
Early Post UAE Management

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Abstract

Uterine artery embolization for fibroids provides a treatment with low morbidity, and short in-hospital stay. An understanding of the expected post procedure course, and of the potential problems that can occur is essential to manage patients in this period effectively, to reduce patient anxiety, and unnecessary re-admissions. In contrast to surgery (hysterectomy) most complications occur after discharge. Effective communication of the expected outcomes and potential serious complications is therefore required to both patients, and other clinicians.

1 Introduction

In this chapter, we will discuss the care of the patient after uterine artery embolisation (UAE) from the time the patients leaves the radiology suite, up to and including the first follow-up appointment, usually between 4 and 8 weeks post procedure.

2 In Hospital Care

The management of patients after UAE can be undertaken by either the gynaecologist, the interventional radiologist, or most effectively, by a combination of both specialists working together. Whoever undertakes care of the patient must however be fully aware of the expected normal post procedure course, of possible complications, and be able to impart clear information to the patient and to their primary care physician. Managing the patient's expectations is a key part to care during this period.

Where nursing staff are not used to caring for patients post transarterial embolisation, a brief programme of education will prove helpful; an understanding of the differences post UAE compared to post surgery will enable ward staff to care most effectively for these patients.

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2.1 Length of Stay

Many institutions admit patients post UAE for a single night. The main reason for this is to achieve adequate pain control. Some institutions will discharge the patient later the same day, if for example, they were treated early in the day, and are fit for discharge the same evening (Siskin et al. 2000).

It is our practice to admit patients for one night, with very few patients requiring a prolonged stay. The commonest cause for delayed discharge is for pain control.

A number of patients will choose to undergo UAE rather than surgery because of adverse social conditions or pre-existing co-morbidities. In our experience the majority of these patients will also be fit for discharge the following day. The presence of additional morbidities rarely necessitates prolongation of length of stay.

2.2 Care of the Puncture Site

Increasingly, interventional radiologists are becoming bed holders with admitting rights. If following UAE, the patients are admitted to a Gynaecology bed, rather than to an Interventional Radiology bed, nursing staff in gynaecology wards may be unused to caring for patients post angiographic procedures. It is important to give clear instructions regarding period of bed rest and time to mobilisation, the observations required and how to regain haemostasis in the event of bleeding from the puncture site.

Closure devices are small "plugs" used to seal the arterial puncture, and are commonly used if early mobilisation and discharge after angiographic procedures is required. In our practice, as patients are being admitted overnight post procedure for symptom control and pain relief we do not use closure devices. Use of a closure device does add to the consumable costs. If patients are to be discharged the same day, then these may be useful, with the cost being offset by the savings of no overnight stay.

2.3 Pain Control

Pain relief is the main issue in the management of patients in the first few hours post procedure. When establishing a UAE service it is useful to engage with your institution's existing pain relief team, and/or anaesthetic department. It is important to ensure that any pain relief protocols used are in line with those already in use elsewhere. Common protocols avoid confusion and improve compliance as they will be familiar to nursing and medical staff in departments outside of radiology.

The pain will usually commence whilst the patient is still in the Interventional Radiology room. Patients may on

occasions, however, experience relatively mild pain until after they have left the interventional room, and if pain is not anticipated, the patient can become quite distressed during, for example, transfer to a ward. Regaining control of pain in an agitated patient is more difficult than controlling the pain adequately to start with. Adequate pain relief in the post procedure period is also likely to be a key determinant in the patient's overall satisfaction, or otherwise, with the whole procedure.

A number of different pain management regimens have been described, most using narcotic analgesics and Non Steroidal Anti-Inflammatory Drugs (NSAIDs), usually in combination. Our practice is summarised in Table 1.

The patient is premedicated prior to UAE with 50 mg Diclofenac PR before the procedure. We then commence a patient controlled analgesia pump (PCA) containing 100 mg Morphine in 50 ml syringe driver which administers with each patient request a 1 mg bolus with a 5 min lockout, whilst the patient is still in the interventional theatre and prior to transfer to the recovery area. Use of IV Paracetamol (1 g infusion over 5–10 min) given at this time is useful in reducing the patient's requirement for narcotic analgesia. The dose will need to be reduced if the patient weighs less than 50 kg, and should not be repeated within the next 4 h.

If pain is not controlled then additional pain relief can be given with boluses of IV morphine, given in 2 mg aliquots, every 2–5 min, up to a maximum dose of 10 mg, either via the PCA, or by IV injection, whilst monitoring pulse, blood pressure and oxygen saturation.

Relief of nausea with IV antiemetics will usually be required. It is our practice to use Cyclizine 50 mg IV. Other anti-emetics including Ondansetron (4 mg IV) can also be used.

Patient usage of the PCA is usually highest during the first few hours, with the PCA usually being discontinued the following morning.

It is important to maintain the patient on regular NSAIDs and Paracetamol for the next 5–7 days with these being tapered off after 5 days. It is important for both the ward nursing staff and patient to understand that these should be maintained on a regular basis for this time, rather than on an "as required" or "PRN" basis, so as to minimise the effects of the embolisation process.

Where the patient still finds pain control to be suboptimal once the PCA is discontinued, addition of Codeine phosphate on an "as required" (PRN) basis will usually be sufficient.

Dyspepsia and peptic ulceration secondary to NSAID use can be minimised by the addition of a short course of a proton pump inhibitor (PPI) such as Omeprazole 20 mg daily, or an H2 receptor antagonist such as Ranitidine 300 mg twice daily.

Table 1 UAE pain management schedule

	Drug	Dose	Route	Frequency
Pre procedure	Diclofenac	50 mg	PR	Stat
In X-ray room	Paracetamol	1 g	IVI	Stat (at time of second side embolisation)
	Fentanyl	25–50 mcg loading dose	IV	Loading dose followed by aliquots of 25 mcg titrated against response
Post procedure	Morphine	1 mg	IV via PCA	Bolus on patient demand, with 5 min lockout
	Morphine	2 mg	IV bolus	In addition, in recovery staff can deliver bolus of 2 mg repeated up to 10 mg total, titrated against response.
	Ibuprofen	400–600 mg	Oral	TDS for 5 days
	Paracetamol	1 g	IV/oral	QDS (max dose 4 g in 24 h) for 7 days
	Cyclizine	50 mg	IV	4–6 hrly PRN
	Codeine	30 mg	Oral	4–6 hrly PRN
	Omeprazole	20 mg	Oral	Daily

2.4 In Hospital Complications

In-hospital complications are uncommon with an incidence of 2–3 % compared to post surgery of 15.6 %, with major complications after UAE of 0.7–1 % (Edwards et al. 2007, O’Grady et al. 2009, Worthington-Kirsch et al. 2005). In hospital complications that do occur include contrast reaction or other drug reaction, groin haematoma, urinary tract infection or retention, DVT and pulmonary emboli. None of these require any modification of the usual treatment of these conditions.

2.5 Post Embolisation Syndrome

Lassitude, low-grade fever and nausea with loss of appetite are key features of post embolisation syndrome. The patient, and nursing staff should be advised that this is an expected part of the normal post procedure course. The severity of these symptoms might be expected to relate to the volume of tissue embolised, with patients with very bulky fibroids experiencing more debilitating symptoms than patients with small fibroid load, but published data does not support this (Worthington-Kirsch et al. 2005). It is important that patients and clinicians do realise that this is a normal part of the course following the embolisation of any solid organ, and they should be re-assured that symptoms are usually self-limiting, commonly within 1–2 weeks. The differentiation of the normal post-embolisation events from complications such as developing infection can however be a difficult clinical problem. Measurement of markers of infection such as C-reactive protein (CRP) and white cell count (WCC) is required, but these are also elevated as part of the inflammatory response post-embolisation, and so are

often of limited use in differentiating infection from post-embolisation syndrome, especially early post UAE.

3 Discharge

3.1 Medication

Patients are discharged with a tapering course of paracetamol and NSAIDs. GI tract protection in the form of PPI inhibitor, or H2 receptor antagonists may be added to cover the course of NSAIDs. Some patients will require additional pain relief on discharge; codeine is commonly used. Tramadol can also be helpful. Use of opiate analgesics can result in constipation, and simple laxatives may also be required.

3.2 Return to Activity

Patients should be warned that they will usually take between 1 and 2 weeks to return to full normal activity post procedure. We have not found it necessary to place any restrictions on general activity, other than that of warning patients to expect to feel generally rather tired for about the first 2 weeks. We have found it necessary to stress this point especially to patients who have no prior experience of surgery or significant illness. There is a subgroup of patients who perceive that because they are not undergoing surgery they will be able to return promptly to all normal activity; if not forewarned such patients may feel that either there is a serious problem or may feel dissatisfied with the whole procedure.

We do advise patients to avoid pregnancy for 6 months post embolisation. Contraceptive advice may be required. As

we have not instrumented the cervix we do not advise patients to abstain from sexual intercourse, but some practitioners may prefer to advise patients to abstain for 6 weeks.

Patients should be given clear instructions as to any symptoms after discharge that should cause concern and that might require medical attention. These include pyrexia $>38^{\circ}\text{C}$, rigours, offensive vaginal discharge and increasing pain despite adequate pain relief.

3.3 Written Instructions

Women desiring UAE will often need to travel some distance to a centre offering this treatment. If they experience problems after discharge they will however often seek advice locally. Experience of dealing with women after UAE may therefore be limited both amongst primary care physicians (GPs), Accident and Emergency (A&E) staff and gynaecologists outside of these centres. We have found it useful to give patients written instruction for them to keep with them, at the time of discharge, in addition to the usually post-discharge clinical letters. These instructions sheets give details of the name and date of procedure, worrying features which should prompt a return to hospital/hospital admission, plus contact details for the Interventional Radiologist and the Gynaecology teams at our centre.

In addition, all patients are given daytime contact details for the Interventional Radiologist performing the procedure, and are encouraged to ring for advice at any time after discharge.

4 After Discharge

4.1 Follow-Up

Women on discharge are given a follow-up appointment between 4 and 6 weeks later and it is our practice for this to be at an Interventional Radiology clinic. Many other centres will follow-up women in a Gynaecology clinic. Where a joint Radiology/Gynaecology clinic exists, this is the ideal situation, but is one that is often difficult to achieve, especially if both services are not physically located on the same site. It is vital that, when follow-up is not via the gynaecology clinic, an identified gynaecologist is involved in the ongoing care of patients in case any complications requiring gynaecological input arise. The referring gynaecologist should as a minimum be included in all discharge and post discharge follow-up letters. Whatever follow-up arrangement is established, the responsible clinician must be clearly identified to both the patient and their primary care physician.

A number of patients will have concerns after discharge which can be dealt with by telephone consultation outside

of outpatient clinic review. It is our practice to give patients contact details for the interventional radiologist, and they are actively encouraged to phone about any concerns they may have.

There are, however, a number of complications, after discharge which can present within the first 4–6 weeks requiring either prompt outpatient review or re-admission. In contrast to surgery, the majority of early complications after UAE occur post discharge, whereas after surgery most early complications will occur before discharge (Edwards et al. 2007; Spies et al. 2002).

4.2 Post Discharge Complications

The incidence of post discharge major adverse events is higher than after surgery but is overall low, with an incidence of 4.8 % within 30 days being described (Worthington-Kirsch et al. 2005). The commonest post discharge events are ongoing pain, passage of a necrotic fibroid and infections including pyometra.

4.2.1 Pain Control

Reported rates of readmission for pain control after UAE in the literature of up to 4 % have been described (Worthington-Kirsch et al. 2005). In our experience the need is significantly less than this. The use of newer less aggressive embolisation techniques plus admission of patients post procedure for 24 h with a robust pain management regime as outlined above, means that re-admission for pain control is unusual. This may be more likely if patients are discharged the same day, as a number of patients may have significant pain a day or two after the procedure.

4.2.2 Infection

Whilst post embolisation syndrome is common, it is important in the post procedure period to differentiate it from infection, whenever a patient presents with symptoms that could be due to infection. Very rarely serious infection can lead to fatal sepsis. (Vashisht et al. 1999). The use of prophylactic antibiotics at the time of embolisation has been shown to reduce the likelihood of infective complications post UAE (Hirst et al. 2008; O'Grady et al. 2009).

All our patients are given instructions to seek prompt medical advice in the event of increasing pain, a raised temperature $>38^{\circ}\text{C}$, rigours and/or feeling ill. Many such patients will merely have an extreme of the post embolisation syndrome or a less serious infection that settles with antibiotic therapy but all patients require admission with careful close observation. Investigations should include a septic screen (blood cultures, vaginal swabs, midstream urine analysis plus full blood count). Consideration should be given to early imaging. Magnetic Resonance (MR) scans

may give useful information relating to perfusion of the uterus and fibroids, and help exclude pelvic fluid collections but imaging may be confusing. Gas is a common finding on imaging certainly within the first week or so after embolisation of fibroids (and following embolisation of solid organs elsewhere in the body). The finding of gas does not therefore in itself indicate infection. The decision to proceed to urgent hysterectomy remains largely a clinical one, to be made by an experienced gynaecologist.

4.2.3 Passage of Fibroid

Following UAE necrotic fibroids, typically those in a sub-mucosal position, may be sloughed. Often, small pieces of fibroids will be passed mixed with menstrual flow, unnoticed by the patient. Passage of a whole necrotic fibroid may be prefaced by a vaginal discharge which may smell unpleasant, but the patient remains clinically well. Passage of whole fibroid is often accompanied by cramping low abdominal pain, but occasionally is unheralded. A partially sloughed fibroid may be incompletely expelled. If this is obstructing the cervix, a pyometra can develop.

Surgical intervention in the form of assisted passage or surgical division and transvaginal resection will be additionally required in cases of incomplete expulsion.

In some cases the patient may be troubled by persistent discharge, often described as “chicken soup” consistency whilst the necrotic fibroid is sloughed. High vaginal swabs (HVS) should be taken to exclude active infection. Any associated infection should be treated with the relevant antibiotic; commonly Metronidazole and/or a Cephalosporin are prescribed. There may be no associated infection, and if the patient remains clinically well this discharge will usually eventually settle, although it may take several months to do so.

Passage of necrotic fibroids may occur with 4–6 weeks of embolisation but can be late. Within 30 days of embolisation the rate of sloughing of fibroids has been reported at 5.2 %, and that of chronic PV discharge at 12.6 % (Worthington-Kirsch et al. 2005).

4.3 Bleeding

In our experience variable patterns of per vaginal (PV) blood loss may occur post procedure. Whilst patients often retain their usual menstrual cycle post procedure it is not

uncommon for patients to experience transient disturbance in their cycle, with for them, unusual patterns of blood loss or amenorrhoea. Provided the patient remains well with no evidence of sepsis or systemic upset, then patients can be reassured that in most cases their cycle will settle without specific treatment. In some cases, treating successfully the menorrhagia associated with fibroids may unmask an irregular cycle, which if persistent may require gynaecological assessment and treatment. Amenorrhoea may become permanent, particularly if the patient is aged over 45 years (Goodwin et al. 2008).

4.4 Contraception

Whilst there is no specific guidance relating to attempting pregnancy after embolisation, it is our practice in common with other groups (Pron et al. 2005) to advise patients to avoid pregnancy for 6 months post embolisation. Appropriate contraceptive advice may be required.

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