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SUMMARY: Sarena and Kavya discuss 5 vignettes on third trimester bleeding with Sam Kempner, MD.

TIMESTAMPS:

00:34 **Dr. Sam Kempner Biography**

03:35: **Case 1: A 37 year old G1P0 at 39w3d presents to triage with painless vaginal bleeding**

06:35: **Case 2: A 34 year old G3P2 at 32w1d presents to triage with painless vaginal bleeding.**

10:30: **Case 3: A 28 year old G1P0 at 36w2d who smoked throughout pregnancy presents with vaginal bleeding and intense abdominal pain**

12:45: **Case 4: A 34 year old G3P2 at 37 weeks gestation presents 1 hour after a loss of fluids.**

15:30: **Case 5: A 37 year old G4P3 at 38w1d with a history of 3 prior C-section presents to triage in active labor and desires a vaginal delivery**

21:20: **Wrap-up**

LINKS:

Dr. Sam Kempner Bio

ACOG Early Pregnancy Loss Practice Bulletin

Hendriks, E., MacNaughton, H., & MacKenzie, M. C. (2019). First trimester bleeding: evaluation and management. American family physician, 99(3), 166-174.

Dugas, C., & Slane, V. H. (2021). Miscarriage. In StatPearls. StatPearls Publishing.

Dogra V, Paspulati RM, Bhatt S. First trimester bleeding evaluation. Ultrasound Q. 2005 Jun;21(2):69-85; quiz 149-50, 153-4. PMID: 15905817.

ACOG Bleeding During Pregnancy FAQ

ACR Appropriateness Criteria Second and Third Trimester Bleeding

UpToDate: Overview of the etiology and evaluation of vaginal bleeding in pregnancy

TRANSCRIPT:

Sarena: Welcome to our episode on third trimester uterine bleeding! If you haven't tuned into our episodes on first or second trimester uterine bleeding, we highly recommend that you start there! Returning for this episode is Dr. Kempner.

Dr. Kempner is an Assistant Professor of Obstetrics and Gynecology at the University of Michigan.

She received her medical degree from the University of Michigan and completed her residency training at Duke University Medical Center, and joined Michigan Medicine faculty in 2012 as part of the Women's Health Division. At Michigan Medicine, Dr. Kempner has been recognized for her outstanding teaching contributions to both the medical school and the OB/GYN residency training program.

Her clinical interests include family planning, obstetrics, and minimally invasive gynecologic procedures. She is passionate about providing health services to patients on an equal basis, regardless of sexual orientation, gender identity, marital status, and other non-medically relevant factors. In her free time, she enjoys both running for exercise and running after her two young daughters.

On a personal note, Dr. Kempner is one of my faculty career advisors so it is very exciting to have her here with us today! Thanks for being here with us!

Dr. Kempner: Thanks for having me back!

Kavya: Dr. Kempner, here's another non-clinical question for you. Third trimester bleeding, in addition to a lot of other things in ObGyn can be really emotionally difficult to manage. What are some of the things you do or think about to combat burn out in your career?

Dr. Kempner: That's a great question. Honestly, I found that teaching medical students and being exposed to the wonder of my job reminds me reminds me what a privilege it is to do what we do and taking time for family and doing the things that you love to do. For me, it's running and spending time with my family really is helpful after a hard shift. And knowing that there's always more happy than unhappy in this field that's a great field of medicine to be in.

Sarena: It's a helpful reminder to see the different kind of balance that you see as a provider and as a student trying to learn how to you know manage difficult emotional states that you see with your patients. I also found that talking to your residents and your attendings, providers that are there and have been doing this for a while…they're really helpful resources for students to be able to explore how they're feeling about these occurrences and get some validation and feedback from these people who are familiar with the same experience.

Dr. Kempner: Definitely, coworkers are a huge source of support. They really understand when you don't have to get the whole background and explain everything that happened and you can

just say what happened and get a little support from it it's really helpful. So be friends with your coworkers!

Sarena: Kavya and I might be biased but we kind of think that the ObGyn field people are perhaps the best co-workers to be around so at least maybe that's why we're pursuing it.

Kavya: We very much agree!

Sarena: A 37 year old G1P0 at 39w3d presents to triage with painless vaginal bleeding. She reports that two hours ago she noticed thick, bloody discharge with lots of mucus in her underwear. The patient reports that her pregnancy has been complicated by gDM, which has been controlled via diet. She denies any abdominal pain and endorses good fetal movements. US shows a fundal placenta and fetus in vertex position. Fetal heart tracing is reassuring. Pelvic exam shows a moderate amount of thick blood in the vaginal vault, as well as mucous material. What is the best next step in treating this patient?

Kavya: So what I'm hearing is that we've got a term pregnancy with painless, thick, mucoid, vaginal bleeding and reassuring ultrasound, pelvic exam, and fetal heart tracing. Nobody is in pain, nobody is in distress. This honestly sounds like bloody show and expulsion of the cervical mucus plug, where the uterus is essentially ready to kick its tenant out because the lease is close to expiring!

Dr. Kempner: I love their description of the bloody show because I think before I went to medical school I heard the phrase mucus plug and sort of pictured this wine cork of mucus that just sort of dropped out into the toilet. And maybe I'm the only one but I just sort of pictured this blob, this one time blob that would come out–and that's definitely not what we see!

Sarena: You're definitely not the only one!

Dr. Kempner: Patients are pretty well counseled that this can happen in late labor and they usually feel some contractions or at least cramping at the time that can signal early labor. I think that the most important thing about bloody show is just to counsel people how common it is after a cervical check in the office. So if this patient had been seen in the office at 39 and 3, she probably would've requested a cervical check or maybe even a membrane sweep so that would've increased the chance that she would've had a bloody show. So I think just to counsel patients on what to expect. And that can really cut down on anxiety when they have the vaginal bleeding that they've been scared of all of pregnancy but has been normalized as they enter early labor.

Sarena: That's helpful context! I wonder in your experience how often do we really see bloody show in your patients?

Dr. Kempner: I think people notice it on their toilet paper quite a bit but in terms of the quantity that is enough to call triage, I don't know that many patients experience that in early labor. We

always kind of note it on our glove on a cervical check in early labor and sort of comment on it as sort of a good thing like “Oh the cervix is definitely softening, there’s a bit of blood on my glove.” I would say it’s a big plus minus if people experience it or not.

Sarena: A 34 year old G3P2 at 32w1d presents to triage with painless vaginal bleeding. Transvaginal ultrasound shows placental tissue extending over the internal cervical os. What is the largest risk factor for this condition?

Kavya: Anytime I hear placental tissue that extends over the internal cervical os, I know we’re talking about placenta previa. Placenta previa is often found on routine US between 16-20 weeks without any symptoms. Most placenta previas diagnosed on US before 20 weeks will spontaneously resolve before delivery. However, if the placenta previa persists in the second half of pregnancy, it commonly presents with painless vaginal bleeding. I can think of a few risk factors like a prior C section or multiple gestations or a prior previa, but I think that the largest is the prior C section just because you’re making an incision into the uterus so the placenta needs to find somewhere else to latch onto, like the bottom of the uterus right over the cervix..

Kempner: Yeah I love this question cuz it's kind of like the Shelf questions you’d expect to encounter where you start reading and you’re like, “Oh, painless vaginal bleeding–placenta previa is the answer!” but this is a second order question that assumes that you know we’re talking placenta previa and is now asking about the risk factors. And you’re entirely right, multiple gestations where you’ve got more placentas that need to find a home is likely to increase the risk for previa. Any prior uterine surgery, so patient’s that have had D&Cs are at risk in addition to prior C-sections. The most important thing to keep in mind is that a patient who has a placenta previa in one or more prior pregnancies–you must have a very high index of suspicion for a placenta accreta as it gets attached to that scar and is not able to move away from the cervix. Then of course you have a whole slew of other concerns if the placenta is abnormally adherent to the myometrium.

Sarena: Yeah, a combined placenta previa and accreta seems like a challenging situation indeed to navigate. Luckily, these are things that we can identify with our modern imaging techniques and kind of plan for the best treatment for that patient based off of the findings. So, hopefully we’ve had good prenatal care throughout the course of this pregnancy and have had this on our radar. Dr. Kempner, when you have a patient who comes in with a previa earlier in their pregnancy, what does that make you think about as a clinician moving forward?

Dr. Kempner: Like if it’s diagnosed at their fetal survey at like 20 weeks?

Sarena: Yeah, like if there’s a chance that it could move away from the cervical os by the time of delivery?

Dr. Kempner: Yeah so I often counsel them that if it’s overlying the os at the fetal survey that it will often move! It’s not that it actually migrates, it’s just that there’s more separation and more distance as the lower uterine segment exapnds. So I would counsel them that this does not

equal instant C-section for delivery, it just means that they absolutely need a follow up ultrasound, and I usually try and schedule that mid-third trimester, like 32 weeks. The majority of low-lying placentas will have moved so that they can safely proceed with vaginal delivery. So it's often just reassurance and education at that stage.

Sarena: A 28 year old G1P0 at 36w2d who smoked throughout pregnancy presents with vaginal bleeding and intense abdominal pain. Her uterus is tender and rigid on palpation, and fetal heart tracings (FHT) show recurrent decelerations. What is the patient most at risk for as a result of this condition?

Kavya: As an M2, the way that I distinguished between placenta previa like we saw in the last question and placental abruption was the presence of pain. Obviously, ultrasound can confirm a previa but without US findings, the presence of pain can be a key distinguisher. So with this patient who has painful bleeding, uterine rigidity and tenderness, and a nonreassuring FHT, I worry about placental abruption which is a type of antepartum hemorrhage where the placenta bleeds into the space between it and the uterine wall and sort of peels off of the uterine wall. When blood collects back there, the body will try to use all of its clotting factors to stop the bleeding, but then gets into a clotting factor deficit where you are both simultaneously hyper and hypocoagulable. And that, my friends, is disseminated intravascular coagulation, which is what this patient is at risk for!

Dr. Kempner: When you think about placental abruption you have to think about the risk factors for it. You have to have a high index of suspicion because labor is painful. So when patients come in in labor with abdominal pain you have to distinguish what is normal pain vs. placental abruption pain. The key thing is that pain from contractions should go away between contractions when the uterus relaxes. So when I hear about a patient that has intense abdominal pain that does not resolve between contractions or they have a rigid abdomen, then I consider a placental abruption. You worry about this in patients who have high blood pressure or preeclampsia or have certain other risk factors like polyhydramnios or smoking or cocaine use or a prior abruption.

Sarena: A 34 year old G3P2 at 37 weeks gestation presents 1 hour after a loss of fluids. She is found to be in labor and is admitted. There, she reports moderate vaginal bleeding. Fetal heart monitoring shows fetal tachycardia initially but suddenly demonstrates a sinusoidal pattern. The patient denies any abdominal pain. Her vitals are normal. US last week demonstrated posterior placenta and vertex fetus. What is the most likely diagnosis?

Kavya: Oof, a sinusoidal pattern immediately makes me worried about the fetus being hypoxic or severely anemic, so I'm going to think about what could cause that. Placenta previa obviously is concerning in active labor, but her placenta was on the uterine wall, not overlying the os at her appointment last week. Placental abruption might be another cause, but she doesn't have any abdominal pain, and her vitals are normal. All in all, the mother seems like she's doing fine, which makes me consider the fetal vasculature. Then, I start thinking about vasa previa, especially because the loss of fluids could've allowed the fetus's head to compress down on the

umbilical cord and cause vessel trauma to the parts of the umbilical vessels that aren't protected by cord or membranes.

Kempner: Ugh! Yeah, you're right to be scared of the sinusoidal pattern. That should be a Do-Not-Pass-Go, go to the OR for a C-section type, category 3 pattern. Very few things fall under the Category 3 Type tracing so quickly as a sinusoidal does. This is a fetal blood flow from the vasa previa, and a fetus can bleed out very quickly so it would be a true stat C-section delivery to try and save this fetus.

Sarena: I think that was something I didn't quite understand as a student until someone talked me through how we think about amount of blood and whether the blood was coming from the mother, who could seem stable with normal oxygenation and vitals but if it is a fetal bleeding, exsanguination can be very rapid which is why Dr. Kempner advocates for very quick intervention. Our next patient is a 37 year old G4P3 at 38w1d with a history of 3 prior C-section presents to triage in active labor and desires a vaginal delivery. Fetal station is 0. She has a sudden onset of intense abdominal pain, and fetal heart tracing shows bradycardia. Repeat pelvic exam shows fetal station of -2. What is the most likely diagnosis?

Kavya: I've gotta say, I'm not sure attempting a TOLAC or Trial of Labor after C-Section would be recommended in a patient with 3 prior C-sections! That seems like the biggest risk factor for what this patient is currently experiencing, which I think is uterine rupture. Other risk factors include previous uterine rupture, and prior classical, vertical incision of the uterus. In addition to having numerous prior C/sections, signs of rupture in this case include fetal heart tracing abnormalities like bradycardia, vaginal bleeding, and the sudden or acutely worsening abdominal pain, and the loss of fetal station as the fetus moves back up into the uterus. You can also see HDUS but luckily we don't see that here!

Dr. Kempner: Yeah–we don't see it here yet, but I would be concerned about it developing. I completely agree, I would not recommend a TOLAC with 3 prior C-sections. We will offer TOLAC to a select few patients after 2 sections, but the recommendation that after the second one to proceed with C-section. If this patient tried to labor vaginally, this is a pretty classic presentation of a uterine rupture.

Kavya: How would you manage this patient going forward?

Dr. Kempner: At this moment, I would recommend an urgent trip to the OR and C-section. Once a patient has a uterine rupture, I would counsel her that future pregnancies would be at a very increased risk of another rupture and if she decided to have future pregnancies would actually recommend that her next delivery be via C-section and around 36-37 weeks because even early labor contractions can cause thinning of the myometrium and rupture again. I would also recommend a good inter-pregnancy interval to allow for healing.

Kavya: That makes sense! Dr. Kempner, do you remember what it was like for you the first time you had to evaluate or treat a patient who presented with vaginal bleeding in their third

trimester? How did you feel navigating that as a trainee? I have to imagine there was some sort of adrenaline rush or sort of call into action.
Dr. Kempner: I think that the thing to keep in mind is that we see a lot more blood The other fields. I think other than like my time on the trauma service rotation as a medical student, nobody sees the amount of blood loss that we see. It can be shocking the amount of blood that a pregnant woman can lose but I think that I was always worried that I would somehow cause the bleeding, like an undiagnosed previa and doing a cervix check was never going to happen on my watch as a resident, that's for sure! I was insistent upon seeing the ultrasound report myself that indicated no low lying placenta because I was determined to never put my fingers in a patient with an undetermined placenta location. The most common type of heavy vaginal bleeding we would see in my training was due to a placental abruption and often times those patients had other things that made them very ill like pre-eclampsia with severe features. I felt very supported by upper level residents when I was first called to see these things and learned a lot from them about the basics of IV access, calling the anesthesiologist, typing and crossing, and getting very comfortable doing an emergent C-section.

Kavya: And that just goes to show why it's so important to be nice to your co-workers and make friends! To your point earlier, Sarena, you mentioned the fact that in our day and age we have ultrasounds and are able to diagnose previa and abruptions beforehand. It is so surprising the advances we have been able to make with maternal mortality and morbidity with these very simple and noninvasive diagnostic studies which is so valuable and important.

Dr. Kempner: And not taking any of that for granted–like if a patient presents with no prenatal care, remembering everything that would've been done and not skipping any steps in caring for them. So if someone comes in with third trimester bleeding and had not been able to obtain care, perform that ultrasound yourself so you know what's going on!

Sarena: And in a test setting, seeing a patient who did not have prior prenatal care means you should broaden your differential since things that you might assume have been ruled out in a prior stage of pregnancy may not have been evaluated and that it is your responsibility as their provider to consider it as a cause of their presentation.

Closing:

Sarena: Dr. Kempner, having your insights as a clinician is so valuable for those of us learning about how to approach OBGYN patient scenarios. Thank you so much for taking the time to join us for this episode!

Dr. Kempner: This was so fun, thank you for having me. I hope you have me back for a more lighthearted episode next time; these were some heavy topics.

Sarena: We'll be sure to have you back!

Kavya: To our listeners, thanks for tuning into this episode on uterine bleeding during pregnancy. Subscribe to Ultrasounds wherever you get your podcasts for more high-yield topic reviews! You can also follow us on instagram or twitter @obgyn_delivered, or find more topic review outlines and free question banks at our website, www.obgyndelivered.com.

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