

SPEAKER:

And then, with regards to the procedures, I think sometimes the best way to talk about them is to think about different cases and talk about the treatment options. So Kristine is a 35-year-old who presents with six month history of heavy bleeding. Her periods have been regular but have lasted nine days with bleeding and clots. And that's a lot of times that we'll hear from patients is they're using a tampon and a pad and still leaking or they can't go to work because they have an accident on their pants. Or they'll wake up in the middle of the night and need to change their sheets because they're having so much bleeding. So that can sometimes happen with some patients. And so like this patient, she's still having accidents on the first two days of her period.

So if we look at her imaging, you can see there's a fibroid right in the center here. This is where the cervix is, this is the body of the uterus. So the fibroid is sitting right in the middle part pushing up against the endometrium. Sometimes it's hard to tell if it's actually pushing into the endometrium or it's just kind of abutting it because that is important when we're thinking about procedures. And so we can sometimes do what's called a saline sonogram.

We put a small catheter into the cervix. Actually, the radiologists do this. They inject a little bit of fluid and it allows us to kind of elucidate and see exactly how much is indenting the cavity. So if you would think of this as the endometrium that we looked at from before, this is the fluid that's inside and you can see this fibroid is pushing into the cavity. This is an MRI image. So MRI images can also give you an idea of how much it's pushing into the endometrium. This type of weighted image, you can see the endometrium is white and then you can see this fibroid here.

So a great procedure for this is a hysteroscopic myomectomy. There are no scars for this procedure. It's a camera that enters into the cervix, into the uterus from the vagina, we identify the fibroid. And so you can see here is the fibroid, this is the uterine cavity. And so usually if there isn't a fibroid or a polyp or anything, it would be just clear. But you see the fibroid right here. And then there are different techniques to remove the fibroid. Electrosurgical, electromechanical. Whichever procedure it is, it'll take it out in smaller fragments. Sometimes it has suction to it so it will suck in the fragments, or they'll come out otherwise through the cervix. So this is an electrosurgical one, this one is mechanical. It has a blade that rotates.

And post-operatively, these patients go home the same day. The procedure itself is pretty

quick. I usually tell patients they'll be in the operating room for about an hour but the procedure itself is probably 10, 20 minutes. Most women go home the same day. They have a little bit of cramping. Usually they can go back to work either the next day or the day after, so it's a very quick recovery. This does not help with bulk symptoms, however. This really approaches just the submucosal fibroids.

The second case is Rebecca. She's a 40-year-old who presents with increasing abdominal girth over the past five years. She notes urinary frequency without dysuria. Sometimes if they have dysuria, you want to think about urinary tract infections, too. And she also reports constipation. She's had two babies and a tubal ligation, so she doesn't desire future fertility, and she has a 16 week size uterus. We measure uteri based on pregnancy size, so 16 weeks is based on what we would expect for a 16 week pregnancy, and she strongly desires a minimally invasive approach.

This part we'll talk about is the two interventional radiology approaches, MRI focused ultrasound and uterine artery embolization. We have great colleagues in the interventional radiology section that do these procedures but we go over both of them. The first is MRI focused ultrasound, which is a procedure where the patient lies on an MRI machine. You can see they're lying on top. There's fluid here and then high frequency ultrasound energy is used to shrink the fibroid. Depending on how big the fibroid is, how many fibroids there are, is how long the procedure takes. But it can often be, say, four hours that they're in the MRI.

So they usually receive moderate sedation. They shave the area, put in a Foley catheter, and sometimes a rectal tube, and I'll show you why, as well as compression stockings. So here you can see, there's the-- oops. There's the fibroid that's right here. This is where the bladder is. So it's emptied, it's nice and small, but because the bladder's small and the fibroid sitting here, these are the intestines that are sitting in the way. So what they'll do is fill up the bladder with fluid and that just helps to clear and push the intestines up out of the way. Because the high frequency ultrasound is heat and so they want to clear out that space as much as possible before they're doing that procedure.

Here's another example of the fibroid here. There's the bowel sitting here. And then they fill up the rectum with fluid. And so you can see kind of how the rectum gets filled up and it pushes the uterus forward for the treatment. We're looking at the picture this way but the patient would actually be lying down on the machine. So what the high frequency ultrasound does is it sonicates. So it takes small little spots and heats them up and you can see it heats it up to 70

to 80 degrees Celsius. There's a cooling period in between and it's more of almost a step-by-step dot, dot, dot, dot to heat up or sonicate the fibroid. So given that, there are some limitations or some expectations for the ideal patient for this.

So patients who do not desire future fertility. There's not a lot of evidence. There have been women that have gotten pregnant in the future, we just don't have a lot of evidence. So generally we do not recommend it for anyone who's thinking about getting pregnant the future. One to four fibroids because it is a sonication so there's a limit to how long they can do this on occasion. Non-pedunculated because there is a risk that if it's on a pedicle, like I showed you in one of those pictures before, it can fall off after it's treated into the abdomen or it can even expel outside of the vagina. And that they don't have any scars or clips in the sonication area. And no prior UAE no IUD.

So this is a very effective procedure. Many patients have an improvement of their symptoms. Both the UAE and MRI-focused ultrasound, the fibroid shrink but they don't get rid of them. So they shrink about 30-50%. A lot of patients that's enough to give them relief from their bulk symptoms. For some patients, it's not, but they have great improvement in their symptoms. And with all uterine-sparing procedures, there's always a risk of recurrence or incomplete resolution of symptoms where they might need a different procedure.

UAE is another interventional-- oh, yeah.

AUDIENCE: [INAUDIBLE]

SPEAKER: Mhm.

AUDIENCE: [INAUDIBLE]

SPEAKER: Mhm. It basically--

AUDIENCE: [INAUDIBLE]

SPEAKER: No, it basically dies off. The sonications kill the fibroid and then the fibroid shrinks down. It just gets resorbed. So it's still present. And in these images of the UAE, I'll show you the post-UAE images, they're very similar. Both of them basically kill the fibroid and so you'll see there are still myomas in there, fibroids in there, they're just smaller. But that's why we worry about if they shrink and they're on a stalk and they fall off, they fall off into the abdomen. So uterine artery embolization is a minimally invasive procedure. They place a small catheter into the

thigh, identify where the fibroid blood supply is, and then insert small beads to cut off the blood supply.

So the catheters enter into the femoral artery, they advance it, they do angiography to identify the blood flow, and then they insert these little beads that go directly to the fibroid to cut off the blood supply. Some people say it's kind of like giving the fibroid a little heart attack because it loses its blood supply. It kind of dies off and shrinks. So here you can see the angiogram. This is the catheter in place looking at the blood flow to the fibroid using dye.

You can see here's the fibroid in the middle and you can see it's very different. Fibroids have a very atypical blood supply, very unpredictable. In surgery, some of them have just a couple of blood supplies, some of them have like a spiderweb nest of a blood supply, and it just depends on how they grow. And so you can see there there's the blood supply to the fibroid and then in this next picture, you can see how those vessels are gone. So this is post-UAE treatment.

And then this goes to your question. If you look at the baseline pictures, here are the fibroids. This is three months post-uterine artery embolization, so it takes some time for them to shrink down. But once they shrink down they basically stay the same size. So here is three months, one year, three years. For many patients that have bulk symptoms, this much shrinkage of the fibroids can make a big difference. But it just depends on the patient. We always talk to the patients to see what is ideal for them. Again, UAE is very efficacious. It often will help to get rid of the symptoms. There is always a risk of need for another procedure or re-operation.

The difference between UAE and MRI-focused ultrasound. Patients will often ask which one's better? Which one should I do? MRI-focused ultrasound has a very quick recovery rate. Most people can go back to work usually within the next couple days after it. The problem is that right now it's not covered by insurance very often in California. It's a state-wide thing so some states there's better coverage, other states there's not.

Patients have appealed for it but it is hard currently at this very moment for the MRI-focused ultrasound to be covered. It's probably most likely because it's a newer procedure. It's been around since, oh, I don't know. I think before 2012 and maybe earlier than that. But it's much earlier than UAE. UAE's been around for a long time. Most insurances will cover a UAE. For UAEs, most patients will stay in the hospital sometimes overnight and recovery is usually about a week and they can return to most of their normal activities.

Acessa, or Laparoscopic Radiofrequency Ablation, is another procedure. It's a laparoscopic

procedure. There is a laparoscopic ultrasound used to identify the fibroids and then the prong is placed into the fibroid and basically does something similar. It'll heat up the fibroid and help it to shrink. Again, this does not get rid of the fibroids. It just helps them to shrink down. We don't recommend any of these procedures that we've talked about if you're thinking about getting pregnant in the future but they're all available. And then unfortunately, radiofrequency ablation also has that same issue with insurance, so it's being very sporadically covered in California. Some insurances will cover it but the bulk of insurance companies don't. This also has a very good symptom relief and a low rate of surgical reintervention.

So the next patient is Renee. She's a 32-year-old who presents because she felt a lump when she was lying in bed. She's also noted more urinary frequency and she recently got married, and desires children in the next year. So this would be a great candidate for a myomectomy. So removal of the fibroids, leaving the uterus in place. Depending on the size, the number, and the location of the fibroids influences what procedure we would recommend.

We talked a little bit about hysteroscopic myomectomy already. Laparoscopic or robotic assisted myomectomy is using smaller ports to identify the fibroid and remove it. Most women will go home either the same day or the next day after a laparoscopic myomectomy and then the recovery is about one to three weeks just depending on the patient. Depending on the location and the number influences sometimes whether we can do it laparoscopically. If it's a very big uterus with lots of fibroids, we can't necessarily get the cameras in to be able to see the fibroid and perform the procedures. But it really just depends on the location of them.

An abdominal myomectomy is making a small incision and usually what we'll do is make a c-section type of incision. And it just depends on the size of the fibroids. It can be as small as 4 centimeters, it could be 8 centimeters, it could be larger than that. If the fibroids are very large and go close to the rib cage, sometimes we'll have to make a vertical incision to do the myomectomy. But an abdominal myomectomy is a pretty wide range, so the recovery is different depending on how big the incision is. Women will stay in the hospital for sure overnight, somewhere between one to three nights usually, and then recovery is a little bit longer than a laparoscopic procedure. So depending on the patient and depending on the recovery, it might be two to four weeks. It could even be two to six weeks. But I'd say it's slightly longer than a laparoscopic myomectomy.

These are just images of a laparoscopic myomectomy. There's an incision made over the uterus. Here's the fibroid that's identified and removed, the area where the fibroid was

removed is sutured closed, and then the fibroid's placed in a bag, laparoscopically, a sterile bag, and then we take it out through one of the smaller incisions in small pieces using a knife.

Abdominal myomectomies are ideal, especially when there are many, many fibroids and so you can see even these little tiny fibroids, they're about the size of a little pearl. This is the result of removing all the fibroids from an abdominal myomectomy. Fibroids are almost always benign. Less than 1% are not benign, it's less than 1 in 350, and that's more common in postmenopausal women than in premenopausal women.

So myomectomy patients have a great improvement in their symptoms. There is no difference in recurrence rate between laparoscopic and abdominal myomectomies. The laparoscopic myomectomies, kind of what we talked about, the recovery is quicker, usually less blood loss associated with a laparoscopic myomectomy. But oftentimes the surgery takes a little bit longer because it's a matter of removing the fibroid and then removing it through the smaller ports.

The last case is Tanya. She presents with a known history of fibroids for several years and over the last five months she's had increasing pain and heavy periods. She feels pressure in her lower abdomen and dull pain. She doesn't desire future childbearing and does not want to worry about this issue in the future. So this patient is a perfect candidate for a definitive therapy, which would be a hysterectomy.

A hysterectomy is always an option and it can be performed either vaginally, so no incisions on the abdomen but removing the uterus through the vagina, laparoscopically, or robotically with a smaller incision. Or sometimes open like an abdominal myomectomy, with either a horizontal incision like a c-section incision, or a vertical incision, just depending on the amount of fibroids and the anatomy. The recovery rate for those procedures are pretty similar to myomectomy procedures, as well.

So the great thing about hysterectomy, it's definitive. The fibroids are not coming back. Once you remove them, they're gone. The patients that decide to have a hysterectomy tend to have a very high satisfaction rate. And I think that the other thing that's important to know for patients is that a hysterectomy means removal of the uterus. It does not mean removal of the ovaries. So when we think about a hysterectomy, this is the cervix here, so if you kind of envision-- this is the top of the vagina is where the cervix is.

So when you have a pap smear, the pap smear is performed here. So there's supracervical hysterectomies or total, so leaving the cervix in place or not, removal of the fallopian tubes or not, so salpingectomy, and then-- I don't think that's an ovary, but plus or minus removal of the ovaries. In general, we do not remove ovaries for most hysterectomy. But we can in certain situations if someone strongly desires it if they have cysts or abnormalities on their ovaries. But the ovaries are the ones that produce the hormones prior to menopause and so women often worry about going into menopause immediately after hysterectomy but it's really the ovaries are the key. This is a specimen from an open--

AUDIENCE: [INAUDIBLE]

SPEAKER: Yeah, exactly. And it depends, you know. Based on the size of it, I think now both of these procedures could actually be done laparoscopically. And then it would just take the time of taking the uterus out. That's the part that is what ends up extending the time in surgery because if we take out a uterus that's this large laparoscopically, it just takes time to remove it from a small incision. Yes.

AUDIENCE: [INAUDIBLE]

SPEAKER: Yes, that's a great question. So some women decide to have a supracervical hysterectomy leaving the cervix in place. The benefits of leaving the cervix in place-- they used to think that improved sexual function and they used to think it helped with the ligaments for pelvic support. The studies now don't actually show that that's true but it was shown in previous studies. Some women, if they feel strongly that they have orgasm or sexual pleasure from their cervix, sometimes will elect to keep their cervix in place. And then the risks of leaving your cervix in place is that if you've had abnormal pap smears, especially CIN 2/3 where you've needed a procedure for an abnormal pap smear, I generally recommend that you remove the cervix just to prevent any recurrence

If all the pap smears have been normal and the patient hasn't had CIN 2/3, then they don't have to have pap smears after they have their cervix removed. If they've had a history then we do continue to screen. And then there's about a, different studies will say different things, about a 5% risk of having bleeding after the hysterectomy. It's usually very small amount of bleeding but there is a little bit of tissue that can be here, that's endometrial tissue, so sometimes patients will have a little bit of spotting.

For some patients, they might say I definitely want to keep my cervix and I know all of those

risks but I would prefer to keep it in place. And I think that's very reasonable. And then other women will say, I don't need it. I will say that I've had just a couple, very rarely, patients who've had a fibroid that recurred in the cervix and ended up needing an additional procedure because of bleeding. But that is extremely uncommon. Unfortunately, we've seen it. So that's the other issue that we will think about. Same thing with the tubes.

There is some theoretical evidence that probably the removal of the fallopian tubes will decrease the risk of ovarian cancer. There are some thoughts that ovarian cancer may start in the fallopian tubes. And so generally, we recommend removal the fallopian tubes with almost all hysterectomies because of that known or potential improvement to reduce ovarian cancer. And they don't have any hormones. They're not otherwise doing anything if we'd left them in place. You can see here these are the fallopian tubes right here this one it's harder to tell because there's so many fibroids.

Overall, in conclusion, when we think about fibroids, the first part is to really think about whether they're having symptoms or not. If patients aren't having any symptoms then I generally reassure them we can keep an eye on it but there's not anything that we would recommend doing at that time. If they're having symptoms, then we talk about the medical and surgical options like we talked about. Hormones or non-hormonal treatments.

If they're leaning more towards a procedure, the things that are really important is whether they desire future fertility and whether they desire uterine preservation. So depending on what each individual patient needs would be what procedure would be most appropriate. And then we review the UAE, uterine artery embolization, MRI-focused ultrasound, myomectomy, hysteroscopic myomectomy, laparoscopic myomectomy, abdominal myomectomy versus hysterectomy.