Full-sibling embryos created by anonymous gamete donation in unrelated recipients

Cary L. Dicken, M.D., a,b Athena Zapantis, B.S., b Edward Illions, M.D., a,b Staci Pollack, M.D., a,b Harry J. Lieman, M.D., a,b Kris Bevilacqua, Ph.D., b and Sangita K. Jindal, Ph.D., a,b

a Division of Reproductive Endocrinology and Infertility, Department of Obstetrics & Gynecology and Women’s Health, Albert Einstein College of Medicine, Bronx; and b Montefiore Institute for Reproductive Medicine and Health, Hartsdale, New York

Objective: To report the rare occurrence of full-sibling embryos in unrelated women using independently chosen donor sperm and donor oocytes in two different cycles unintentionally created at our IVF program, and to discuss the concept of disclosure to the patients.

Design: Case report.

Setting: Academic IVF program.

Patient(s): Two women independently undergoing donor recipient cycles with anonymous donor oocytes and donor sperm.

Intervention(s): Both women received oocytes from the same donor several months apart and then by coincidence selected the same anonymous sperm donor to create anonymous full-sibling embryos.

Main Outcome Measure(s): Clinical pregnancy after donor-recipient IVF cycle.

Result(s): Both women conceived using the same donor sperm and donor oocytes in independent cycles, resulting in simultaneous pregnancy of full siblings.

Conclusion(s): As providers with the knowledge that anonymous full sibling embryos have been created, we may have an obligation to disclose this information to the patients. (Fertil Steril® 2011;96:641–2. ©2011 by American Society for Reproductive Medicine.)

Key Words: Gamete donation, disclosure, half-siblings, full-siblings

Assisted reproduction technology (ART) using gamete donation is used today by a wide variety of patients, including single women, same-sex couples, women with diminished ovarian reserve, and couples with recurrent pregnancy loss (1). As the use of donor gametes has become more common, many advocate disclosure to offspring (2). This sentiment, however, is not uniform and does not necessarily represent what is actually occurring, because recent data suggest that most parents conceiving with the assistance of donor gametes do not disclose the nature of their conception to their resulting offspring (3, 4).

At our institution, all patients using donor gametes to achieve pregnancy meet with an on-site psychologist before undergoing treatment. During this meeting, the existence of half-siblings based on anonymous gamete donation is discussed. Currently, the possibility of genetic full siblings, “twiblings,” as coined by Melanie Thernstrom (5), is not discussed, because the likelihood of such an occurrence is minute. We report herein such an occurrence at our institution.

CASE REPORT

Patient #1 was a 41-year-old married woman with severe male factor infertility and diminished ovarian reserve. She previously underwent three unsuccessful cycles of IVF with intracytoplasmic sperm injection (ICSI) with both partner and anonymous donor sperm. Patient #2 was a 47-year-old single woman with diminished ovarian reserve who had four unsuccessful ICSI cycles using anonymous donor sperm, plus one previous donor-recipient cycle using different oocytes and sperm donors from the case reported here. Within the first six months of 2010, but in independent and exclusive cycles, both of these patients received oocytes from the same donor. At their own discretion and by coincidence, each patient selected the identical anonymous sperm donor from the same sperm bank to inseminate the donor oocytes.

Both patients underwent their respective donor-recipient cycles without complication and each conceived twin gestations several months apart from each other. On routine review of recently completed cycles in our database, it was noted by our lab director that these donor-recipient cycles used the exact same oocyte donor and the exact same sperm donor. Full-sibling embryos had been created and transferred to two different women. At the time that this realization occurred, patient #1 was at 23 weeks’ gestational age with an ongoing pregnancy and supernumerary frozen embryos. Patient #2 suffered a spontaneous miscarriage at 9 weeks’ gestational age, but has frozen embryos for a potential future cycle.

DISCUSSION

This case was presented to the Reproductive Ethics Committee at the Albert Einstein College of Medicine. The majority of the committee thought that if both recipients were aware of the possibility of anonymous half-siblings before using donor gametes, that the providing physicians have no obligation to provide any further information to the recipients. The case was also presented to a group
of regional mental health professionals specializing in infertility, who reached the same conclusion.

Anonymous full-siblings may exist without the parties involved being aware, because the gametes of an individual donor may be used by several institutions. The question of disclosure of anonymous full-sibling embryos being created must be addressed in the context of the same institution and its lab. Are there benefits to disclosure or does disclosure impose unnecessary risk or harm? A potential benefit to disclosure is in the event of medical illness requiring organ donation with specific HLA-type matching. Although this is likely a rare scenario, knowledge of an anonymous full sibling could be imperative to survival when transplantation or stem cell use is essential. An additional benefit is the possibility for one woman to donate embryos to the other. As in our case, although genetic full-sibling embryos were created, one woman’s pregnancy resulted in a live birth whereas the other miscarried. If one of these women opts not to use her remaining frozen embryos, these full-sibling embryos could be donated to the other. Disclosure to both recipients may also have the benefit of creating a unique bond given that their offspring are full siblings.

The most pressing risk with disclosure is the potential to breach a patient’s privacy as well as an uncertainty about what each recipient would do with the information. Disclosure could have the potential to bring more stress to a recipient already dealing with infertility. Certainly, any disclosure of medical information from one patient to another would require the consent of the patient whose information is being disclosed. There is growing evidence to suggest benefit in parental disclosure to their children about their conception (6). Many countries have passed laws or are considering legislation to assist children conceived with donor gametes to obtain information regarding their genetic parents. In addition, websites exist to facilitate donor gamete half-siblings in finding one another.

Disclosure can take place at multiple time points. Disclosing this information to potential parents before embryo transfer provides patients with the chance to evaluate the decision to transfer embryos and to freeze supernumerary embryos; however, disclosure at this point may lead to complicated emotional fallout if only one recipient were to conceive. Unnecessary guilt or stress may ensue if one recipient conceives and another does not with embryos created by the same gametes. Alternatively, disclosure can take place after conception; however, there is a similar emotional toll if both recipients do not have live births. If disclosure occurs only after both recipients have delivered, will the recipients be glad to know their child has a full sibling, or will the recipient be upset not to have had this information earlier? Another potential scenario is the creation of anonymous full-sibling embryos to a recipient that was treated years apart. Is there benefit to disclosing to the new recipient that a known full sibling was previously conceived and/or born? Would this be comforting to the recipient or prompt her to choose a different sperm and/or oocyte donor?

Two possible benefits of nondisclosure are that the privacy of the recipients is ensured, and the potential for introducing more stress with the knowledge of full siblings from an unrelated mother is unrealized. What is the harm in nondisclosure? A possibility, however remote, is that the full-sibling offspring of these two women could potentially meet and mate in the future. Although the likelihood of this is small, it is not unreasonable to think that women being treated in the same office may live near each other and that their children may attend the same school and interact.

An obvious precedent to full siblings being born from unrelated mothers comes from the practice of embryo donation. Embryos generated from oocytes and sperm and then transferred to an unrelated recipient may result in a full sibling to a child from the original donor couple. In these cases, the embryo donors are counseled about the real possibility of their genetic offspring being born and raised by an unrelated recipient, and the donors enter into the embryo donation contract with this understanding. Similarly, the recipient is counseled about the real possibility of preexisting full siblings and they accept the embryos with this knowledge.

When considering disclosure, the risks and benefits to the donor, recipient, and offspring must be considered. The overwhelming majority of studies in the literature focus mainly on the emotional impact on the child and on the parent-child relationship and support disclosure to anonymous gamete–conceived children. The Ethics Committee of the American Society for Reproductive Medicine states that disclosure to the child of the fact of donor conception may be in the best interest of the child (6). The question of whether recipients of full-sibling embryos randomly created by anonymous oocyte and sperm donation should be informed of one another has not been addressed to the best of our knowledge, likely because the creation of anonymous full siblings has never before been reported. This unique situation has led our practice to consider further counseling for all patients using donor gametes regarding the remote creation of anonymous full siblings. Currently, a policy of disclosure has not been established at our institution.