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Nine Pints: A Journey Through the Money, Medicine, & Mysteries of Blood

Dr. Russell:

Blood is vital to our lives, but how much do we really know about it? Welcome to ReachMD *Book Club*. I'm your host, Dr. John Russell. I'm joined today by author Rose George, who's the author of a book, "Nine Pints." So, Rose, welcome to the show.

Ms. George:

Thank you very much.

Dr. Russell:

So in the book, you do a chapter on leaches, which I thought was really, really cool. I think most people who are not in medicine think leaches are something that kind of goes with bloodletting and the middle ages, but not necessarily true, correct?

Ms. George:

Correct. I'm so pleased you brought up the leaches 'cause (laughter) as much as I don't really like having a leach on me, yes, I think leaches are so fascinating because, as you say outside medicine, people just think they're barbaric. I was astonished to find out that leaches are still used in very precise and impressive microsurgeries though as you will know as a medical man, they are very useful still because of their natural anticoagulant, so if you have a reattached part of your body or maybe, for example, your lip or your ear where there's lots of very, very tiny capillaries to reattach and if that's not working and the blood's not flowing, even today, one of the things that will be prescribed, as a last resort, is leaches and they work.

Dr. Russell:

So you write a very, kind of poetic, beautiful tribute to Dame Janet Vaughan, who I'm embarrassed I did not know who she was. Can you tell us who she was?

Ms. George:

You shouldn't be embarrassed because, criminally, many people don't know who she was. She has played such a crucial role in setting up the modern system of blood donation. She was a hematologist, and she was working in the 1930s and that was a very hard time to be in medicine for a woman; there was spectacular sexism. When she was working on a hospital ward, she wasn't allowed to communicate with patients; she had to convey it to a male official who would pass on a letter and she was forced to eat with the secretaries who were all female. But she didn't let that phase her, she was an extraordinary woman and when it came to the run-up to the second world war, Janet Vaughan looked at this and she thought, "OK. We're gonna have a war. We're gonna need blood," 'specially as people were expecting London to be airily bombed pretty immediately. So, in late 1938, when talk of war was very intense and acute, Janet Vaughan looks into how much blood was available for all the ensuing trauma that would inevitably happen after this terrible bombing and she found that there were 8 pints of blood in all of London in a maternity ward, and she thought this was wrong and so she gathered her peers together and they sat in her blue inspiry living room, debating things like, OK, what kind of vessels would they need? What kind of bottle? How wide did the neck have to be? They ended up with a kind of modified milk bottle and then they wondered how would they transport this blood and this was a new thing for a long time, blood transfusion. You had to have the person giving the blood right next to the person receiving the blood. So this was a really new thing. And so Janet Vaughan and her peers decided that they could use converted ice-cream vans carrying a load of milk bottles and that eventually became what happened during the war and Janet Vaughan ran one of the blood depots, and there were 4 blood depots in the war and she had a team of volunteer drivers, including an 80-year-old aristocratic woman who wore pearls and really all these drivers had amazing bravery because they were all women and they all had to drive around streets where there were no street lights, where they were being bombed and they were transporting this blood all over the place and, yet, Janet Vaughan's role in this is still remarkably unsung.

Dr. Russell:

Probably amazing how many lives she saved in Britain in a very unheralded way.

Ms. George:

Exactly.

Dr. Russell:

Talking about the components of blood, when I was in medical school, I had some classmates who regularly sold plasma. And you think what could be more honorable than these nice, healthy, young medical students selling some plasma to have some money for books and things like that, but the true story of plasma sales is not so sunny correct?

Ms. George:

So, there are plenty of folk who think it's fine to sell bodily fluids, such as those college students, but there are plenty of other people and that includes me who think it's ethically problematic and also practically problematic to pay someone for a bodily fluid because what happens then is that you encourage people to donate more than is wise and in the U.S., you can donate plasma really frequently, and yet, there hasn't been any really good long-term research on what giving plasma every couple of weeks does to the body, and so there are all sorts of objections to this and the World Health Organization doesn't condone the selling of blood and I think the reason that the U.S. plasma industry is absolutely huge because there's been this verbal, linguistic separation. I think if we called plasma, "blood plasma," then perhaps people would think twice about selling it because we don't think it's right to sell blood. It's a pretty strong social taboo, even in the U.S. where it's not actually illegal to sell blood. But, for example in the U.K., it's considered anathema to sell blood and it's all about giving a gift. But plasma, somehow has become segregated from this and it's OK to sell plasma.

Dr. Russell:

If you're just tuning in, you're listening to ReachMD *Book Club*. I'm your host, Dr. John Russell. I'm talking with author Rose George about her book, "Nine Pints." So worldwide, a lot of the things that happen about menstrual health in underdeveloped parts of the world, I think, are pretty shocking to those of us who aren't privy to that. Could you expand upon that, 'cause I, found that to be really fascinating.

Ms. George:

Yes. This is actually why I ended up writing a book about blood because I don't have any medical training, but what I wanted to explore was what I had learned about menstruation and how it's treated around the world. It was being reported that girls were dropping out of school because there were no toilets in school and it tended to be when they reached puberty because they couldn't deal with having their periods as well as having no toilets. And I remember going to a small village in Liberia once and visiting this really fancy school that had been built by a local non-profit and it was really nice, but they hadn't installed any toilets and I spoke to the class of young people and this young woman put her hand up and she said, "Look, I'm currently wearing like 3 pairs of panties, 2 pairs of pants and that's 'cause I've got my period and it's just too far for me to go home and there are no toilets." It really makes me furious that girls and women are having to put up with this. And the most acute example of the poor treatment of women just because they were menstruating was when I went to Nepal with WaterAid and in western Nepal, there is this very unpleasant tradition called "chhaupadi", which entails anyone who has their period is immediately thrown out the house, not allowed to set foot in the house and has to go and sleep in an unheated shed. And I've seen these sheds and honestly some of them are worse than the cow accommodation next door. And it's just a horrible system and luckily, it's now been getting a lot of attention and hopefully it won't survive.

Dr. Russell:

And then you introduced a very interesting character that coined the moniker, "The Menstrual Man." Could you tell a little bit about his story?

Ms. George:

He was a relatively uneducated machinist from south India. And he had an arranged marriage, which was normal, but kind of a love match, I think in the end, but one day his wife came home from the market and she was hiding something behind her back, and he wanted to see what it was and she eventually, revealed that it was her dirtied menstrual cloth. So, around the world, women use scraps of cloth for their sanitary protection, which is fine, if you can wash them and dry them in the sun and openly, but the trouble is that as Maruga's wife made it clear, the taboo is so intense that women are forced to wash and dry them in secret, you know, under beds or hidden or and so these cloths don't dry very easily and Maruga had no idea about this and he said, "Well, why don't you just buy some at the market?", and she said, "Because we can't afford milk and sanitary pads and we need milk." And from that, Maruga had went through a twelve-year experience of trying to invent a low-cost sanitary pad that could be made by anyone and he did this in a quite idiosyncratic way. So, he thought that the only way he could get an understanding of what it was like to be a woman and on your period was to pretend he was a woman on his period, so he, he created this uterus out of a football, he filled it with goat blood, he attached a kind of cord onto it, or a kind of pump thing and he would ride around on his bicycle and every so often pump this thing which was

attached to his rudimentary sanitary pad that he'd created that he was also wearing. So he did this and eventually over the years he figured out how to make these low-cost sanitary pads out of cellulose and he now has about 5,000 machines which are very easily operated so you don't need electricity in remote areas and anyone can use them.

Dr. Russell:

And when he helped spread this technology, it really wasn't about, him being the richest man in India, it was actually trying to pass kindnesses on, which I think was really amazing. What do you think is some of the future going forward for blood and blood-related things?

Ms. George:

I mean, I couldn't possibly predict. Blood is still such a mysterious thing and I think we're just constantly learning. And one thing people often talk about is synthetic blood and I think we've made great strides in creating synthetic blood and we can create red blood cells but it's very expensive to make synthetic blood and at the moment, it's as cost-effective as people donating their own blood, which, although we think is really ordinary and normal, it's actually an astonishing thing to do, isn't it; to give away our body tissue to an absolute stranger who you'll never meet. But I also think with the COVID-19 pandemic, we know now that it's got a damaging impact on blood so we're learning more about blood and viruses and I can't predict what's going to come next, but I know that whoever lives in 50 years, they're gonna look back at us and think, "We didn't know very much." Just as we look back to 100 years ago or 200 years ago and we see medical men transfusing people with dog's blood and cow's blood and we think that they're primitive and a bit silly but they were doing what they could with the knowledge they had and I'd really actually like to be around in 50 years to see what I think will be massive advances in what we understand about blood.

Dr. Russell:

I too hope I'm here 50 years from now and you and I can get together and look back on this discussion, so, Rose, a great, great book and I don't think you have to be in the medical biz to really enjoy this 'cause I think on so many different levels, it is so fascinating. So, thank you for being on the show today.

Ms. George:

Thank you, John, it was pleasure.

Dr. Russell:

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