

## To your health: Abington practice offers state-of-the-art fertility procedure

By Linda Finarelli  
Staff Writer

Rebecca Feder and her husband had tried several rounds of fertility medicines to no avail. The couple also had interviewed a number of adoption agencies.

“We wanted to have a family,” said Feder, “the preference was to have our own kid ... we thought we’d give IVF [in vitro fertilization] a chance and if that didn’t work move with adoption.”

Referred to Abington Reproductive Medicine, Feder opted to participate in a human cell coculture study and at age 30 “was very lucky I got pregnant the first time,” the Newtown woman said.

The procedure — autologous endometrial coculture — was developed by Dr. Larry I. Barmat of Abington Reproductive Medicine under the guidance of Dr. Zev Rosenwaks and Dr. Helen Liu during his fellowship at Cornell University in 1995. Barmat, a resident of Abington, said he had previously used animal cells for coculture during his residency at Einstein Medical Center.

At Cornell, he was assigned to develop an endometrial (uterine lining) coculture system, which took about six months to have up and running, Barmat said.

The procedure involves removing a small piece of the patient’s uterine lining, which is then treated, purified and frozen in a lab. The woman next undergoes typical in vitro fertilization in which she is given medication to stimulate egg growth and the eggs are retrieved and mixed with her partner’s sperm.

After the eggs are fertilized, the patient’s embryos are placed in a liquid that rests on top of the woman’s thawed endometrial cells. The cells produce lots of growth factors, Barmat said, so the chances for embryos that are poor in quality are improved.

“It optimizes the in vitro culture environment,” he said.

Following two days of monitoring for growth and development, the embryos are transferred to the woman’s uterus for implantation and pregnancy.

The procedure is recommended for those with multiple failed in vitro fertilization attempts and those with poor embryo quality.

“In a certain subpopulation of patients, this helps,” Barmat said. “It’s another treatment option.”

In 2002, the U.S. Food and Drug Administration said non-human cell lines could no longer be used in coculture. Previously — coculture to grow human embryos with animal cell lines was first done in 1989 — the procedure had been used most commonly with African green monkey kidney cells and bovine cells, but the FDA was concerned with the possible transfer of animal diseases, “so they put a halt to all animal coculture,” Barmat said.

A native of Northeast Philadelphia and graduate of Temple Medical School, Barmat was already using human cells for coculture when he began practicing at Abington Memorial Hospital in 2001.

With Abington Reproductive Medicine one of a handful of centers in the world to offer the human cell coculture, patients have come from other states for the procedure. In addition, doctors from other states and countries have come to learn the technique, Barmat said.

Physicians from Turnkey, France, the University of Connecticut and Florida “came to learn how to do this,” he said. “There is no charge. It’s an academic sharing of information.”

The process is very labor intensive — Barmat has trained three lab technicians to do the hands-on lab work involved — which is perhaps why the treatment option is limited in its availability, he said. It also requires laboratory equipment, so the drawbacks are time and money.

There are only a dozen articles published on the technique, eight of which Barmat or his replacement at Cornell have been involved with. Other authors are from Spain and France.

“There might be others doing it, but not publishing,” Barmat said.

The procedure has been used extensively at Cornell, where about 1,000 patients have been treated since Barmat developed it. Abington Reproductive has done about 400 cases over the last four years, he said.

Feder, one of the success cases, whose son was born in October 2005, is now pregnant with a second child through the same method. After the initial treatment, Feder had four embryos that could be frozen and went back in June and had one implanted, she said.

“I trusted the science side of Abington Reproductive, and on the emotion side, I felt though it was an artificial process, having my embryos spending an initial period on my uterine lining, I felt better. Emotionally it was less artificial,” Feder said.

Despite the success for a number of patients, “we don’t know right now if coculture is improving pregnancy rates,” Barmat said. From a review of all the literature, it looks like coculture improves the ability to get pregnant, but at least 305 patients in each group — those using the coculture and those using the normal in vitro procedure — is needed to do an effective study, he said. Abington Reproductive Medicine has about 100 patients so far in the study, which began about 18 months ago. The pregnancy rate has been about 60 percent to 70 percent for both groups, all age 38 or younger, thus far. Barmat said he expects the study to conclude in another six months to a year.