authorities. Interestingly, rabbis have been discussing such a concept for centuries. The discussion of procreation without intercourse appears in fifth-century Talmudic passages detailing Ben Sira's birth. The midrashic legend is of the prophet Jeremiah, who went to the bathhouse where his semen entered the water. Following this, his daughter entered the same bath water and became pregnant by her father's sperm, resulting in the birth of Ben Sira, who was considered a halakhically legitimate child. While some authorities deny the legend of this conception, it has since been quoted many times in medical literature and rabbinical responses dealing with the issue of AID. Despite this, all Jewish legal experts agree that it is forbidden to use a Jewish donor in AID, while it is the severity of the prohibition that is questionable. Infertility is an ancient dilemma that has been recorded since biblical times. Medical literature relates to causes, treatments, and ways of dealing with the situation. Modern man and woman are not the first to deal with this trying experience; our matriarchs suffered, but persevered. No matter what the explanation for the cause of infertility or conception, the most fundamental idea to remember is that Hashem is always in control.

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N O T E S

Notes:

Circumcision is one of the oldest surgical procedures performed by man. The Talmud in tractate Yevamoth 64b relates the view of Rebbe (Rabbi Judah the Prince) who ruled that if a woman circumcised her eldest son and he died as a result of bleeding from the procedure and her second son died similarly, then she must not circumcise her third son.

The Talmud further relates that Rabbi Simeon son of Gamliel ruled that she may circumcise her third son and not her fourth. The two Rabbis differ only in the number of repetitive events required to establish a pattern and thus disallow circumcision of the subsequent child, not in the question of heredity transmission of the disease. The Talmud then continues in its discussion with a story about four sisters from Tzipori. The first three sisters each had a son who died from circumcision. The fourth then came before Rabbi Gamliel to ask if she needed to circumcise her son and he ruled that she should not circumcise him. By virtue of this ruling we can ascertain that the disease being discussed is maternally transmitted. Three sisters each with a son having a bleeding disorder, gives credence to the defective gene being carried on the X chromosome. Thus, the disease alluded to in this section of the Talmud most probably is an inherited bleeding disorder that is transmitted maternally.

Rabbi Isaac Alfass better known as the Rif, an eleventh-century scholar who was the first coalit of Jewish law, ruled that the law follows the opinion of Rabbi Judah (Alfass in tractate Yevamoth 64b). Moses Maimonides the famous twelfth-century physician and scholar, better known as the Rambam, ruled that if a woman has two children who die as a result of a circumcision, even if they were from different fathers, she may not circumcise her third son. That he specifically included the issue of different paternity for the two sons alludes to the fact that the Rambam believed the Talmud to be referring to a bleeding disorder that is maternally transmitted. Maimonides also discusses postponing the circumcision until the child is biologically fit (Mishnah Torah, Sefer Ahava, Laws of Circumcision 1:18). This would seem to indicate that he thought this disease to be curable or at least controllable. Rabbi Joseph Karo of the sixteenth century stated in his commentary on Maimonides, called the Kesef Mishneh, quoting the above cited Talmud, that the disease referred to by the Rambam is looser or weak blood that is genetically transmitted (Kesef Mishneh on Mishnah Torah, Sefer Ahava, Laws of Circumcision 1:18).

Still other commentators described this disease as paternally transmitted. Several sources, including Rabbi Karo, Rabbi Hayim Joseph David Azulay (Chiddah eighteenth century), and Rabbi Jacob Reischer (eighteenth century), discuss the possible transmission through the father and ruled that if a
mon has had two sons die, he should not circumcise the third son. Rosner has reviewed this in detail.1

The specific identity of the disease has not been positively identified. This paper will postulate that these cases refer to a single clinical entity, but rather to several different diseases each of which centers on a bleeding disorder.

Upon the simple reading of the Talmud it appears that the disease is hemophilia. Hemophilia is a group of hereditary bleeding disorders. There are several proteins, called clotting factors, that play a role in blood clotting. Hemophilia is caused by an absolute or relative deficiency of one or more of these clotting factors. There are two common forms of hemophilia, each one caused by a deficiency in a different clotting factor.2 The most common form, hemophilia A, is caused by a lack of clotting factor VIII and affects about 80% of all hemophiliacs.3 Hemophilia B is caused by a lack of clotting factor IX. Both forms cause prolonged bleeding. Minor injuries are not usually a problem however internal bleeding, bleeding into joints, significant lacerations, and surgery can all be life threatening. Hemophilia A and B are inherited diseases, transmitted as recessive X-linked traits, meaning that the defective gene is located on the X chromosome and are passed maternally. Since the genes are recessive, most hemophiliacs are male. Females who receive a defective gene are merely carriers and exhibit no symptoms of the disease.2 Barely, prefer- enential inactivation of one of the two X chromosomes in a female will lead to carriers having a low enough level of factor VIII or IX to experience abnormal bleeding. The severity of this disease differs case by case. Mild cases may go unnoticed until the patient undergoes surgery or trauma.4

While the Rambam clearly refers to a maternally inherited disease, he was of the opinion that the disease had the potential to be cured over time, to the extent that the child could safely undergo circumcision. He maintains that if the bleeding is a result of a bleeding disorder, it is not a sin to perform the circumcision. He supports this view with the fact that the Rambam does not direct the reader to delay the circumcision in cases of bleeding disorders.

Another possibility is Von Willenbrand's disease (VWD). VWD is a blood disease that can be inherited or acquired. It is caused by a failure of the blood platelets to properly stick together. This can lead to bleeding, especially in women after childbirth. The severity of the bleeding can vary from mild to severe. However, in most cases, VWD is not life-threatening and can be managed with medical treatments. The Rambam's statement in this case is that if there is a blood clotting disorder, it is not a sin to perform the circumcision.

The Rambam, ruled that if a woman has two children who die as a result of circumcision, even if they were from different fathers, she may not circumcise her third son.

Modern technology has advanced to the point of only rarely requiring the circumcision of a child with a bleeding disorder. The technology available today allows for circumcision to be performed safely and effectively in cases where it is necessary. The Rambam's rulings are no longer applicable in modern times, as medical advancements have made it possible for newborns with bleeding disorders to be managed effectively.

The Rambam's rulings on circumcision are based on the understanding of medical science available at the time. However, modern medicine has made significant advancements in the treatment and management of bleeding disorders. Therefore, it is important to consult with a pediatrician or medical professional to determine the best course of action for a newborn with a bleeding disorder.

In conclusion, while the Rambam's rulings on circumcision may have been appropriate in the past, modern advances in medical science have made it possible to perform circumcision safely and effectively in cases where it is necessary. It is important to consult with a medical professional to determine the best course of action for a newborn with a bleeding disorder.
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These clotting factors. There are two common forms of hemophilia, each one caused by a deficiency in a different clotting factor. The most common form, hemophilia A, is caused by a lack of clotting factor VIII and affects about 80% of all hemophiliacs. Hemophilia B is caused by a lack of clotting factor IX. Both forms cause prolonged bleeding. Minor injuries are not usually a problem, however, internal bleeding, bleeding into joints, significant lacerations, and surgery can all be life threatening. Hemophilia A and B are inherited diseases, transmitted as recessive X-linked traits, meaning that the defective gene is located on the X chromosome and are passed maternally. Since the genes are recessive, most hemophiliacs are male. Females who receive a defective gene are merely carriers and exhibit no symptoms of the disease. Rarely, preferential inactivation of one of the two X chromosomes in a female will lead to carriers having a low enough level of factor VIII or IX to experience abnormal bleeding. The severity of this disease varies case by case. Mild cases may go unnoticed until the patient undergoes surgery or trauma.

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Another possibility is Von Willebrand's disease (VWD). VWD is a family of conditions that cause the blood to clot in a way that is different from normal. The manifestations of VWD may be different even in siblings within the same family and may improve and deteriorate with time (related to other co-existing stresses). Therefore VWD may represent a bleeding disorder whose manifestations may at least temporarily improve. Hemophilia is inherited in a different way and is both paternal and maternally transmitted, while the Rambam clearly refers to a maternally inherited disease.

Finally, although a problem for the Kasef Mishnah, the Rambam may not be referring to a bleeding disorder at all. In fact the Rambam does not directly quote the Talmud where thinning of the blood is mentioned, rather he discusses a disease that causes "weakening of his strength" rather than thinning of his blood.

As mentioned previously, Rabbi Joseph Karo and the Chiddush apply the rule of not circumcising the third son to the case a bleeding disorder that is paternally transmitted. Paternal transmission is not the mode of transmission for the two types of hemophilia discussed thus far. However, a third form of hemophilia, hemophilia C, has recently been identified. Hemophilia C is a characterized by a deficiency in clotting factor XI. It is very rare, as it only affects about 2.3% of all hemophiliacs, and most importantly it is transmitted as an autosomal recessive gene. This means that both the mother and the father transmit the gene. Another interesting fact is that hemophilia C has a higher rate of occurrence amongst Ashkenazi Jews, as compared to the general population.

There are two different mutations that cause Factor XI deficiency, type A and type B. Type A is largely restricted to Ashkenazi Jews whereas type B is found both in Ashkenazi and Sephardic Jews (Iraqi). This indicates that at least the type B mutation appeared before the separation of these two communities.

It is interesting to note that the rabbinic authorities who discuss paternal transmission are both Ashkenazi (Rabbi Jacob Ralisch of Prague and Worms), and Sephardic (Rabbi Karo). Representatives of both Jewish communities seem to have had experience with something similar to, if not actually, hemophilia C.

One must keep in mind that these commentators probably were cognizant only of the bleeding disorders that they themselves came into contact with in their own communities. The communication between various communities in the Diaspora was minimal. Even today, with modern diagnostic modalities, the incidence of these bleeding disorders is relatively low. Therefore, the different commentaries may have in fact been referring to different diseases.

Modern technology has advanced to the point of perhaps allowing circumcision in hemophiliacs and others with bleeding disorders. Currently, children and young children usually improve with time. Pleaute transplant may also help control bleeding in ITP. The drug dexamethasone can help control bleeding in VWD.

The availability of fresh frozen plasma, cryoprecipitate, and now even recombinant factor VIII, should realistically allow the hemophiliac child to undergo surgery without a significantly increased bleeding risk. However, infusing these factors may have to continue for several days after circumcision. Additionally, use of these factors is not without risk. Most of them are human blood products and, as such, can transmit viral diseases such as hepatitis, and AIDS. Giving these blood products to very young infants can adversely affect their cardiovascular and respiratory systems. While it is clear that it is permissible according to Jewish law to administer these potentially dangerous products to save life and limb, it is not as clear if one is permitted to perform circumcision on a hemophiliac with the up-front plan of using these products to stem bleeding.

Other more promising advances include the use of fibrin glue and the use of a laser knife. Fibrin glue is a solution of human fibrin that is activated by thrombin and calcium. It has been used successfully to stop bleeding in surgical settings, such as cardiac surgery where bleeding is frequently caused by various factor deficiencies. However, once again, fibrin glue is not at all definitely a human blood product and, as such, may transmit viral disease. There is available a virus-inactivated form but this is not yet approved by the U.S. Food and Drug Administration (FDA).

Recently, the laser knife has been used successfully in Israel to perform circumcisions in hemophiliac patients. There are, however, several halachik issues involved. First, a laser knife is not a knife in the true sense of the word. Does circumcision require a true knife? Probably not. It is well known that Tiqqunot, Moshe's wife, used a sharp stone to circumcise her son, as it says in Exodus 4:25, "So Tiqqunot took a sharp stone and cut off the foreskin of her son..." The Rambam himself ruled that at least a sharp instrument is acceptable, so long as it does not damage the person being circumcised. Does this include a laser? Maynos. Another potential problem with the use of the laser is the lack of obtaining any blood. Ritual circumcision requires the drawing out of blood (metzizah). The laser, by its very nature cuts and coagulates simultaneously, thus leaving little, if any, blood. Nevertheless, it is possible to perhaps create a small cut without the laser and then perform the rest of the circumcision with the laser, this would significantly reduce bleeding problems.
The Bloodsuckers of Today

Leeches, members of the Class Hirudinea, are commonly identified as bloodsuckers, since Hirudo medicinalis, the most popular leech, was widely used for bloodletting in the 18th and 19th centuries. The approximately 300 different species of leeches are mainly freshwater inhabitants. H. medicinalis was very plentiful, but now, it is becoming endangered to the point of extinction due to the man-made changes in its habitat over the past century. The draining of the wetlands and the decline in the frog population, leech’s alternative host, have been most detrimental to the propagation of the species.

Jewish literature discusses leeches extensively. The Hebrew word for leech is aluka, derived from the root alak, meaning to cleave, or to adhere. The Hebrew word for leech reflects its mode of infectivity, as the leech attaches to the nostrils or mouth of people or animals who drink from leech-contaminated water. The Book of Proverbs (30:15) notes that the leech has two daughters: “Give, give”, referring to the two sucking discs on its head, used to adhere to the prey and suck its blood. Leeches appear in Talmudic literature as well. In the 13th century, the Talmudic commentator, Tosafot, describe leeches as “a small aquatic worm. If it falls on flesh, it attaches itself thereto and sucks blood. If a person swallows a leech from a pond or river...it causes the abdomen to swell.” Maimonides, in the 12th century, describes leeches as “a dangerous animal associated with swallowing a leech, formulated different prohibitions against drinking water directly from rivers and pools.” Such prohibitions are described by Rabbi Moses Maimonides (the Ramabam), a Talmudic scholar, in his Mishneh Torah (Code of Jewish Law).

Conversely, the beneficial uses of leeches were known for a long time. An illustration of the medicinal usage of leeches was discovered in an Egyptian tomb dating back to 1500 B.C.E. 7 Books of the Renaissance period describe the medicinal use of leeches, especially for bloodletting. Leech therapy reached its peak in the 19th century, with millions of leeches used in Europe annually. By the end of the 19th century medicinal usage of H. medicinalis dropped dramatically, as its medicinal efficacy in bloodletting was questioned. Interestingly, in the late 1950s there was a renewed interest, due to a salivary anticoagulant, called hirudin, secreted by the leech. Hirudin is an antithrombotic substance that can possibly be used to treat or prevent thromboembolic events.