

Successful sperm storage for 28 years

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Objective: To report on two instances of successful long-term cryopreservation resulting in live births.

Design: Case report.

Setting: The patient stored his sperm at a private sperm banking facility, and his partner underwent artificial insemination at an obstetrics/gynecology practice for one pregnancy and at a fertility center for the other.

Patient(s): One man who stored his sperm before treatment for cancer.

Intervention(s): Storage of sperm under liquid nitrogen in a carousel canister system. Intrauterine insemination in which the semen was thawed, washed with human tubal fluid (HTF), and inseminated.

Main Outcome Measure(s): Successful pregnancy resulting in live birth.

Result(s): Artificial insemination with semen cryopreserved for 21 and 28 years resulted in two live births.

Conclusion(s): This case report describes the to-date longest known successful cryopreservation of sperm, with two live births resulting from IUI. Successful long-term semen storage can be very beneficial for men facing impaired fertility or sterility early in life, so that they have sufficient time to make appropriate family planning decisions. (Fertil Steril® 2005;84:1017.e3–4. ©2005 by American Society for Reproductive Medicine.)

Key Words: Semen storage, cryopreservation, intrauterine insemination

Semen storage is often performed for men before undergoing treatments, such as for testicular or other cancers, that may result in impaired fertility or sterilization. Especially for young men, the long-term viability of frozen semen is important, as there may be many years between the interval when the semen is frozen and when the client chooses to have children.

In March 2004, a case report of a live birth with sperm cryopreserved for 21 years and used for IVF, the longest heretofore reported in the literature, was published (1). After seeing that report, a client of Idant Laboratories contacted our facility because he had fathered two children in recent years, both of whom were conceived using sperm frozen for more than 21 years.

MATERIALS AND METHODS

In April 1972, a 28-year-old man stored his sperm with Idant Laboratories in New York City, New York, before vasectomy.

The semen was initially treated with 10% glycerol solution and frozen slowly in a -80°C mechanical freezer and ultimately stored in liquid nitrogen at -196°C in a carousel canister system, in contrast to a rack and cane system. This method of storage allows individual specimens to be re-

Received December 15, 2004; revised and accepted May 5, 2005.

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trieved without removing any other specimens from liquid nitrogen storage. Even without melting, repeated exposure to higher temperatures has been found to result in some loss of vitality (2).

In March 1994, 21 years and 11 months after storage was initiated, the stored sperm was used for an IUI procedure by Dr. Allen Levine of Orange OB/GYN Association in New York, New York, and a daughter was born on December 10, 1994. The semen was thawed, washed with human tubal fluid (HTF) (gradient washing was not available at that time), and inseminated. The motility count was not measured. The mother was 33 years old.

In March 2001, another IUI was performed by Dr. Nancy Durso of Mid-Atlantic Fertility Center in Bethesda, Maryland, from the same batch of stored sperm, and a son was born on January 3, 2002. The semen was thawed, washed with HTF (gradient washing was not available), and inseminated. The motility count was not measured. The mother was 40 years old, was taking gonadotropins, and conceived on the first cycle. The sperm used for this insemination had been frozen for 28 years, 11 months.

RESULTS

Both instances of IUI resulted in successful live births.

DISCUSSION

These results report on the to-date longest known storage of frozen semen resulting in successful inseminations. This case is unusual not only because of the length of storage, but also because both pregnancies were achieved from IUIs.

These results provide further support to previously published results that sperm can be successfully cryopreserved and used after two or more decades. Young men who are facing impaired fertility may be able to benefit from frozen semen storage even when they have no short- or medium-term plans to begin a family.

At the present time, the Food and Drug Administration does not have any specific standard for reporting the effectiveness of semen storage. Further study of the long-term viability of semen, as well as increased reporting by semen storage facilities as to their storage methods, are likely to continue to improve the ability for young men

facing impaired fertility or sterility to begin families later in life.

REFERENCES

1. Horne G, Atkinson AD, Pease EH, Logue JP, Brison DR, Lieberman BA. Live birth with sperm cryopreserved for 21 years prior to cancer treatment: case report. *Hum Reprod* 2004;19:1448–9.
2. Salisbury GW, Lodge JR. Gametic integrity during storage at low temperatures—evidence for an aging effect. The integrity of frozen spermatozoa: proceedings of a round-table conference held April 6–7, 1976, at the National Academy of Sciences, Washington, D.C., under the auspices of the U.S. National Committee for the International Institute of Refrigeration, in conjunction with the Food and Drug Administration and the Naval Medical Research Institute, Washington, D.C.: NAS, 1978:92–119.