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NEWS

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*****UT Southwestern doctors diagnose and treat newly recognized form of infertility.

DALLAS--About 15 percent of married couples in the United States are infertile. Often the cause remains a mystery.

But now doctors at The University of Texas Southwestern Medical School at Dallas and some of the other major research centers across the country are using recently developed medical technology to diagnose and treat what is fast becoming recognized as a leading cause of infertility--small, benign pituitary gland tumors.

Although little more than pea-sized, the pituitary is the body's "master gland." It hangs by a thin stalk from the base of the brain and from that important position secretes hormones that control the other glands of the body, including the reproductive glands (the ovaries and testes).

One of the hormones secreted by the pituitary is "prolactin," which stimulates the mammary glands to lactate, or produce milk. When a "nest" of prolactin-secreting pituitary cells develops into a tumor, it can interfere with the pituitary's production of other hormones, including those which stimulate the ovaries and testes, explains Dr. Kemp Clark, professor and chairman of neurosurgery at UT Southwestern.

"You've probably heard the old wives' tale that as long as a woman is lactating, breastfeeding her baby, she cannot conceive another child. Well, that's not always true but in a way that's how a prolactin-secreting tumor prevents pregnancy. The continued production of prolactin prevents the pituitary from making hormones that are needed to stimulate the ovaries to produce an egg and the testes to produce sperm."

In women, the lactation that occurs is not always noticeable, that is, they don't necessarily have a "wet bra" all the time, Dr. Clark continues. "Many of the ladies we see with this tumor are unaware that they have milk in their breasts. In fact, very few of them come to us with milk just pouring out of their breasts."

In men, only in very, very rare cases do elevated prolactin levels result in the production of breast milk, he adds.

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first add infertility

Until recently there was no test available for accurately measuring the amount of prolactin secreted by the pituitary, so doctors were unable to diagnose this form of infertility. Many scientists even denied the existence of prolactin in humans. But in 1971 three Canadian researchers announced they had used a sophisticated new technique known as a "radioimmunoassay" to measure human prolactin.

Since then it has become a prime test in diagnosing infertility and the tumors are being found in increasing numbers of such patients, Dr. Clark says. "I don't think anybody can say yet how many people have this tumor because we haven't been doing the test long enough to really know."

Some have suggested that widespread use of the birth control pill may be causing an epidemic of these tumors, notes Dr. James Madden, associate professor of obstetrics and gynecology at UT Southwestern. "The question is, are we seeing more of these patients because of improved diagnostic techniques or is there an environmental factor involved, such as the fact that 10 million American women are taking the birth control pill?"

So far there is no hard evidence incriminating the pill. Dr. Clark says he believes the tumors always have been there and, "The incidence just appears to rise in the last few years because advances in technology have improved our ability to recognize the condition." And he points out that researchers are beginning to realize that many infertile men also have the tumors. Five such men have been treated at UT Southwestern.

"We were not aware of these tumors before because nobody with one ever died because of it or had a lot of bad symptoms," Dr. Clark says. "They were just unfortunate individuals who either could not have children or could only have one."

In very rare cases the tumor grows to the point that it presses on an optic nerve and results in blindness, he adds. "But normally these tumors do not grow. They simply sit there making prolactin and preventing fertility."

Several of the patients diagnosed at UT Southwestern as having the tumor decided that rather than having it removed, they would continue using it as a "natural" means of birth control, Dr. Clark continues. "When it was determined that they had the tumor, some patients thanked us very kindly and said they didn't want it removed because they had all the children they wanted."

These patients as well as the 13 whose tumors were surgically removed by Dr. Clark are being followed closely in an effort to determine the appropriate therapy.

"We are looking at two basic questions," explains Dr. Madden. "First, what are the endocrine changes that occur as a result of the tumor and following the removal of the tumor and second, what happens if you leave the tumor alone--will it cause problems such as visual damage?"

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At this point in their study, only those who desire fertility are sent to Dr. Clark to have the tumor surgically removed.

The procedure used by Dr. Clark is "transphenoidal" microsurgery, which begins with an incision above the upper front teeth and follows a route through the nasal passage to the "sphenoid" sinus.

"When you enter the sphenoid sinus you are looking at the floor of the bony structure which houses the pituitary gland," explains Dr. Clark. "You simply open that structure and then look for the tumor."

This surgical procedure is not new; it was first used at the turn of the century by Dr. Harvey Cushing, the "father" of neurological surgery. But it was not until the recent addition of the operating microscope and special lighting techniques (by microsurgery pioneers Gerard Guiot in Paris and Jules Hardy in Montreal) that it became possible to selectively remove these tiny tumors without disturbing the brain or destroying healthy pituitary tissue.

"The post-operative course of these patients is remarkably good," Dr. Clark says. "We've had several go home on the third day after surgery."

Three out of the first 10 women who had their tumors removed at Southwestern have become pregnant "spontaneously," that is, without the use of ovulation-inducing drugs. One of two women who were given those drugs did become pregnant.

In a substantial number of patients the prolactin levels fall after surgery but later rise again, and in others they fall but not to normal levels, Dr. Clark says. "We really don't know why that happens. It may be that there is more than one tumor and we are just removing the largest one."

There is a drug, "bromocryptine," that seems to be highly effective in the suppression of the tumors. Although it is widely used in Europe, bromocryptine is not available in the United States. The U.S. Food and Drug Administration (FDA) currently is studying its safety and efficacy. Some investigators have reported that the drug induces gonadal tumors in rats and cleft palates and cleft lips in rabbits.

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