**Episode 6: Contraception – Part 1**

By Dr. Joe Chappelle

Hello everyone, and welcome back to the OB/GYN Podcast. Today, we are going to embark on a new topic. And I’m not sure how many episodes it’s going to be, because in my last series about PID, I thought that was going to be one episode and we ended up with three. So, I think maybe three or four, but I make no promises. This first episode will be an introduction, and it’ll be a little bit different than the others in that there’s no medical research on display here. Instead, we will be discussing our topic through the lens of social science. I think that this is going to be a very important first step in our understanding, and I hope you come away with a different viewpoint on this very important topic.

So, what is today’s topic? Well, it is one that is very near and dear to my heart: contraception. Now, my love affair with contraception began in my first week of medical school. I was given a mentor who would profoundly affect my way of thinking about contraception, and along the way, put me down the path to become an Ob/Gyn. Her name was Dr. Gwen Gentile and she has made it her mission in life to help women obtain access to contraception. She believed that giving women control over their fertility was a necessary first step in empowering women. Another way she once put it to me was that it was her mission to prevent abortions. Not that she was pro-life, but rather she felt that if every woman had access to easy, affordable contraception, there would be no more need for abortions. Her passion and dedication affected the lives of thousands of women and also had a profound effect on those of us fortunate enough to train with her.

With this series on contraception, I will do my best to honor that passion and hopefully do her proud. As an aside, she has a very high bar for success, so I really have my work cut out for me. In this episode, I want to map the course of contraception throughout history as well as discuss the broader social and economic impacts of our choices to promote or restrict access to contraception.

As I noted a few episodes ago, my bias will come into play from time to time, and so I want to be clear today. I have a very clear bias towards supporting access to contraception, and today’s episode should be interpreted through that lens. So, without further preamble, let’s get started with Episode 6: Contraception – Part 1.

The idea of contraception is as old as mankind. The ability for a woman to control her fertility is a powerful tool. In fact, in the earliest days of human history, poorly timed conception could be a matter of life and death. The oldest forms of contraception are pregnancy itself, breastfeeding and nutrition. By studying modern day hunter-gatherer tribes, we can get an idea of what life was like in ancient human prehistory. From studying these remaining groups, it’s estimated that women in these tribes breastfeed for about three or four years after birth, which is a pretty effective form of birth control.

If a woman lived through her pregnancies, she would have about four to six pregnancies in her lifetime, which given the roughly 50% perinatal mortality rate, meant that most women had two to three children that would survive to reproduce themselves. This low birth rate was advantageous in these communities because food was almost always scarce. Lactation was not the only limiting factor to fertility, however. In a manner of speaking, people are made of food, and the effect of poor nutrition on fertility has been well-documented. In today’s world, we see this in female endurance athletes who can go months without ovulating during peak training periods.

This association between access to food and ovulation makes sense from an evolutionary viewpoint, because if there is not enough food to support population expansion, it is advantageous to limit the number of births, And, as we became a more agricultural society our access to food increased. This allowed women to supplement their infants’ diet and breastfeed less. The decrease in lactation and increase in food availability led to increased fertility rates, and the need to prevent unwanted pregnancy likely increased as well.

The first written records of contraception come from Egypt in about 1500 B.C.E. and then carried through Greek, Roman, Chinese, South American, South East Asian and European history. What I find fascinating about these records is that every type of contraception we have today, except maybe hormonal, was invented in ancient history. I mean, sure we have refined it, but we’re essentially doing the same thing the Egyptians did 3,500 years ago. Ancient contraception can be broken down into several categories: withdrawal, rhythm, obstructive devices like diaphragms, intrauterine devices and barrier devices like condoms.

Let’s start with the obstructive forms, because this was one of the Egyptians’ favorite methods. These methods attempt to block the migration of sperm into the upper genital tract, thereby preventing fertilization. Many different methods have been used throughout history to achieve this, but the Egyptians recorded a recipe that had included a base of crocodile dung mixed with honey or acacia leaves and naturally occurring sodium carbonate. The mixture was firm at room temperature but would melt at body temperature. It was placed on the cervix, and as it melted, it would form a gooey obstacle to sperm.

Now, you may be thinking to yourself that using dung is disgusting, but two things about that. First, is that agricultural societies have a close relationship with animal dung, as it was used for fertilizer and burned for heat and were definitely less repulsed by it that modern day urbanites. Second is that animal dung is usually quite alkaline, which has the added benefit of immobilizing sperm. This method was improved upon throughout history, and by the time of the Greek doctor Soranus in the 2nd century C.E. it was commonplace. He recommended in his book on gynecology, “to smear the orifice of the uterus all over before intercourse with old olive oil or honey or cedar resin or juice of the balsam tree, alone or together with white lead.” Or he continued, “to put a lock of fine wool into the orifice of the uterus.”

The method of placing objects into the cervix itself to block sperm has been used in cultures all over the world. African women used plugs of grass or cloth in the cervix, while Japanese prostitutes used bamboo tissue paper. Women in the Islamic and Greek world used wool and Slavic women linen. The most advanced were the Jewish women, who lived along the Mediterranean. They used a sea sponge wrapped in silk to block the cervix. It even had a string attached to it that would make it easy to pull out. The sponge used by the Jewish women is essentially still in use today, and we’ll talk more about its modern equivalent in a future episode.

Speaking of Jewish people, they were also the first to record the withdrawal method, or coitus interruptus. It is mentioned in the book of Genesis when Onan “spills his seed on the ground to avoid impregnating his brother’s wife.” Unfortunately for him, he is then promptly struck dead by God. Although, for what exact cause is left up to interpretation. If it was punishment for, as we would call it today, pulling out, then it would herald the attitude or most organized religions toward contraception, all the way up to modern times. In fact, both Judaism and Catholicism considered it a “vice against nature,” which of course did not stop people from trying to prevent pregnancy, and according to one source, it was the most common form of contraception, even up until the 1920s and ‘30s.

The withdrawal method has gotten a bad rep since the dawn of modern contraceptives because of its relatively poor effectiveness. However, it can be up to 96% effective when done correctly, and was free, safe and did not require any special knowledge. And once I tell you about some of the other ones that didn’t require special knowledge, it starts not to sound that bad.

The Greeks thought about contraception a lot and it is to them that we turn for the next two forms. I think it’s important to note, as kind of a sidebar when talking about history, that when I say the Greeks discovered something, it really just means they wrote it down and that it survived till today. They easily could have been passing down lore from other cultures. But that being said, the Greeks were definitely ahead of their peers when it came to medicine.

First, I want to bring in Hippocrates to our story. He wrote several volumes concerning contraception and abortion. He was against abortion in most cases but was a firm advocate for contraception. I won’t get into most of what he wrote because our next Greek expanded greatly on his work and we’ll delve into it more in a second. But he seems to be the first person to suggest that putting small objects inside the uterus may prevent conception. This is a technique that obviously has great merit given how popular IUDs are today. In this case Hippocrates was just too far ahead of his time. The lack of proper instruments and sterility would have made this procedure very dangerous, and it is unknown how commonly it was actually performed. Hippocrates was not the only one to think about it, and there’s a commonly told story about how Arabic caravan traders placed stones in the uteruses of their camels to prevent pregnancy on their long treks. This is an old story and many historians doubt the veracity of it. But it any case, the idea was certainly not new when a German gynecologist “invented” the IUD in 1920.

The rhythm method was also suggested by a Greek. Again, we go back to Soranus of Ephesus, in his manuscript entitled *Gynecology*. At this century, a Latin translation survives, and in it he echoes Hippocrates. He writes, “it is much more advantageous not to conceive than to destroy the embryo. One must consequently beware of having sexual intercourse at those periods which we said were suitable for contraception.” Unfortunately for the women who listened to him, he thought that women ovulated when they were menstruating, and so these women were probably having intercourse exactly when they shouldn’t. He also had some other ideas on how to prevent conception, including “during the sexual act, at the critical moment of coitus, when the man is about to discharge his seed, the woman must hold her breath and draw herself away a little, so that the seed may not be hurled too deep into the cavity of the uterus.” He continues, “in getting up immediately and squatting down, she should induce sneezing and carefully wipe the vagina all around. She might even drink something cold.” Obviously, none of these other methods worked well, and I said earlier, maybe the withdrawal method is starting to look a little better.

Lastly, barrier methods were probably used in some form throughout history. But the first record of it is from the 1500s in Europe, when animal intestines and bladders were used. These were relatively expensive, I guess, because these early condoms were washed and reused many times, which is… gross. Those who listened to my episodes on PID should realize that the timing of condom introduction into history is not accidental. The mid-1500s is when venereal diseases started rearing their ugly head in Europe, and it makes sense that people would try to find a way to protect themselves.

We cannot conclude a discussion of ancient contraception without talking about termination. If pregnancy could not be prevented, then only two options of dealing with an unwanted child were available: termination and infanticide. Neither of these is something that is new to the modern world, and both of them are still practiced throughout the world today. Women have even been discovered in prehistoric sites with small bone stylets inside their remains, indicating an attempt at mechanical termination. Mechanical termination has always been associated with horrific mortality rates, even up to modern times. And one of the points I want to make here is that people will always find a way of preventing undesired pregnancy, and when we restrict access to contraception and abortion, all we do is push things into the shadows with all too predictable consequences.

The Greeks knew how dangerous mechanical abortion was and they warned against it. Again, this is from Soranus: “Beware of separating the embryo by means of something sharp-edged, for danger arises as some of the adjacent parts may be wounded.” The Greeks also had a better way with the use of a now extinct plant, asplenon. This plant had many medicinal uses and was described by plenty as “to promote menstrual discharge,” which most historians think really meant that it was a naturally occurring abortive substance. This plant may be related to the worm fern, as it has been shown to cause abortions in modern studies on rats. Of interest, this plant can also be used to kill tapeworms, hence the name worm fern,

The Greeks, however, also recommended other less effective methods. They recommended bleeding the woman after several days of baths and vaginal suppositories. And Hippocrates himself wrote, “a pregnant woman bled miscarries.” If that didn’t work, they also recommended several different vaginal or oral mixtures to bring on a miscarriage. These included things like rue, myrtle and bay leaves as well as tree resin, mold, wallflower seeds, cardamom, absinthe and others. There have been many different kinds of herbs and other things that have been recommended over the years by countless cultures. However, none of them have held up to modern trials. And some of them were just as likely to kill the mother too. And again, the Greeks acknowledged this by explicitly stating that when choosing a vaginal abortive, to beware of anything too pungent, as it is likely to cause ulcers and other problems.

I don’t want to spend too much time on infanticide, because it falls outside the topic today. But I do want to emphasize that it occurred and still occurs much more commonly than those of us in the western world appreciate. Again, it is a predictable outcome when there’s no access to contraception or safe abortion.

Moving up through history into the Middle Ages, the practice of contraception and abortion were explicitly forbidden in the Christian world. This is, however, not to state that it wasn’t utilized. A common theme throughout history is that regardless of the culture or governmental regulations around fertility control, women will seek out ways of preventing undesired pregnancies. Therefore, it is believed that women routinely used contraception and abortion throughout the Christian world, perhaps even with the explicit understanding of local priests. In fact, there was a saying that can be found in many texts from the era that states roughly, “if not chastely, then at least cautiously.” This can be and has been taken to mean many things, but at least one is that the church knew that people are going to act like people. And if you are going to have “non-sanctified intercourse,” the least you could do was try to prevent a pregnancy.

Additional ammunition for this interpretation comes from a book by Peter of Spain in the 13th century, who many scholars believed went on to become John the 21st. In his books, he catalogued a number of contraceptive and abortive plants. This information was likely gotten from the Islamic world, which at this time was light years ahead of the Christian colleagues when it came to medicine. The Muslims did not condone contraception or abortion, but also understood that it was sometimes necessary, and were apparently well versed in its many methods.

Moving over to Asia, in China they had knowledge of many of the same plants and herbs used in the western culture, and they also practiced coitus interruptus as well as a method of blocking semen from the urethra, and instead directing it into the bladder. This was performed by pressing between the anus and the scrotum, which obstructs the vas deferens. To conclude this portion on the history of contraceptives it seems that all cultures developed similar ideas regarding techniques of contraception and abortion. And although the righteousness of these methods has waxed and waned over the course of human history, the fact remains that they’re an intricate part of society.

It is to the societal effects of pregnancy and contraception that I want to spend the remaining time on today. Humans are similar to other large animals in that we spend an enormous amount of resources to procreate, and therefore, it behooves us to plan each pregnancy well. It takes a lot of nutrients and time to both carry a fetus and to nurture that child until the point that it can be relatively independent. This pressure on the evolutionary process is what probably led to the contraceptive effects of breastfeeding. This natural limit to our fertility gave us a time to care for our children and to reaccumulate the nutrients needed for the next pregnancy.

As I touched on earlier, as we became a more agricultural society, with greater access to food, both the need for prolonged breastfeeding declined along with the ability to reaccumulate nutrients faster. This allowed women to have many more pregnancies than in the preagricultural epoch of human history. Given the aforementioned perinatal mortality rate, the increased rate of pregnancies was important in increasing the population of these agricultural societies. These surplus people could then be used for crafts and armies, allowing each society to increase its influence through trade and war.

This was great when food was abundant, but when food was scarce, having more mouths to feed was detrimental. This push and pull between fertility and contraception underscores much of human history. In the ancient world, surplus people allowed the domination of much of the Mediterranean by the Greeks and Romans, and similar stories can be told in China and India. When rich agricultural societies had the resources to have lots of children, over generations, this led to ability to dominate one’s neighbors. In this type of world, better access to nutrition meant more children per woman.

Interestingly, at the top of these societies, the birth rate may have declined despite having the most access to food. This is certainly true in postindustrial Europe, where infant mortality rates dropped due to better hygiene and nutrition. Suddenly, long life had more status than many children. Gradually, though, the positive effects of increased hygiene and relatively improved nutrition trickled down to the lower socioeconomic classes, and that is where the real effects can be found.

Throughout human history, surplus population has been associated with increased war. The first great example of this is the medieval warm period, which was a climate anomaly that took place from 950 to 1250 C.E., in which the average temperature approached the temperatures caused by human climate change today. This led to increased agricultural output, and therefore, surplus population. As an interesting factoid, the population in England in 1300, at the tail end of this warm period, was approximately 6 to 7 million. At the end of this period was when the Black Plague swept through Europe and the population of England was decimated. Interestingly, England would not recover to its 13th century high-water mark for population until the industrial revolution 500 years later.

Europe during these warm years found itself with an excess population, for which it could not find employment, and it has been suggested that it’s no coincidence that these years were the most active years of the crusades. The first began in 1096 and began to sputter out early in the 13th century, coinciding with cooler weather. One of the Catholic church’s prime directives during this time was to push Muslims out of Europe and Jerusalem, so it is not surprising that they were against any contraception that would decrease population.

The next big war period would coincide with the industrial revolution. During this period, the increasing sophistication of agricultural tools meant less people had to work to feed many more people. This is a trend that has continued throughout the rest of human history, and so we should not be surprised now that from the Napoleonic era up through World War II was the bloodiest and fiercest fighting in human history. In the era after World War II, and as a reaction to two truly world wars in just 30 years, there was a concerted effort by the most powerful nations to limit the number and scope of armed conflicts in the world. This, combined with the agricultural and hygienic advances that have continued unabated, has fed even more to the unchecked population growth that we’ve experienced in the last 150 years.

In less developed parts of the world, like Africa and the Middle East, this food and medicine has decreased the perinatal mortality rate and resulted in longer lifespans. However, economic opportunities have not kept up, and this has led to a large number of unemployed young people, mostly men, which has fueled the armed conflicts in Africa and the enlarging Jihad movement in the Middle East. These societies need an outlet for their surplus population, and when fighting with our neighbors is not allowed anymore, other outlets will emerge. In many ways, controlling these issues is as much about fertility rates as it about anything else.

Please don’t think that I am endorsing mandated contraception or abortion, but rather, I believe that most couples would choose contraception if they knew that any future children they have are not going to be able to make a living. I believe this because in the industrialized west, in places like Korea and Japan, as the standard of living increased, the birthrates dropped. I might be optimistically naïve that the same would happen everywhere, but I don’t think so. This trend even follows through to today, where globalization and robotics have eliminated large number of traditional working-class jobs in industrialized nations, with the resulting surplus population and that subsequent unrest that we’ve experienced in the last decade. My only hope is that this time we will find a way to resolve our issues without the need to go to war to solve our population problem.

So far, we have spoken of the strictly high-level societal effects, but contraception affects almost everything. The ability to control fertility is essential to the ability of women to find an equal place in society. With contraception and timed fertility comes the ability to focus on education and employment. With that, comes economic independence, and from that, equality. The one-sided way in which humans procreate will always leave an unbalance, due to the woman bearing the brunt of gestation. But giving her the option to get pregnant if and when she chooses frees up half the population to contribute their fullest to society.

One of the ideas that always struck me was just how few people have had such profound effects on human history. People like Mozart, Confucius, Gandhi, Einstein, Newton and a small list of others. Where would we be if women had always been allowed equal footing? How many more names could we add to that list and where would we be now? These personal-level ramifications of access to birth control combine and aggregate to reshape societies.

Lastly, unchecked population growth does more than just cause ripples throughout our societies. It also puts a strain on our home as we try to support this ever-increasing number of humans. The damage to the environment, climate change and the effects on the other animals on our Earth is astounding. In a report out recently, it was estimated that ¾ of all species may become instinct if things continue the way they have been going. There are many causes, and therefore, at least an equal number of solutions to this problem, but one of them has to be controlling the rate of population growth. This doesn’t have to mean draconian measures. Simple access to effective, affordable contraception, along with education will decrease fertility rates without any other intervention.

In light of all these lessons from history and a warning about the future, we should be working to increase our access to contraception, not erecting barriers. And although this is a medical and not a political podcast, I feel that I must urge you all to help Dr. Gentile ensure that all women have the ability to control their own fertility.

I hope that today I was able to chart a line from the ancient world to today. Contraception has been with us since the dawn of human civilization and the concerns of prehistoric women regarding childbearing are not too different than modern women. The transformative effects of easy access to safe and effective contraception has profound effects at every levels of human society, from the individual woman who wants to delay childbirth until they have finished their education, up to nations dealing with unemployment and revolution. In the next few episodes, we will be going in depth into the various contraceptive options available to women today. But I don’t want us to lose sight of the big picture of just how important contraception is to the health of human societies.

Okay, well that’s all I have for today. I do hope that you will all join me for the next episode, in which we will review the menstrual cycle and the very smart people who figured out how to highjack it with hormonal contraception. I really want to thank all of you for listening, and if you have any suggestions for future topics, please email me at feedback@obgybn.fm. You can also send any comments, corrections or critiques to the same place. Podcasting can get a little lonely, just me talking into a microphone. So, please feel free to write in at any time. Those of you celebrating holidays in the coming weeks, whether it be Christmas, Hanukah, Kwanza or just maybe the Winter Solstice, I wish you happy holidays. And until next time, thanks again for listening.