

First frozen egg baby born in Canada

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The McGill University Health Center (MUHC) in Montreal has announced the first successful birth in Canada resulting from frozen eggs. A team led by Professor Seang Lin Tan, Chair of the Department of Obstetrics and Gynecology at McGill University and Director of the McGill Reproductive Centre at the MUHC in Montreal confirmed the birth of a healthy baby boy, weighing 3740grams on April 29. "We are the first in-vitro fertilization (IVF) Centre in Canada to achieve this success," says Dr Tan. "This is fantastic news for both the family and for fertility health research and we would like to congratulate the parents on the birth of their first child."

The mother, a 26-year-old patient of the McGill Reproductive Centre, had suffered from infertility for two years. Initially, she planned to undergo treatment with ovarian stimulation and intra-uterine insemination (IUI). Because she produced too many follicles in her ovaries, the treatment cycle had to be cancelled because of a high risk of multiple-fetal pregnancy. As an alternative treatment, she had eggs collected from her ovaries, which were then frozen in liquid nitrogen at -196°C . After a period of two months, the eggs were thawed and fertilized with her partner's sperm through in-vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI), and the resulting embryos implanted in her uterus.

"The patient went through an uncomplicated full-term pregnancy and straightforward delivery," says Dr William Buckett, the MUHC physician who looked after the mother during the pregnancy. The parents, who requested anonymity, described the procedure as easy and

uncomplicated. The father stated: "Words cannot describe the event-I was standing in the delivery ward and I was helping my beautiful partner when she gave birth to this beautiful baby. I wish to take this opportunity to thank the MUHC staff, and especially the staff of the Reproductive Centre."

The McGill Reproductive Centre of the MUHC is pioneering a revolutionary new freezing technique, which has dramatically increased egg survival rate. Human eggs are very fragile and have high water content. Conventional methods of freezing have been relatively unsuccessful because they allow the formation of ice crystals, damaging the cells and rendering the egg unusable. This problem has now been resolved by a new method of rapid freezing called vitrification developed at McGill by Dr Ri-Cheng Chian, Scientific Director of the McGill Reproductive Centre at the MUHC and Dr Tan. Each egg extracted from the ovaries of the patient is drawn into a protective device, invented by Drs Chian and Tan, called a "Cryoleaf", and then placed in a special vitrification solution. The eggs undergo super-rapid cooling at a rate of more than 20,000°C per minute, which prevents ice crystal formation and increases egg survival to approximately 90%. The frozen eggs can then be safely stored in the Cryoleaf until it is ready for use, at which point it is carefully thawed, then fertilized.

To date, 15 patients at the McGill Reproductive Centre have had embryo transfer produced from vitrified eggs, resulting in 7 pregnancies including this livebirth. "The results are particularly encouraging because this success rate is comparable to regular IVF cycles with ICSI using fresh eggs in many IVF centres," says Dr Tan.

Egg freezing is useful for a number of reasons. "The process enables young women diagnosed with cancer to preserve their fertility before undergoing chemotherapy and radiotherapy, which can cause infertility and premature menopause," says Dr Lucy Gilbert, Director of

Gynecological Oncology at the MUHC. Over the past two years, 16 cancer patients have had their eggs frozen at the MUHC. "Egg freezing also allows young women who wish to delay childbearing to do so safely," notes Dr Tan. After 30 years of age, a woman's fertility declines and the rate of spontaneous abortion increases significantly. The risks of chromosomal abnormalities, such as Down's syndrome, are also higher in babies produced by older women. Finally, current egg donor programs require matching the menstrual cycle of egg recipients; this problem can be eliminated with egg freezing.

The McGill University Health Centre (MUHC) is a comprehensive academic health institution with an international reputation for excellence in clinical programs, research and teaching. The MUHC is a merger of five teaching hospitals affiliated with the Faculty of Medicine at McGill University – the Montreal Children's, Montreal General, Royal Victoria, and Montreal Neurological Hospitals, as well as the Montreal Chest Institute. Building on the tradition of medical leadership of the founding hospitals, the goal of the MUHC is to provide patient care based on the most advanced knowledge in the health care field, and to contribute to the development of new knowledge.

Source: McGill University

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