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## UTERINE TRANSPLANTATION AND THE CASE OF THE MISTAKEN QUESTION

In April 2000, the first successful human uterine transplantation was performed on a 26-year-old female who had lost her uterus six years earlier due to postpartum bleeding. The donor, a 46-year-old patient with ovarian cysts, underwent a modified hysterectomy. This case was first reported in the medical literature in March, 2002.<sup>1</sup> This essay addresses the halakhic ramifications of such a procedure.

### I.

In the entire field of assisted reproduction, clear halakhic precedent is hard to come by. *Posekim* of previous generations simply did not and could not have addressed all unforeseen technological advances. The modern *posek* thus has a dual challenge: finding the halakhically salient source material, and bringing it to bear upon the matter at hand to arrive at a halakhic assessment. This challenge has largely been met in addressing the topics of artificial insemination and surrogate motherhood, though there is hardly a consensus of views.<sup>2</sup> Among the latest unforeseen advances we now face is the transplantation of the female uterus. How would halakha address this novel therapy?

Happily, some of the work has already been done. In fact, for a curious reason, *posekim* actually addressed uterine transplantation and its attendant halakhic issues in the early part of the twentieth century. The literature on the matter is not the product of purely hypothetical legal discussions, nor of inquiries about actual cases of uterine transplant in the past. Rather, it all stems back to one mistaken question.

In 1906, Robert Tuttle Morris, an American gynecologist, reported a spectacular surgical procedure he had performed, during which he trans-

planted a sliver of human ovary into the abdominal cavity of a woman whose ovaries he had personally removed. The woman subsequently gave birth to a healthy child. This case, which would be as astonishing today as it was then, generated a brief flurry of literature in the medical and lay press, was soon forgotten, and has never been repeated.

Hearing the news of this procedure, Rabbi Yaakov Gordon posed a halakhic inquiry for forum discussion in the journal *va-Yelaket Yosef*:<sup>3</sup>

A halakhic query: Physicians have developed a procedure to transplant reproductive organs from one woman into an infertile woman to cure infertility. Can one transplant the reproductive organs from a mother into a daughter? Who is the mother of the resultant child, the first woman or the second woman?

As R. Gordon was not familiar with all of the details of the case, he erroneously assumed that the entire set of female reproductive organs was transplanted, including the ovaries, the uterus and the external genitalia. The respondents were no better informed than R. Gordon, and they simply responded to the question as asked.<sup>4</sup> The original question has been perpetuated in halakhic literature since that time, with subsequent authorities addressing the issues of reproductive organ transplants in different contexts. We therefore have detailed discussions going back several generations on the issue of reproductive organ, and specifically uterine transplantation. I have dealt with this historical chapter extensively in the pages of this journal;<sup>5</sup> in this essay I focus on the halakhic issues relating uniquely to uterine transplantation, for both the donor and the recipient.<sup>6</sup>

## II. DONOR

The rabbis commenting on the early case of reproductive organ transplantation raised three halakhic issues with respect to the donor. In the journal *ha-Be'er*,<sup>7</sup> Rabbi Eliyahu Posek opposed the entire procedure of reproductive organ transplant because, he felt, it entailed a violation of *havala* (perpetrating bodily harm), both for donor and recipient. R. Hayyim Zev Wolf Weinreb agreed that the donor would indeed violate *havala*.<sup>8</sup> R. Sheftel Weiss<sup>9</sup> raised a second concern: that of submitting to a procedure involving risk to one's life.<sup>10</sup> The donor's resultant sterilization, or *sirus*, was the third problem. In the 1908 issue of *va-Yelaket Yosef*,<sup>11</sup> Rabbi Binyamin Arye Weiss stated that reproductive organ donation was halakhically forbidden, for even if there were no

danger to the patients involved, the donor would undergo *sirus*, which at the very least, is rabbinically prohibited.<sup>12</sup> In *ha-Be'er*,<sup>13</sup> R. Weinreb pointed out that though the donor would not herself violate *sirus*, because of her passivity during the surgery, the violation would devolve upon the physician performing the procedure.<sup>14</sup>

All three aforementioned issues of wounding, risk, and sterilization are equally applicable to our modern case of uterine transplant, but their respective relevance depends primarily on the source of the donation. As with other transplants, the donated uterus can come from a living, cadaveric, related or unrelated donor. Several additional halakhic concerns not mentioned in the early literature will also be addressed.

### Live Uterine Donation

Living organ donation, for organs such as kidneys, is a common, halakhically sanctioned practice.<sup>15</sup> The donor has an obligation of “*lo ta’amod al dam re’ekha*,” and this obligation can include exposure to a certain amount of risk. Furthermore, the *havala* concern can be superceded by the precedence of “*lo ta’amod*.”<sup>16</sup> The halakhic permissibility to subject oneself to the risk of organ donation, however, is predicated on the recipient’s halakhic status of *pikuah nefesh*. The recipient of a uterus transplant would not appear to meet the criteria of *pikuah nefesh*, as neither her quantity, nor her quality of life (from a medical perspective) are diminished in the absence of the transplant. However, while it is true that an infertile woman is clinically not in a state of *pikuah nefesh*, it has been argued that halakhically, infertility may be akin to *pikuah nefesh*.<sup>17</sup> Indeed, the comment of the matriarch Rachel, “give me a child, for if not, it is as if I am dead,” seems to support this. As for the donors, there are at least three possible categories of live uterine transplant candidates, each requiring a separate halakhic analysis.

#### *Medically indicated hysterectomy*

In certain cases of live donation, there may be no halakhic obstacle whatsoever for the donor. For example, if a woman undergoes a hysterectomy for treatment of a prolapsed uterus, the otherwise healthy uterus would usually be discarded. There is no issue of *havala* for the donor, as she is undergoing the procedure for medical reasons. While there is risk involved in the procedure, this is an acceptable risk for the medical benefit. The uterus itself does not require burial according to

halakha, because limbs (*evarim*) removed from a living person are only buried as a matter of custom, to prevent exposure of a *kohen* to the *tum'a* generated from them.<sup>18</sup> The uterus, which has no bones, does not legally constitute an *ever*, thus does not generate *tum'a*, and thus does not, according to most authorities, require legal burial. Nor is there any prohibition of deriving benefit (*hana'a*) from the removed uterus, which is considered "*basar min ha-hai*." It may, however, demand placement in a proper, respectful place to prevent desecration.<sup>19</sup> Surely transplantation of the uterus for restoring fertility would not constitute a desecration. As for the problem of sterilization, if it is overcome in the deliberation whether to undergo the hysterectomy in the first place, the additional factor of donation does not aggravate it.

*Prophylactic surgery for BRCA gene positivity*

The halakhic issues revolving around one category of candidates for uterine donation intersect with another new area of medical halakha: prophylactic surgery for carriers of the breast and ovarian cancer genes, BRCA1 or BRCA2. It has been suggested<sup>20</sup> that women undergoing prophylactic removal of their ovaries to prevent ovarian cancer may wish to have a hysterectomy at the same time. The assumedly healthy uterus could then be donated for transplantation purposes. Leaving the halakhic issue of prophylactic ovarian resection aside,<sup>21</sup> if a woman is permitted to undergo the procedure to remove her ovaries, may she, in addition, have her uterus removed solely for donation purposes?

The surgery would be performed for a separate reason, and would not be undertaken exclusively for the organ donation. The halakhically relevant risk in this case is the *additional* risk of removing just the uterus intra-operatively. This risk would seem negligible. Regarding *havala*, R. Weinreb suggested that the prohibition of *havala* might be mitigated when the procedure is to be performed by expert surgeons. This would significantly minimize *havala*. Regarding sterilization, the donor would be rendered infertile by the primary surgery, the removal of the ovaries. Whether removal of the uterus in addition to the ovaries would, according to those who maintain that *sirus* applies to a woman, constitute an additional violation of *sirus* is a halakhic debate. According to R. Feinstein, legal culpability for sterilization after pre-existing sterilization (*sirus ahar sirus*) does not apply to a woman.<sup>22</sup> Therefore, there would be no additional prohibition of *sirus* in performing the hysterectomy after the oophorectomy.

On balance, therefore, given the limited risk, absence of sterilization, and quasi-*pikuah nefesh* status of the recipient, it may be permitted for the woman to donate her uterus. This matter awaits a specific rabbinic ruling.

*Uterine donation from the healthy donor*

A healthy woman in her child bearing years may choose to have a hysterectomy for no other reason than to serve as a uterus donor. It is for such a woman that all the issues of *havala*, risk, and sterilization would coexist, apparently unmitigated. While there is a debate as to whether the prohibition of *sirus* applies to a woman, and whether such a prohibition would be biblical or rabbinic in origin, unless there are compelling reasons to perform the procedure, most *posekim* would suggest against it.<sup>23</sup> The only factor that would theoretically permit such a donation would be the *pikuah nefesh* status of the recipient. This would depend on how we would define the state of infertility. Is it considered a halakhic illness, or not? Even if it were considered an illness, it is not life threatening. How much halakhic weight does Rachel's searing cry, "Give me a child, for, if not, it is as if I am dead," carry?

If the donor were postmenopausal, the equation would change slightly, as the issue of *sirus* would not apply. The concerns regarding risk and *havala*, however, would remain in place.<sup>24</sup>

**Cadaveric Uterine Donation**

The issues of *havala*, risk and sterilization are irrelevant to cadaveric donation,<sup>25</sup> as the deceased is no longer bound by halakha. There are, however, obligations relating to the disposition of the body, such as the prohibitions of desecration and deriving benefit from a corpse, and the obligation for immediate burial.<sup>26</sup> R. Yehezkel Landau established the criteria that would allow these obligations to be suspended in a case of potential *pikuah nefesh*, and required that there be direct and proximate benefit from the information or matter obtained from the corpse.<sup>27</sup> Whether a woman suffering from infertility would meet these criteria is a matter for further discussion. As above, such a woman would clearly not fit the classical definition of *pikuah nefesh*. This specific question awaits further rabbinic clarification.

With respect to the prohibition of *nivul hamet*, if the hysterectomy is performed vaginally (as opposed to abdominally), there would be no

external scarring on the body.<sup>28</sup> This, according to some, might not constitute a prohibition of *nivul*. For example, R. Yehuda Unterman<sup>29</sup> ruled that cornea removal from a corpse for donation would not constitute *nivul* since the eyes are closed for burial and no external scar would be visible. Similarly, R. Feinstein did not consider a needle biopsy to constitute desecration because it leaves no major external scar.<sup>30</sup>

The late Rabbi Dr. David Appelbaum<sup>31</sup> suggested that cadaveric pituitary resection through an intranasal approach might not constitute a violation of *nivul* for the same reason—no external scar is visible. R. Bleich, however, takes issue with Dr. Appelbaum and considers the intranasal removal of the pituitary gland to indeed constitute *nivul*.<sup>32</sup> His logic bears particular relevance to our case. If Dr. Appelbaum's approach is correct, R. Bleich argues, then a complete autopsy performed solely through a vaginal incision, during which *all* the internal organs are removed, would not constitute *nivul*, as no external scar remains. This cannot be, R. Bleich posits.<sup>33</sup> It therefore must be that there are two components to the prohibition of *nivul*, the process and the result. Both corneal removal and organ biopsy involve no desecration either in process, as they are minor procedures, or in result. Pituitary removal, R. Bleich contends, while leaving no resulting external imprint, is nonetheless a repugnant process constituting a violation of *nivul*. It would therefore seem that R. Bleich would likewise consider a vaginal hysterectomy to constitute *nivul*, as the process of removing the uterus would be at least as halakhically repugnant as removing the pituitary gland.

R. Bleich apparently discounted the position of R. Yaakov Ettlinger<sup>34</sup> that if a procedure is performed as common medical practice on living human beings, such as a cesarean section, its performance postmortem does not constitute *nivul*. This position would seemingly allow for a postmortem vaginal hysterectomy, as the procedure is commonly performed on living human beings.

### III. RECIPIENT

#### Havala

In almost all cases of modern organ donation discussed in rabbinic literature, the halakhic issues for the recipient require little discussion. Since

the recipients are in a category of *pikuah nefesh*, they are permitted to undergo the procedure. The concern for *havala* in the performance of surgery, along with certain other halakhic issues, is suspended. In the case of uterine transplant, since the organ recipient may not be in a state of *pikuah nefesh*, we must consider the possibility of the surgical procedure constituting a prohibition of *havala*.

In the journal *ha-Be'er*, as mentioned above, R. Posek opposed the entire procedure of reproductive organ transplant because it entails a violation of *havala* for both the donor and the recipient. R. Weinreb, while concurring that *havala* would apply to the donor, even if only minimal danger were involved, maintained that this prohibition does not apply to the recipient for two reasons. First, expert surgeons would perform the procedure, minimizing the *havala*. Second, the prohibition might be waved for the sake of procreation and marital harmony.

The issue of undergoing surgery for bodily enhancement, in the absence of illness, has been addressed in the essays on plastic surgery in halakha.<sup>35</sup> These essays discuss the prohibition of *havala* (wounding), and its exclusions and limitations. Is uterine transplant for the treatment of infertility considered an elective, enhancing procedure analogous to plastic surgery, or is it a therapeutic intervention for the treatment of a disease? If the latter, *havala* would be permitted much the same as the *havala* of surgery for the removal of an infected appendix is permitted. On the other hand, as opposed to appendicitis, where surgical appendectomy is the only possible cure, infertility can be treated in less invasive and less halakhically problematic ways.

For example, if the woman has functional ovaries, she could use her eggs for *in vitro* fertilization and contract the services of a surrogate to bear the child. However, while the subsequent progeny will be the genetic product of the husband and wife, the wife's claim to halakhic maternity may be in doubt.<sup>36</sup> Should we say that since the wife has no obligation of *peru u-revu* this is of little legal relevance? Or should we consider the wife's desire to have legal offspring sufficient to outweigh the prohibition of *havala* and allow her to undergo the procedure of uterine transplant?<sup>37</sup> (A child not legally related to the mother might technically bear no obligation of *kibbud av va-em*.)

Even if we consider uterine transplant a non-therapeutic intervention, similar to cosmetic surgery, some authorities have allowed *havala* in the case of cosmetic surgery for psychological reasons.<sup>38</sup> Perhaps the

psychological impact of restoring fertility may justify the *havala* of uterine transplant surgery as well. There is, as mentioned above, the modified *pikuah nefesh* some ascribe to the state of infertility. In addition, as R. Weinreb mentioned in the earlier discussions, marital harmony is at stake. Perhaps the combination of all these factors would be sufficient to waive *havala*.

### **Sakanah—Risk**

An additional issue is the inherent risk involved in the entire process of organ transplantation. In the early halakhic discussions, R. Weiss<sup>39</sup> briefly raised the concern of the recipient submitting herself to a procedure involving (halakhically questionable) risk to life.<sup>40</sup>

For uterine, as well as any other type of transplantation, the risk includes the surgery itself, as well as the medications that are required subsequently to prevent the recipient from rejecting the donated organ. These so-called immunosuppressive medications, while preventing organ rejection, also suppress the patient's immune system. This makes the patient vulnerable to serious, even fatal complications from even the most benign infectious diseases, such as the common cold. People receiving transplants such as kidney, liver or heart, are clearly halakhically allowed to subject themselves to the risks of surgery and immunosuppressive medications in order to prolong their lives. In the last few years, however, a number of transplants have been performed for non life-threatening conditions, such as hand, larynx and uterine transplants.<sup>41</sup> These cases have been the subject of ethical debate in the medical literature for much the same reason that they present a halakhic problem.<sup>42</sup> Is it permissible to subject a patient to complicated surgery and prolonged immunosuppression for a medical condition that is not life threatening?

Furthermore, in uterine transplantation, the sole purpose of the transplant is to facilitate subsequent pregnancy. Pregnancy itself for patients on immunosuppressive medications may carry greater risks than a normal pregnancy.<sup>43</sup>

There is one mitigating factor unique to uterine transplant, however, which may minimize the halakhic concern about the risks of prolonged immunosuppressive therapy. While hand or larynx transplants necessitate lifelong immunosuppressive medicines, the uterus transplant is required only for bearing children. Once that objective has been accomplished, the uterus can be surgically removed and the medications stopped.



Whether this fact would suffice to allow the transplant is a matter that requires further elucidation.

### Definition of Maternity

In the earlier chapter on reproductive organ transplant, the rabbis assumed that the ovaries, uterus and external genitalia were transplanted. As such, they grappled with the definition of maternity for the child born to the recipient. R. Weiss maintained that the halakhic mother of the offspring would be the organ recipient.<sup>44</sup> He brings proof for this position from the case in the *Gemara* (*Sota* 43b) where a branch of an *orla* tree, which is less than three years old and forbidden to eat, is grafted onto an older tree, whose fruit is permitted. The *Gemara* concludes that for halakhic purposes the branch becomes an integral part of the receiving tree and loses its original identity. Here, too, the transplanted organs would lose their identity and become an integral part of the recipient's body. The recipient would therefore be considered the sole halakhic mother.

R. Yeshaya Silverstein, head of the rabbinical court in Veitzen, likewise concluded that transplanted organs, for halakhic purposes, become part of the recipient's body.<sup>45</sup> His proof is particularly relevant to our case as it specifically addresses uterine transplantation. He cites a passage in *Bekhorot* (28b) regarding the *terefa* status of an animal whose uterus has been removed. In support of the position that such an animal is not a *terefa*, the *Gemara* mentions the practice in Alexandria, Egypt of removing the uteri of the cattle that were sold or exported.<sup>46</sup> Since these animals obviously lived for prolonged periods of time after the procedure (longer than twelve months), this is proof that the absence of a uterus does not constitute a *terefa*. R. Silverstein questioned the *Gemara's* proof. If, by definition, the absence of a particular organ constitutes a *terefa*, then the animal's subsequent lifespan is irrelevant. Even should such an animal live longer than twelve months it would still be considered a *terefa*.<sup>47</sup> R. Silverstein therefore understood the *Gemara* to assume that the condition of lacking a uterus is reversible—by way of transplantation from another animal. Hence, by itself, lack of a uterus does not a *terefa* make; *terefa*, by definition, applies only to an irreversible ailment. After transplantation the animal could return to complete health and fertility. This proof further rests on the assumption that transplanted organs must be considered part of the recipient. Otherwise, the recipient would still be considered (halakhically) to have missing organs.

The definition of maternity in cases of surrogacy<sup>48</sup> remains one of the more complex areas of modern medical halakha.<sup>49</sup> The halakhic positions span the gamut and ascribe maternity to the genetic, gestational, and parturition (birth) mother, to no mother, and to many mothers. In the conventional case of the gestational host, where one woman donates the egg and the other carries the child, the two candidates vying for maternity are the genetic donor and the gestational or birth mother. The distinction between gestation and parturition is theoretical, since invariably, they are accomplished by the same person. In the case of uterine transplant, this distinction may become relevant<sup>50</sup> depending on the status of the transplanted uterus. This may force us to reconsider the position that ascribes maternity to the gestational mother more carefully.

If the transplanted uterus in which the gestation occurs retains the identity of the donor, then the gestational mother—the donor—would be distinct from the birth mother—the recipient—who also happens to be the genetic mother. Both could then lay halakhic claim to maternity.<sup>51</sup> However, the preponderance of rabbinic opinion from the early halakhic chapter maintained that any organ, once transplanted, assumes the identity of the recipient. If, indeed, the donor forgoes all rights to the organ once transplanted, and the organ acquires a new status in the recipient, then the uterus recipient is the genetic, parturition and birth mother, and is logically the only candidate for maternity.

### **Erva—Prohibited Physical Relationships**

In the early halakhic discussions, where the rabbis assumed that all the internal and external reproductive organs were transplanted, the very first issue addressed is that of *erva*, as the husband of the transplant recipient would be having direct physical contact with the external reproductive organs of another woman.<sup>52</sup> R. Deutch considered this case to be halakhically comparable to having relations with a corpse; an act which, although reprehensible and perhaps rabbinically prohibited, nonetheless does not constitute a biblical violation of *erva*.<sup>53</sup> The organs, once removed from the donor, are simply inanimate limbs of a corpse, rendering the prohibition of *erva* inapplicable to them.<sup>54</sup>

The editor of the Hungarian journal, *Tel Talpiyot*,<sup>55</sup> in a footnote to R. Deutch's remarks, rejected the halakhic comparison of the transplanted limbs to the limb of a corpse, for while the latter is cold and lifeless, the transplanted organs are reanimated in the recipient and

restored to life. Physical contact with such organs would be prohibited. He therefore considered the recipient to be a questionable *erva*, in which case she would be forbidden to her husband.

R. David Tzvi Katzburg, also writing in *Tel Talpiyot*, maintained that with respect to *erva*, only the recipient's status is relevant. Since the organ becomes an integral part of the recipient, the status of the donor is irrelevant. He, however, in contradistinction to his peers, assumed that only the uterus was transplanted, and not the other reproductive organs. This distinction is important for our purposes, as he considered transplant of the uterus alone, even though it is an internal organ, to present a theoretical problem of *erva*. We must therefore assume that the editor thought that the cervix is also transplanted, in which case there could potentially be direct physical contact with the transplanted organs.

R. Yerachmiel Katzburg<sup>56</sup> adduced the status of *erva* from the biblical stories of the matriarchs' infertility.<sup>57</sup> According to rabbinic tradition, God reversed the normal course of nature and "opened the wombs" of the matriarchs. If a "natural" remedy, such as transplantation of the reproductive organs, was possible, then why was it necessary for God to change the course of nature? It therefore must be that even if such a procedure was possible, the transplanted organs would retain their independent status in the recipient, and there would be a prohibition of *erva* with the donor.

R. Kamelhar drew an agricultural analogy to organ transplantation, similar to that of R. Weiss mentioned above, based on the passage in *Sota*, which discusses the impact of tree grafting on the laws of *orla*. R. Kamelhar concluded that just as the grafted branch loses its original status and becomes an integral part of the post-*orla* tree, likewise, in our case, the transplanted organ loses its original status and becomes an integral part of the recipient's body. Therefore, no violation of *erva* is incurred. Elaborating on his position regarding the relevance of *erva* to reproductive organ transplantation, R. Kamelhar pointed out that despite the fact that Chava was created from one of Adam's own ribs, Adam was not guilty of cohabitation with another male. This is true, he asserts, because the organ takes on a completely new identity in the recipient. There is therefore no prohibition of *erva* for the transplanted organ, as this organ acquires a new identity in the recipient and is no longer associated with the donor.

Regarding the issue of *erva* with the organs donated by a married

woman, R. Weinreb suggested that the donor either be unmarried or non-Jewish in order to circumvent the problem of *eshet ish*. At this stage in the discussions of reproductive organ transplant, it was realized that only the ovary had been transplanted. Therefore, he argued, even if the donor were an *erva*, since the ovary is placed intra-abdominally, and there would be no direct physical contact with the organ during marital relations, the prohibition of *erva* would not apply.<sup>58</sup> Going one step further, he maintained that even if theoretically the external genitalia were also transplanted, no violation would be incurred because once the organs are removed from the donor they lose their *erva* status and are considered mere flesh.<sup>59</sup>

In the current case of uterine transplant, the first issue to clarify is exactly which anatomical structures are being transplanted, and is it possible that a man having relations with a uterus recipient would have direct physical contact with the transplanted organ. Since the entire uterus, including the cervix, would be transplanted, it is indeed possible, as opposed to ovarian transplantation, that the husband of the recipient would have direct physical contact with the transplanted organ. Therefore, all the aforementioned discussions about the question of *erva* in reproductive organ transplantation could be directly assimilated to the current case of uterine transplant. As the majority of respondents considered the transplanted organs to acquire a new status in the recipient, the potential concern about the prohibition of *erva* is negated and should not be an impediment to uterine transplantation.

### **Bekhor**

In the journal *va-Yelaket Yosef*<sup>60</sup> R. Deutch addressed the question whether a child born from the organ transplant recipient would bear the status of a firstling, or *bekhor*. The *Gemara* (*Hullin* 70a) cites a hypothetical case where the birth canal is so wide that the fetus can exit without direct physical contact with the uterine (or vaginal) walls. Is the air space of the uterus sufficient to generate the status of *bekhor*, the *Gemara* asks, or is direct physical contact with the uterine walls required? *Rambam* maintains that the fetus in this case would be a questionable *bekhor*.<sup>61</sup> In our case, the uterine walls belong to the donor, while the air space belongs to the recipient. Therefore, a child born to the organ recipient would be the first to pass through the air space of her birth canal, and, according to this logic, would be considered a questionable *bekhor*.

The discussion continued in the journal in two subsequent issues. Citing a passage from *Hullin* (70a), R. Weiss believed that he had found a remarkable talmudic analogy to our case of reproductive organ transplantation.<sup>62</sup> In the talmudic hypothetical, the uteri of two animals are adjacent to each other and the fetus moves from one uterus to the second before being born.<sup>63</sup> The *Gemara* wants to know whose *bekhor* the fetus is. R. Weiss did not elaborate, however, as to how this passage would be practically applied to our case.

In another journal, R. Katzburg discussed the issue of *bekhor*.<sup>64</sup> As mentioned above, he was of the opinion, even regarding the earlier case of reproductive organ transplant, that only the uterus was transplanted. His comments on the issue of *bekhor* are therefore directly relevant to our case. R. Katzburg claimed that even if this uterus, while part of the donor, had already borne fruit and previously produced a *bekhor*, since it takes on a new identity in the recipient, the first born for the recipient with the transplanted uterus would be considered a halakhic *bekhor*. Furthermore, he contended that the reason a cesarean birth precludes *bekhor* status is because the fetus must exit naturally through the birth canal.<sup>65</sup>

With respect to the current case of uterine transplant, R. Katzburg's position should apply directly. According to this position, a first-born male child of the organ recipient should indeed be a full-fledged *bekhor*.<sup>66</sup>

### ***Hana'at Hamet*—Deriving Benefit from a Corpse**

R. Weiss<sup>67</sup> briefly raised the concern about the prohibition of deriving benefit from a corpse.<sup>68</sup> If the uterine donation is cadaveric, then the recipient must indeed consider the prohibition of deriving benefit from a corpse.<sup>69</sup> There is debate as to whether this prohibition is rabbinic or biblical in nature, and this debate pertains to the case of uterine transplant. According to R. Yaakov Emden,<sup>70</sup> and R. Yehuda Rosanes,<sup>71</sup> the prohibition is rabbinic.<sup>72</sup> If so, perhaps the use of a cadaveric uterus would be permitted, as Rema rules that materials for which the prohibition of deriving benefit is only rabbinic in origin may be utilized for the treatment of any sick person, even one not in imminent danger.<sup>73</sup> However, the majority opinion rules that deriving benefit from a corpse is biblical in origin. Even amongst those who believe the prohibition to be biblical, some maintain that the material may be used for medical therapy if the particular use is unusual, or not characteristic for that object (*she-lo ke-derekh hana'a*),<sup>74</sup> or if the amount used is small (less

than an olive size). While the size of the uterus is larger than this small amount, using the uterus for transplantation is not a halakhically usual or characteristic use for human tissue.<sup>75</sup>

If the donation comes from a non-Jewish cadaver, rabbinic authorities debate whether the specific prohibition of deriving benefit from a corpse applies to non-Jewish cadavers as well.<sup>76</sup>

### **Nidda- Ritual Impurity of Menstruation**

In the early halakhic chapter, R. Silverstein raised the issue of *nidda*, as one of the requirements for generating the *tum'a* (impurity) of *nidda* is for the woman to actually sense the menstrual flow “*bi-vsara*” (i.e., in her flesh) as it exits her body.<sup>77</sup> If, as was the considered case then, the entire set of reproductive organs was transplanted, and the transplanted organs retained their legal association with the donor, the menstrual flow of the recipient might not technically meet the criterion of “*bi-vsara*.” Perhaps, then, the recipient would never become a *nidda*. This cannot be, contended R. Silverstein, as this would effectively circumvent all the laws of *nidda* for the recipient. Rather, the organs must become part of the recipient’s body such that any flow would be considered “in her flesh.”<sup>78</sup>

In the current case of uterine transplantation, even if the donated uterus retains the legal status of the donor, one might argue that the recipient would still become a *nidda*, since the menstrual flow would come into contact with the recipient’s own reproductive organs when exiting the uterus.

### ***Sirus*—Sterilization**

In *ha-Be'er*,<sup>79</sup> R. Weinreb responded to an earlier entry in the journal regarding the organ donor’s violation of the prohibition of sterilization. Explaining why *sirus* does not apply to the recipient, whose ovaries are also removed before the transplant, R. Weinreb opined that the removal of nonfunctional reproductive organs may not constitute *sirus*.<sup>80</sup>

In the case of uterine transplant, the recipient had undergone a medically indicated hysterectomy at an earlier stage. Therefore, there was no issue of *sirus* at the time of the transplant, as no further reproductive organs of the recipient are altered or removed at that time. This would likely apply to most cases of uterine transplant, as the procedure is indicated for women who have undergone a hysterectomy for various medical reasons.

IV.

The mistaken question of Rabbi Gordon in 1907 about reproductive organ transplantation has left us a fertile source of halakhic material that directly and indirectly addresses the contemporary case of uterine transplantation. While further analysis will be required to explore and resolve the halakhic dilemmas generated from this new procedure, the issues raised by our predecessors serve as an excellent starting point, and testify to the enduring value of the halakhic discourse of every generation.

NOTES

1. W. Fageeh *et. al.*, "Transplantation of the Human Uterus," *International Journal of Gynaecology and Obstetrics* 76:3 (March, 2002), pp. 245-51; Albert Altchek, "Uterus Transplantation," *Mount Sinai Journal of Medicine* 70:3 (May 2003), pp. 154-162.
2. See, for example, A. Steinberg, *Encyclopaedia Hilkhaitit Refuit* 1 (Schlesinger Institute: Jerusalem, 1988), s.v. *hazra'a melakhutit*.
3. *Va-Yelaket Yosef*, Year 10, vol. 3 (15 *Heshvan*, 5668-October 23, 1907), pp. 9a-9b.
4. Many did, however, express disbelief that such a transplant was possible.
5. E. Reichman, "The Halakhic Chapter of Ovarian Transplantation," *Tradition* 33:1 (1998), pp. 31-70. In the introduction to this article, I mentioned that while the focus of the article was to highlight the importance of a medical historical approach, the literature on the early halakhic discussions of reproductive organ transplant has potential value for contemporary medical halakhic discourse. I did not, however, anticipate the current case of uterine transplantation.

Nosson Slifkin, in his *Mysterious Creatures* (Targum Press: Southfield, MI, 2003), pp. 230-232, discusses the contemporary relevance of a unique case in the Talmud of the mouse that is part earth. While there does not appear to be a living animal that correlates with this talmudic description, he relates a modern case for which the talmudic analysis is instructive. This is an unforeseen application of a seemingly irrelevant halakhic discussion. In the early literature on reproductive organ transplant, the rabbis similarly discussed issues of questionable halakhic relevance, as the procedures they addressed had in fact never occurred. We now have an unforeseen application of this literature. In our case, however, the extrapolation from the ear-

- lier discussion is not by analogy, but is direct. Both cases are a testimony to the enduring value of halakhic analyses.
6. The previous halakhic chapter is a useful point of departure for identifying some of the important halakhic issues, sources, and deliberations. To these I will incorporate recent scientific and halakhic material.
  7. Year 6, vol. 3 (*Sivan*, 5691; May/June, 1931), pp. 110-113. For the history of this journal see I. Lewin, *Otsar Kitvei Et Torani'im* (New York, 5740), pp. 46-48.
  8. See below for his opinion regarding the recipient.
  9. *Va-Yelaket Yosef*, Year 10, vol. 6 (*Hanukka* 5668-December, 1907), 21b. For the history of this journal see Lewin, pp. 88-95.
  10. Regarding the permissibility of undergoing risky or unproved therapy see J. D. Bleich, "Experimental Procedures: The Concept of *Refu'ah Bedukah*," in his *Contemporary Halakhic Problems* 4 (Ktav Publishers: New York, 1995), pp. 203-217.
  11. Year 10, vol. 9, no. 77 (*Shevat*, 5668; January, 1908), p. 29a. This response to R. Schwartz was subsequently published in R. Weiss's *Even Yekara*, n. 29.
  12. The biblical origin for the prohibition of sterilization, or *sirus*, is *Vayikra* 22:24-5. The context of the biblical discussion is the prohibition of using castrated or sterilized male animals for temple sacrifice. The *Midrash Sifra*, Chapter 7, extends the prohibition to all animals, both kosher and non-kosher, and the *Gemara Shabbat* 110b extends the prohibition to human beings as well. To what extent this prohibition applies to females of the human species is a matter of debate. Rambam in *Hilkhot Issurei Bi'a* 16:10-11 implies that sterilization for women is only rabbinically prohibited, while *Turei Zahav*, *Even ha-Ezer* 5:6, claims that the prohibition of sterilization does not apply to women at all. For further discussion, see Joseph Ozarowski, "Tubal Ligation and Jewish Law," *Journal of Halacha and Contemporary Society* VII, p. 42; J. David Bleich, "Sterilization of Women," in his *Contemporary Halakhic Problems* 1 (Ktav: New York, 1977), pp. 96-99; Shaul Weinreb, "Tubal Ligation and the Prohibition of *Sirus*," *Journal of Halacha and Contemporary Society* XL, p. 5; R. Moshe Feinstein, "Women whose Health is Endangered by Pregnancy and the Halakha of *Sirus* for Women," in R. Moshe Hershler, ed., *Halakha u-Refu'a* 1 (Regensberg Institute: Jerusalem, 1980) (Hebrew) pp. 328-331; R. Moshe Hershler, "Removing a Woman's Reproductive Organs (Hysterectomy)," in *ibid.*, pp. 332-335; R. Yehudah Leib Gordon, "*Sirus* (Sterilization) of a Woman," in *ibid.*, pp. 34-35; R. Moshe Feinstein, "Hysterectomy and Oophorectomy and *Sirus*," in *ibid.*, pp. 112-113.
  13. Year 7, vol. 2, nos. 70-71 (*Shevat*, 5692; January/February, 1932), pp. 88-92.
  14. The same *Minhat Hinukh* that R. Weinreb quotes (*mitsva* 291) also postulates (end of letter *aleph*) that even passive sterilization might be prohibited. The classic example of a passive recipient violating a prohibition is the prohibition of cutting the hair of the corners of the head (*Vayikra* 19:27—"*lo takifu pe'at roshekhem*"). The *Gemara Makkot* 20b states that both the *makif* and the *nikaf* get lashes. Rashi s.v. *de-amar lakh* opines that one possible reason for this inclusion of the passive recipient in the prohibition is



the plural language of the verse (*takifu*), which alludes to more than one person who is in violation of the prohibition (i.e., both the *makif* and the *nikaf*). Applying the same logic to the case of sterilization, since the verse is stated in plural (“*u-ve-artsekhem lo ta’asu*”), perhaps even the passive recipient is in violation. However, since no other authorities seem to mention or concur with this analysis, the *Minhat Hinukh* does not consider this opinion binding.

15. Donations of partial livers and partial lungs are a matter of halakhic debate, as they involve a greater risk to the donor that is not well quantified.
16. On live organ donation, see, for example, M. Halperin, “Organ Transplants from Living Donors,” *Assia Jewish Medical Ethics*, January 1991 (2:1), pp. 29-37; R. Levi Yitshak Halpern, “Living Organ Donation,” in his *Ma’aseh Hoshev*, 4 [also titled *Inyanei Refu’a be-Halakha*, Volume 2] (Institute of Technology and Halakhah: Jerusalem, 5757) (Hebrew), pp. 54-68; J. David Bleich, “May Tissue Donations be Compelled,” in his *Contemporary Halakhic Problems* 4 (Ktav: New York, 1995), pp. 273-315.
17. R. Moshe Sternbuch, “Akar Beli Banim be-Hazra’a Melakhutit mi-ba-Huts,” *Ateret Shelomo* 7 (5762), p. 146. It is not clear whether R. Sternbuch’s logic is restricted to men. On whether infertility for a woman is considered a halakhic “illness,” see Yehoshua Zev Zand, *Birkhat Banim (Makhon Halakhah uRefuah of Ma’yanei Heyeshua Hospital, Jerusalem, 5754)*, 249 (n. 1) and 268 (n. 32); Yaakov Eisenbach, *Va-hai Ba-hem: Dinei Refuah beShabbat* (Divrei Emet Publications, 5761), p. 206, n. 104.
18. Abraham S. Abraham, *Nishmat Avraham*, vol. 2 (Y.D.), p. 267. See also, J. David Bleich, “Medical Experimentation Upon Severed Organs,” in his *Contemporary Halakhic Problems* 1 (Ktav: New York, 1977), p. 126.
19. *Iggerot Moshe*, Y.D. 1:232; *Tsits Eliezer* 10:25, chapter 8.
20. Albert Altchek, “Uterus Transplantation,” *Mount Sinai Journal of Medicine* 70:3 (May 2003), pp. 154-162.
21. See J. David Bleich, “Genetic Screening,” *Tradition* 34:1(Spring 2000). See also [www.jewishgenes.org](http://www.jewishgenes.org) for a video of the proceedings of the conference entitled, “Why is this gene different from all other genes: Genetic diseases in the Ashkenazi Jewish community.” The third session deals with the halakhic issue of prophylactic surgery.
22. R. Moshe Feinstein, “Hysterectomy and Oophorectomy and Sirus,” in Hershler, pp. 112-113; also appears in *Iggerot Moshe*, H.M. 2:73, letter “*zayin*.” R. Feinstein addressed a case in which a woman was undergoing a hysterectomy, and the physicians recommended that she have her ovaries and Fallopian tubes removed at the same time to decrease the possibility of future ovarian cancer. The woman had no specific risk factors for cancer, and this occurred prior to the development of testing for BRCA 1 and BRCA 2. While the potential risk for cancer would be an additional reason to allow the oophorectomy, it does not appear to limit the statement of R. Feinstein that *sirus ahar sirus* does not apply to a woman. See also R. Moshe Hershler, “Removing a Woman’s Reproductive Organs (hysterectomy),” in Hershler, pp. 332-335. Regarding the prohibition of *sirus ahar sirus* for a man, see A. Steinberg, *Encyclopaedia Hilkhaitit Refuit* 5, pp. 59-60.
23. Hershler, *ibid.*, pp. 332-335.

24. While a postmenopausal woman is considered halakhically infertile, it is possible today, with ovum donation, for such a woman to carry and give birth to a child. Since this is not a natural process, it would not invalidate the halakhic status of post-menopausal women. See *ve-Shav ve-Ripei*, vol. 2, E.H. 69.
25. For this discussion, I assume the organs would be harvested from a non-heart-beating cadaver. As opposed to other organs where the viability would be better if harvested from a brain dead patient, this would likely not apply to the uterus. Thus, the brain death controversy would not factor in to this discussion.
26. See A. Steinberg, *Encyclopaedia Hilkhatit Refuit* 4, s.v., *nituah ha-met*.
27. The term was coined as a "*holeh lefanenu*," a specific ill patient before us.
28. It very well might be that in order to preserve the vessels for transplantation, the operation may not be able to be performed vaginally.
29. *Shevet mi-Yehuda*, pp. 313-322.
30. *Iggerot Moshe* Y. D., vol. 2, no. 111.
31. R. Dr. David Appelbaum, "Treatment with Growth Hormone According to Halakha," in Hershler, pp. 262-271.
32. "Pituitary Dwarfism," in his *Contemporary Halakhic Problems* 2, pp. 64-68.
33. R. Bleich offers no halakhic source for this novel approach.
34. Binyan Tsiyon cited in Appelbaum, *op. cit.*, p. 266.
35. J. David Bleich, "Plastic Surgery," in *Contemporary Halakhic Problems* 1, pp. 119-123; R. Chaim Eisenstein, "Plastic Surgery for Cosmetic Purposes in Halakha," *Ateret Shelomo* vol. 1 (Hebrew); David B. Ettengoff, "Halachic Implications of Cosmetic Surgery," *Journal of Halacha and Contemporary Society* XV, p. 79; R. Moshe Feinstein, "Cosmetic Surgery for a Young Woman to Improve her Appearance," in Hershler, pp. 323-327; R. Shlomo Yosef Zevin, "May One Person Grant Permission to Another to Injure him?" in Hershler, pp. 93-100; M. Westreich, "Orthodox Jewish Law (Halachah) and Plastic Surgery," *Plastic Reconstructive Surgery*, September 1998, 102(3) pp. 908-13. More recently, the principles of *havala* have been employed to permit accepting money for organ donation. See, for example, R. Shaul Yisraeli's "Organ Transplants: Responsa," in *Jewish Medical Ethics* 3:1, pp. 14-17.
36. See discussion on the definition of maternity below.
37. See *Yevamot* 65b. A woman desires a child to assist her in her old age.
38. R. Feinstein, *op. cit.*
39. *Va-Yelaket Yosef*, Year 10, vol. 6 (*Hanukka* 5668; December 1907), p. 21b.
40. Regarding the permissibility of undergoing risky or unproved therapy, see J. D. Bleich, "Experimental Procedures: The Concept of *Refu'ah Bedukah*," in his *Contemporary Halakhic Problems* 4, pp. 203-217.
41. M. R. Hausman, et. al., "Hand Transplantation: Current Status," *Mount Sinai Journal of Medicine* 70:3 (May, 2003), pp. 148-153; E. M. Genden and M. L. Urken, "Laryngeal and Tracheal Transplantation: Ethical Limitations," *Mount Sinai Journal of Medicine* 70:3 (May, 2003), pp. 163-165; A. Altchek, "Uterine Transplantation," *Mount Sinai Journal of Medicine* 70:3 (May, 2003), pp. 154-162.
42. G. J. Agich, "Extension of Organ Transplantation: Some Ethical

- Considerations,” *Mount Sinai Journal of Medicine* 70:3 (May, 2003), pp. 141-147.
43. Altchek, *op. cit.*, pp. 160-161.
  44. *Va-Yelaket Yosef*, Year 10, vol. 9, n. 77(January, 1908), p. 29a.
  45. *Tel Talpiyot*, Year 17, n. 19 (June, 1908), pp. 169-171.
  46. The cattle from this region were considered of superior quality. Removing the uterus would prevent the buyer from using the animal for breeding, thereby insuring the seller’s control of the market.
  47. This is the position of R. Yehezkel Landau in his *Dagul Me-Revava*, Y.D., p. 29. Others maintain that the definition of *terefa* is restricted to animals that would invariably die within twelve months. See *Encyclopaedia Talmudit* 21, s.v. *terefa (ba’alei hayyim)* for extensive discussion on the laws of *terefa*.
  48. I refer here only to the case of the gestational host, where a woman carries in her womb the genetic child of another woman. The term surrogate motherhood technically refers to a case where the surrogate is both the genetic and gestational mother, as was the case with Mary Beth Whitehead.
  49. J. David Bleich, “Surrogate Motherhood,” in his *Bioethical Dilemmas: A Jewish Perspective* (Ktav: Hoboken, NJ, 1998); E. Bick, “Ovum Donations: A Rabbinic Conceptual Model of Maternity,” *Tradition* 28:1(1993), pp. 28-45; M. J. Broyde, “The Establishment of Maternity and Paternity in Jewish and American Law,” *National Jewish Law Review*, 1988:3, pp. 117-58; J. David Bleich, “In Vitro Fertilization, Maternal Identity and Conversion,” in his *Contemporary Halakhic Problems* 4, pp. 237-272; Y. Breitowitz, “Halakhic Alternatives in IVF Pregnancies: A Survey,” *Jewish Law Annual* 14 , pp. 29-119, esp. 56-65; Avraham Kurtztag, “The Status of a Child Born from a Surrogate Mother (Gestational Host),” *Ateret Shelomo* vol. 4 (Hebrew), pp. 173-183; R. Aviad Trop, “Surrogate Motherhood,” *Ateret Shelomo*, vol. 5 (Hebrew), pp. 100-122, esp. 113-116.
  50. The distinction is also relevant in a theoretical case where the embryo is transferred from one woman to another prior to birth. No such case has yet been reported in the medical literature.
  51. Rabbi Z. N. Goldberg espouses the position that the gestational mother may be the halakhic mother in “*Yihus Amhut bi-Hashtalat Ubar be-Rechem shel Aheret*,” *Tehumin* 5 (5744), pp. 248-259. See also J. David Bleich, *ibid.*, pp. 248-251, and R. Aviad Trop, “Surrogate Motherhood,” *Ateret Shelomo*, vol. 5 (Hebrew), pp. 113-116. R. Bleich, in another essay, rejects the position ascribing maternity to a woman whose only contribution is gestation, and maintains that the definition of the gestation mother as the halakhic mother is predicated on that same mother’s subsequent birthing of the child. See “*be-Inyan Helav Terefa u-Kevi’at Amhut*,” in his *be-Netivot ha-Halakha*, vol. 3 [*Kuntres ha-Refu’a*] (Ktav Publishers: Hoboken, NJ, 2000), pp. 47-48.
  52. *Va-Yelaket Yosef*, Year 10, vol. 3 (15 *Heshvan*, 5668-October 23, 1907), pp. 9a-9b.
  53. *Yevamot* 55b and *Rambam, Hilkhot Issurei Bi’a* 1:12.
  54. The respondent acknowledges that in the case of a man having relations with a complete corpse, there is a rabbinic prohibition which was instituted

to prevent one from extrapolating that, amongst other things, relations with a *terefa* would be permitted. However, once the body is no longer whole, as in this case, the decree would not apply. In addition, he argues that it must be the living body that generates *erva*, and not simply the reproductive organs. For if it were the latter, one could envision a scenario whereby one could circumvent the prohibition of *erva* with a woman by replacing her reproductive organs with those of a non-*erva*. Furthermore, he argues, that if the reproductive organs were the determinant for *erva*, doubt would be cast on all legal cases of *erva*. It would be impossible for witnesses to ever verify whether the reproductive organs of the female were in fact her own, or those of a non-*erva*.

55. Year 17, no. 19 (*Sivan*, 5668-June, 1908), pp. 169-171.
56. Year 17, no. 21 (*Tammuz*, 5668; July, 1908), pp. 191-192.
57. R. Deutch mentions that Sarah suffered from congenital absence of her uterus. *Yevamot* 64b bases this on the extraneous phrase “*ein la velad*” in *Bereshit* 11:30. Based on this interpretation, he actually argues that uterine transplantation is not possible. Had transplantation of reproductive organs been possible, he argues, there would have been no need for God to perform a miracle to reverse Sarah’s infertility.
- R. Yitshak Ya’akov Weiss, in his *Teshuvot Minhat Yitshak*, vol. 1, no. 125 claims that Rachel suffered from the same condition. The verse in *Bereshit* 29:31 describes Rachel as an “*akara*,” and Rashi in *Yevamot* 42b states that the term “*akara*” is used to describe a woman who is sterile due to absence of her uterus.
- There appear to be two midrashic lines regarding the source of Sarah’s infertility: 1) Sarah had complete absence of her uterus [*Bereshit* 11:30]; 2) Sarah was post-menopausal [*Bereshit* 18:11]. They do not necessarily have to agree with each other. For example, Rashi, who comments on 18:11 that Sarah was post-menopausal, does not cite the midrash about congenital absence of uterus in his commentary on 11:30. Conversely, *Orah Hayyim* on 11:30, who mentions the midrash that Sarah was an *ailanit*, does not mention in his commentary to 18:11 that she was post menopausal.
58. See n. 130 in “The Halakhic Chapter of Ovarian Transplantation,” for a possible explanation of R. Weinreb’s position and for the possibility, based on a passage in R. Akiva Eger, of violating the prohibition of *erva* in the absence of direct physical contact with the illicit partner.
59. R. Weinreb rejects the proof from Adam, asserting that one cannot extrapolate from creation.
60. Year 10, vol. 4 (1 *Kislev* 5668-November 7, 1907), pp. 12a-12b.
61. *Sefer ha-Korbanot*, *Hilkhot Bekhorot* 4:19.
62. Year 10, vol. 6 (*Hanukka* 5668; December, 1907), p. 21b.
63. It is unclear from the passage where the exact point of contact is. *Tosafot* s.v. “*ad*” in *Ketubot* 4b considers this case to be purely hypothetical (“*davar she-lo ba la-olam*”).
64. *Tel Talpiyot*, Year 17, no. 19 (*Sivan*, 5668-June, 1908), pp. 169-171.
65. The *Mishna* in *Bekhorot* 47b excludes a child born by cesarean section from the laws of *bekhor*. The law is codified in Y.D. 305:24. Regarding the history of cesarean section in Jewish sources see J. Boss, “The Antiquity of

- Cesarean Section with Maternal Survival: The Jewish Tradition,” *Medical History* 5 (1961), pp. 117-131 and E. Reichman, “The Halakhic Definition of Death in Light of Medical History,” *Torah U’Madda* 4 (1993), pp. 148-174, esp. 162-165 and 174-175.
66. See discussions on definition of maternity and *erva*. Regarding R. Deutch’s source above and the air space of the womb, it would have to be clarified whether the air space in question refers exclusively to the air space of the uterus, or of the birth canal as well. If it includes the birth canal, then, according to R. Deutch, a child born from a uterine transplant recipient would likewise be a questionable *bekhor*.
  67. *Va-Yelaket Yosef*, Year 10, vol. 6 (*Hanukka* 5668-December, 1907), p. 21b.
  68. Most of the respondents in the earlier halakhic chapter, based on the initial question posed to them, assumed the organ donation to be from a live donor. R. Weiss entertained the possibility of cadaveric donation.
  69. On the following, see J. D. Bleich, “Pituitary Dwarfism,” in his *Contemporary Halakhic Problems* 2 (Ktav: New York, 1983), pp. 64-68.
  70. *She’elat Ya’avets* 1:41. On a historical note, this *teshuva* was addressed to Benjamin Wolff Gintzburger, a medical student in Germany who wrote a treatise on biblical and talmudic medicine for his medical school dissertation. See F. Schiller, “Benjamin Wolff Gintzburger’s Dissertation on Talmudic Medicine,” *Koroth* 2:7-8(1960), pp. 307-318. On the field of biblical and talmudic medicine in general, see E. Reichman, “Biblical and Talmudic Medicine: A Bibliographical Essay,” in F. Rosner, *Encyclopedia of Medicine in the Bible and the Talmud* (Jason Aronson: Northvale, N.J., 2000), pp. 1-9.
  71. *Mishneh le-Melekh, Hilkhot Avel* 14:21. This passage deals with the ingestion of Egyptian mummy extract for medicinal purposes, which was common practice in the Middle Ages and early Renaissance. For more on this chapter of medical halakhic history, see E. Reichman, “The Impact of Medieval Medicine on Medical Halakhah: Mumia,” in F. Rosner, ed., *Pioneers in Jewish Medical Ethics* (Jason Aronson: Northvale, N.J., 1997), pp. 27-52.
  72. On the derivation of the prohibition of deriving benefit from a corpse and the definition of *she-lo ke-derekh hana’a*, see *ha-Refu’a le-Or ha-Halakha*, vol. 2 (*Makhon le-Heker ha-Refu’a ve-Halakha*: Jerusalem, 5743), pp. 25-27 and 104-110.
  73. Y.D. 155:3.
  74. Whether one allows use of a prohibited object *she-lo ke-derekh hana’a* may depend on whether the derivation of the prohibition of deriving benefit from a corpse is from the laws of *egla arufa* or from *avoda zara*. See *ha-Refu’a le-Or ha-Halakha*, vol. 2, pp. 104-110.
  75. The usual use of human flesh would be for human ingestion, similar to animal meats.
  76. See *ibid.*, pp. 33-40.
  77. This halakha is derived from the term “*bi-vsara*” (her flesh) in *Vayikra* 15:19. See *Nidda* 57b and Y.D., 183:1.
  78. Today, we understand sensation to be dependent on innervation. Even with uterine transplantation, the severed sensory nerves would likely not regain their function in the recipient. Even if the transplanted organs were

halakhically considered an integral part of the recipient's body, the recipient would still be unable to actually sense the menstrual flow.

79. Year 7, vol. 2, nos. 70-71 (*Shevat*, 5692; January/February, 1932), pp. 88-92.

80. See *Minhat Hinukh*, *mitsva* 291.