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Ultrasound in the Evaluation of Abnormal Vaginal Bleeding

### RADIOGRAPHIC APPROACH TO VAGINAL BLEEDING.

You are listening to ReachMD XM 160, The Channel for Medical Professionals. Welcome to Advances in Medical Imaging, a program discussing the latest innovation in clinical radiology and imaging technologies. Your host is Dr. Beverly Hashimoto, Ultrasound Section Head of Virginia Mason Medical Center in Seattle, Washington. Abnormal vaginal bleeding in one of the most common clinical problems experienced by women what should we do to avoid missing serious malignancy with me today is Dr. Dawna Kramer. Today we are discussing a radiographic approach to vaginal bleeding. Dr. Kramer is former Deputy Chief of the Department of Radiology of Virginia Mason Medical Center in Seattle, Washington. She is currently the radiology quality assurance officer and Section Head of the Radiology Department patient access area. She has about 20 years of clinical and research experience in gynecologic imaging. Because of her administrative role Dr. Kramer has a unique perspective. She has not only able to discuss the academically correct method of identifying gynecologic abnormalities, but she is also able to discuss the practical cost effective aspect of detecting these lesions.

#### DR. BEVERLY HASHIMOTO:

Thank you Dr. Kramer for being with us today.

#### DR. DAWNA KRAMER:

My pleasure.

#### DR. BEVERLY HASHIMOTO:

Dr. Kramer what are the most common diagnostic techniques used for the workup of vaginal bleeding?

#### DR. DAWNA KRAMER:

Well from the imager's perspective, which is where I come from though I spend a couple of years as a in the trenches gynecology clinic worker to so I have a little of that perspective as well, but mostly we use endovaginal ultrasound. We are looking at thickness of the endometrium. A thicker endometrium is in general abnormal. We started out using this imaging technique primary in postmenopausal

women, but now we have evolved to using it more in premenopausal women as well, but that is definitely the main stage for evaluating patients with abnormal bleeding. Pelvic MRI is used in patients who have a proven anatomic abnormality or in problem solving, but we start off with pelvic ultrasound.

**DR. BEVERLY HASHIMOTO:**

For vaginal bleeding what sonographic findings cause you to worry about malignancy?

**DR. DAWNA KRAMER:**

Well in postmenopausal patients; remember endometrial cancer is primarily a disease of postmenopausal women. Age is the primary risk factor for endometrial cancer. In those patients we are looking mostly at just the thickness of an endometrium, 1 year after you had your last period your endometrium should be 5 mm or less and so once that endometrium gets thicker than that there is an increase risk of endometrial cancer with every degree of thickening of the endometrium. In premenopausal woman it is way more difficult because that endometrium is cycling every month so you expect it to get thicker just before menstruation and thinner afterwards, so establishing what is normal appearance is a little more difficult.

**DR. BEVERLY HASHIMOTO:**

Now when do you do an endometrial biopsy instead of an ultrasound?

**DR. DAWNA KRAMER:**

Well that depends on where you are coming from. If you have a patient in your office and you are a gynecologist and they are presenting with postmenopausal bleeding usually you perform an endometrial biopsy right then, endometrial biopsy is not perfect for detecting endometrial carcinoma and it has a very high rate of being non diagnostic both just because of insufficient sampling and because the patient has an atrophic endometrium, which is difficult to sample very well. If you were an internist and you have a postmenopausal patient with abnormal bleeding and you do not perform endometrial biopsy then you might send them to have an endovaginal ultrasound. If the endometrium is thin and normal in appearance measures less than 5 mm then the chance that they have endometrial cancer is extremely small and you can probably treat them with the presumption that they have endometrial atrophy and then if you did the endometrial biopsy that is insufficient sample then you may send them for endovaginal ultrasound with the same idea. If they have an endometrium less than 5 mm then the reason you did not get an adequate samples again probably because patient has an atrophic endometrium, but it is most efficient to have the fewest stops for the patient and get the most information you can so it is a little bit depends on when you are coming from what is the best approach.

**DR. BEVERLY HASHIMOTO:**

Now you presented some work about the most cost effective methods when you retrospectively reviewed a large number of cases what were your findings with respect to ultrasound versus endometrial biopsies?

**DR. DAWNA KRAMER:**

Well as I remember the most cost effective way is in postmenopausal patients and this used to include a lot of patients who were on hormone replacement therapy, who were having abnormal bleeding as a consequence of their hormone replacement, we do not see that quite as much anymore, so most of the women we see with postmenopausal bleeding do not have that added complicating feature of being on hormone replacement regimen, but in general if you do an endometrial ultrasound the endometrium is 5 mm or less then you can stop. If the patient is high risk and the main risk factors for endometrial cancer are age and obesity are the 2 main ones.

So if you have a 75-year-old obese woman it is probably best to start with endometrial biopsy because the likelihood that you will have an endometrium that is a little thicker than 5 mm is a little greater in that population and you want the best test there is to prove that there is no endometrial cancer, but again in premenopausal women it is way more complicated because then we are also introducing the complication of an ovulatory cycles and other things that can cause abnormal bleeding it is much more straightforward in postmenopausal patients. In those patients you probably best to start off with endovaginal ultrasound.

**DR. BEVERLY HASHIMOTO:**

**Well that is very interesting. For those of you who are just joining us you are listening to Advances in Medical Imaging on ReachMD, The Channel for Medical Professionals. I am Dr. Beverly Hashimoto and I am speaking with Dr. Dawna Kramer. We are discussing the radiographic approach to vaginal bleeding.**

So when a woman has already had an endometrial biopsy, is there is any need to have a pelvic ultrasound?

**DR. DAWNA KRAMER:**

An endometrial biopsy is fairly sensitive for detecting endometrial carcinoma. However, as I said they are frequently non-diagnostic, so if you about 30% of the time doing endometrial biopsy and the pathologist will tell you that this tissue you have is insufficient to adequately evaluate the endometrium. In those patients if you go on to do an endovaginal ultrasound and you find that endometrium is thicker than 5 mm, there may be reason to go further to take the patient to the operating room for true D&C, to do hysteroscopy, endometrial biopsy will frequently miss endometrial polyps, which are usually benign, but the diagnosis of an endometrial polyp depends on the pathologist visualizing the fibrovascular cord in the center of the polyp and so if you just scrape some endometrial tissue off the surface of a polyp you would not be aware that there is a polyp in there that maybe responsible for the bleeding. So if you have a non-diagnostic endometrial biopsy, it is often worth it to do an endovaginal ultrasound to help decide again is this atrophy or is it inadequate sampling of the endometrium for some other reason.

**DR. BEVERLY HASHIMOTO:**

Now what is a hysterosonogram? How does that differ from the regular pelvic ultrasound and when is it useful?

**DR. DAWNA KRAMER:**

A hysterosonogram allows you to really visualize the surface of the endometrium. Normally when we do an endovaginal ultrasound the 2 surfaces in the endometrium inside the uterus are in opposition, so just see 1 stripe that is really both surfaces of the endometrium together. Sometimes you can see a line in the middle and tell that there are 2 halves to that endometrium that are approximately equal. A hysterosonogram is an endovaginal ultrasound that is performed after introducing a small catheter through the cervix into the endometrial cavity and instilling small amount of saline to separate those endometrial surfaces so you can actually see the surface detail of the endometrium. You can see a fiber protruding into the endometrial cavity so it is excellent for evaluating the relationships of fibroids to the endometrium and helping to determine whether hysteroscopic resection of a fibroid might be possible. It is also very good

diagnosing endometrial polyps because once these polyps are surrounded with fluids you see them like a stalactite from the endometrial surface and they are much more easily identified than they are in just a regular endovaginal ultrasound.

**DR. BEVERLY HASHIMOTO:**

So who would order a hystosonogram?

**DR. DAWNA KRAMER:**

Well often many places a hystosonogram can be ordered as part of the ultrasound evaluation. You can say if the endometrium is thickened then I would like to have a hystosonogram to look at the surface. The problem with that is that often if you have someone who is very experienced in doing a regular endovaginal ultrasound they can identify a probable endometrial polyp with a fairly high degree of certainty and if you find that then probably the most cost efficient thing to do is to go on to a hysteroscopy, visualize the polyp and remove it at the same time. The disadvantage of the hystosonogram is that we can visualize the abnormality, but it really does not have any therapeutic value. So in a postmenopausal patient with a thickened endometrium who has not yet had an endometrial sampling, there is probably not a great deal of value to a hystosonogram and the added difficulty there is you really want to avoid doing hysterosonography in patients who have endometrial carcinoma because one of the main ways in which they stage patients at surgery who have endometrial cancer is by doing peritoneal washings to determine if there is endometrial cells have reached the peritoneal cavity and if your flushing cells retrograde through the tubes with hystosonogram you can actually push those cells out into the peritoneal cavity resulting in positive peritoneal washings in somebody who really probably does not have seeding of the peritoneal cavity.

**DR. BEVERLY HASHIMOTO:**

Now when a woman is bleeding because obviously that is the reason they are seeing you is there is any problem with doing a transvaginal ultrasound?

**DR. DAWNA KRAMER:**

A transvaginal ultrasound there is no problem. Transvaginal ultrasound hysterosonography then becomes a little more difficult anytime you are instilling fluid in the endometrium, you want to be sure number one that the patient isn't pregnant. So we would like to have those times so that they are early in the cycle when you expect the endometrium to be thin and so that we will avoid that very small chance that the patient is actually pregnant at the time of hystosonogram.

**DR. BEVERLY HASHIMOTO:**

Is color Doppler useful in cases of vaginal bleeding?

**DR. DAWNA KRAMER:**

Color Doppler ultrasound is actually quite useful in a thickened endometrium. As I said most endometrial polyps have a fibrovascular core and a vascular part of that fibrovascular is a vessel that you can visualize, normally the vessels in the endometrium are really not detectable with color Doppler, but in endometrial polyps you can often see a very linear vessel that comes from the myometrium into the endometrium and right into the stalk of that polyp. So if you have focal endometrial thickening or even generalized thick endometrium,

sometimes color Doppler can really help convince you that there is a polyps living in there.

**DR. BEVERLY HASHIMOTO:**

Thank you Dr. Kramer.

I am Dr. Beverly Hashimoto. Be sure to visit our web site at [www.reachmd.com](http://www.reachmd.com) now featuring pod cast of this, another featured series.

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