this retrospective study, 24 women (45.3%) underwent a reintervention. Among the reinterventions performed, the most frequently performed reintervention was a hysteroscopic myomectomy after intrauterine expulsion of the previously ablated fibroid, which occurred in 11 of 24 cases (45.8%).¹⁵

Additionally, another publication reported an expulsion rate of 1.4% after Sonata treatment during a total follow-up of 12 months in 147 patients. It was not defined to what FIGO type of fibroid expulsion occurred after treatment with Sonata, nor the degree of expulsion, transcervical or intrauterine.¹⁶

A recently published case report presents a case of transcervical expulsion of a FIGO type 2–5 fibroid after Sonata treatment causing sloughing symptoms, as seen in the patient presented in this case report. A vaginal approach was used to remove the fibroid that was located partially cervical and partially vaginal. The surgery was completed without any complications.¹⁷

As seen above, a paucity of information is found in the literature regarding the intrauterine expulsion of a fibroid and its management following transcervical radiofrequency ablation with the Sonata system.

Likewise, intrauterine or even transcervical fibroid expulsion occurs after other fibroid treatments, for example, following uterine artery embolisation. The exact percentage is unknown. One review showed a rate of 1.5% in 76 non-randomised studies (n=11 195),¹⁸ and another review showed a fibroid expulsion rate of 4.7% in a group of 6858 patients.¹⁹ Symptoms of fibroid expulsion after uterine artery embolisation include vaginal discharge, abdominal pain, signs of infection and increased vaginal bleeding.

Patient's perspective

After two previous hysteroscopic fibroid resections in a hospital elsewhere, I visited my gynaecologist again with similar complaints. This time, however, the gynaecologist told me that the location of the fibroid meant that regular treatment options were not sufficient. I was offered 3 alternatives: uterine artery embolization, hysterectomy, or temporary menopause through medication (GnRH agonists). None of the options sounded very appealing to me, so I considered just carrying on until nature finally solved the problem.

Searching the internet for more information, I came across research focusing on the Sonata system. I had nothing to lose, so I sent an e-mail and soon received an invitation. I was kindly welcomed and given extensive information and during internal examination, it quickly became clear that the type of fibroid in my uterus was ideally suitable for treatment with the Sonata system.

Despite the COVID-19 pandemic, I received a call for treatment rather quickly, which was performed successfully. Although I had been told right after the treatment that it had not been possible to 100% treat the fibroid given its size, but sufficient ablation had taken place. This information kind of slipped my mind due to the anaesthesia and so I didn't register what that would possibly mean then.

During the following months, I continued to have light bleeding, lost 'pieces' and experienced odd discharge. At the follow-up check-up about 3 months later, it was explained to me what had been mentioned before. I needed to undergo another treatment because the fibroid had entered 'the cavity of the uterus' and 'debris' kept coming out.

Finally, the second treatment also was successful. After this, I soon had a reduction in symptoms, until I eventually was completely symptom-free.

I am very happy and satisfied with the treatment. My quality of life has greatly improved, it feels a lot better to not constantly worry about unexpected bleeding or about a continuous 'bloodbath'.

I always point out the Sonata treatment to people around me with similar complaints. By doing so, at least they have an alternative that in my opinion is a lot more pleasant and less invasive than the proposed treatments at the other hospital.

It would be nice if this expertise was more widely shared and if there was more awareness of this treatment in other hospitals. The other hospital did not discuss alternatives. In the interest of the patient, it would be good if you could at least be made aware that there are more options in other hospitals.

Learning points

- Intrauterine expulsion of a (submucosal) fibroid after treatment with the Sonata system is a possible consequence of this radiofrequency ablation treatment.
- Symptoms of watery discharge, also referred to as sloughing, may result from an ablated fibroid that has been expelled into the uterine cavity.
- The possible consequences and symptoms of intrauterine expulsion of ablated fibroids should be included in counselling patients considering treatment with the Sonata system.

Case report

Up to now, the best treatment option for fibroid expulsion has not been determined. A decision tree was published in 2011 by Shlansky-Goldberg that outlined therapeutic options for fibroid expulsion.²⁰ The interventional radiologist observes patients with 'sloughing expulsion' for a longer period before taking action. Patients are referred to a gynaecologist if the tissue is small enough to be resected via hysteroscopy. During consultation, a subdivision is made based on infection parameters. In the absence of infection at presentation, along with a closed cervix, an expectant approach is taken. By doing so, spontaneous transvaginal expulsion is awaited. Surgical intervention may be necessary if spontaneous expulsion does not occur.

If infection parameters are elevated at presentation, antibiotics and analgesics are administered. If antibiotics do not yield sufficient results, hysteroscopic or vaginal removal of the expelled tissue will follow. If the infection resolves, the same expectant approach is followed as with fibroid expulsion without infection.

Considering this, intrauterine fibroid expulsion following transcervical radiofrequency ablation can be approached differently. An extended waiting period can be taken if no infection is present and if no bothersome symptoms are experienced. Fibroid tissue possibly expels spontaneously over time, eliminating the need for reintervention. If there are bothersome symptoms, such as sloughing, that could be resolved via hysteroscopic resection, this should be pursued.

In our opinion, waiting for spontaneous expulsion is not a desirable option. Spontaneous expulsion can be very unpleasant for patients and occurs accompanied by painful uterine cramps. Our preference is to have a hysteroscopic fibroid resection performed to prevent unpleasant symptoms. The purpose of this case report is to raise awareness of the possibility of intrauterine expulsion of the ablated fibroid after treatment with the Sonata system, its associated symptoms and its management, as it has not yet been widely described in the literature.

Given the relative novelty of this treatment, it is important to ensure that the literature outlines the treatment and possible consequences. Ultimately, the more that is known, the better women considering this treatment can be counselled and therefore be able to make an educated choice in the management of their fibroids, with realistic expectations.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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