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A Little Knowledge, a Lot of Agony

By KATHLEEN MCAULIFFE

FIVE years ago, a much-wanted pregnancy at age 37 prompted me to seek prenatal testing. I had of course been prepared for the possibility of bad news. But the test results posed a harrowing dilemma unlike anything I had anticipated or been warned to expect.

What is more, as a medical writer, I had entered the testing procedure better informed than most expectant parents. Yet I became a prime example of how people can be unwittingly steamrolled by the advancing juggernaut of genetic science.

The grainy picture on the ultrasound machine was murkier than I thought it would be, but still there was a glorious baby, bobbing about like an astronaut in zero G. At 16 weeks, it had a gracefully arched spine in the sweeping stroke of a question mark, perfectly aligned ribs and, in one breathtaking shot, a classic Roman profile.

As my doctor maneuvered the syringe in my womb to get a sample of amniotic fluid, the baby suddenly grasped in the direction of the intruding object. "That's a reflex response they sometimes have to the fluid being disturbed," the doctor said.

I didn't buy it. The baby reached toward the needle because it was curious. The brain of such a young fetus isn't functional; that is, its neurons don't fire in a concerted pattern suggestive of consciousness. But this wasn't a fetus to me anymore, this was my baby, brought to me courtesy of modern technology, six months earlier than nature intended.

The bonding my husband and I experienced with the fetus as a result of our brief ultrasound encounter, I later learned, is common among parents. And in the opinion of many geneticists, it's often beneficial. By bringing an invisible abstraction into stark focus, ultrasound's window on the womb encourages expectant mothers to take care of themselves. The downside is that it makes unwelcome results all the more jarring.

The report from our genetic counselor was ominous. The fetus was male, he haltingly began his call. It appeared to be normal -- except for an alteration on one chromosome.

"Except for?" I screamed, prompting my husband to pick up the other line.

"The baby is probably healthy," the counselor reassured us. "In fact, if either of you have the same chromosome alteration the fetus will be at no increased risk whatsoever. You'd be living proof that the abnormality had no harmful effect."

He described the alteration in detail: a large segment of chromosome 2 had done a 180-degree flip upside down known as an inversion. "And if neither of us has this defect?" my husband asked.

The baby still might be fine, the counselor said -- assuming no gene had been lost in the reshuffling. But if even a fraction of a gene had been nicked or scrambled, the consequences could be terrible. He might be born deformed or retarded and suffer from multiple disabilities. The chance of that happening, our counselor estimated, was probably in the 5 percent to 10 percent range. A baby in the overall population, the counselor reminded us, has a 2-to-3 percent risk of being born with a serious congenital anomaly.

The next step, we agreed, was genetic testing for my husband and me. If either of us had the defect, our worries would be over.

A week later the news wasn't good; the inversion was the baby's.

I accepted the news in my measured reporter mode, then hung up the phone and howled. What were we to do with this information?

Paradoxically, I had previously shunned genetic revelations in the form of fuzzy, unfathomable probabilities. Years earlier, while interviewing a leading geneticist for a story, I was offered a "susceptibility" test that was weakly predictive of colon cancer, which runs in my family. "Thanks, but no thanks," I had said.

Clearly, the limited powers of the new genetic seers were not a novel concept to me. So why was I blind-sided by the results of a routine screening tool?

VERY simply, I believed we were signing up for a test that would offer us relatively clear-cut findings. Based on my knowledge and our pretest counseling, I viewed amniocentesis as a test for Down's syndrome and other gross chromosomal defects whose effects are debilitating or devastating to a majority of those affected.

In other words, I saw the standard battery of tests performed during prenatal screening as highly predictive and the information of unquestionable utility.

What I didn't know was that amniocentesis has become adept at detecting tiny imperfections whose implications vary wildly. The inversion detected in our fetus is one of many such smaller defects, collectively known as chromosome structural abnormalities. Accounting for 1 in every 6 hereditary aberrations detected by amniocentesis in women over 35, they include microscopic deletions, duplications and rearrangements that are highly idiosyncratic.

Indeed, some are such oddballs that they exist as single case studies in medical literature. And interpreting their meaning is anything but a precise science. Large portions of chromosomes, it seems, are devoid of any genes or carry redundant code, so juggled or missing bits and pieces do not necessarily portend ill.

In a face-to-face, hourlong meeting, our genetic counselor gave us facts, such as they were. But he could shed little light on our predicament. Various registries, which keep track of chromosome abnormalities and their clinical implications, had been consulted, but he was not aware of any other case like ours.

We stared, mystified, at our son's stained chromosomes splayed in black-and-white bands. Just how had our counselor come up with a 5-to-10 percent risk? Turns out this estimate was based on a single study of fewer than 50 cases of similar inversions detected in fetuses electively aborted or carried to term.

With such a small sample size, the reliability of the odds we had been given was dubious. But that didn't diminish the study's power to shock. A table of abnormal outcomes listed a menagerie of horrors: children with mushroom heads, clouded eyes, lungs with missing lobes, amorphous blobs for limbs and other cruelties too awful to contemplate.

My husband remained undaunted, even upbeat. The ultrasound at 16 weeks, he pointed out, had been normal. If anything was wrong, it was probably something minor that could be corrected. What's more, if I continued the pregnancy, our genetic counselor had recommended a final ultrasound scan at 20 weeks -- just before the legal cutoff point for a late-stage abortion in Florida. Surely, he argued, serious malformations would be detected then.

I was not so reassured. Schooled in the intricacies of developmental biology, I knew that an

imperceptible error -- a faulty hemoglobin molecule, a single missing enzyme in the brain or liver -- could spell doom as surely as a grave deformity.

SURELY someone must know something that would make our choice more clear. I called around, beginning with Jorge Yunis, the geneticist who had offered me the colon cancer test. A pioneer in the analysis of fetal chromosomes, Dr. Yunis seemed shaken when I reached him by phone.

"I got out of the field of prenatal screening years ago," he told me. "It gives me the heebie-jeebies; the uncertainty is awful."

Two other geneticists more current in the field could only corroborate what little I already knew.

"In Germany, counselors are directive, they tell couples what to do," said Dr. Robert Gorlin, a clinical geneticist at the University of Minnesota. "We don't do that here. We just lay out the facts and let people decide for themselves."

Gradually, the reality sunk in: we would have to make our decision alone and in the dark.

My husband and I debated proceeding with the pregnancy. The risk, in his view, was scary but not sufficient to warrant an abortion. I, on the other hand, vacillated: one moment I was convinced the risk to the fetus was negligible; the next moment I was conjuring images of the monstrous ways a child could be wrenched from the human template.

During all this I got a call from a friend who has worn many hats in his life, from internist and molecular biologist to medical director of a company marketing genetic tests. "Congratulations, I hear you're pregnant," he said, as if his wife had not told him that the baby had a genetic abnormality. But he was taking his cues from me and remained matter-of-fact, answering technical questions and nothing more.

As our conversation ended, I finally asked, "If you and your wife were in my position what would you do?" The pause was so long I thought he hadn't heard me. Then in a calm, clear voice he announced, "I'd advise her in no uncertain terms to terminate the pregnancy."

I gasped. "Sorry," he said, "but you asked."

I tried to console myself that my choice would be clearer in time. But each day I grew more muddled. I couldn't eat or sleep; I dropped six pounds in almost as many days.

One day, my husband finally said: "I just want you to know that I love you, and that your opinion counts most to me. It's your body. Whatever you decide to do I'll respect."

LATER I told him my decision: I wanted an abortion. "I was veering in that direction myself," he said.

My ob-gyn was appalled. "If someone offered me a ticket for the Irish sweepstakes with favorable odds like that, I'd be in," he said. Then, face reddening, he faltered. "I'm so sorry -- that's a klutzy metaphor for a difficult situation."

Seeing my resolve, he nobly agreed to do the abortion. We made a pact, though: the report of the fetal autopsy would be sent to a genetic registry so that other couples might benefit from the findings. But I did not want to know the results.

How do I feel about my choice now? There is sorrow -- how could there not be? I still keep the ultrasound photograph of my aborted baby tucked in a drawer. But fate has been good to me. Almost a year to the day after the abortion, a screaming baby girl with ear-piercing good health was delivered into my arms. Two years later, we were blessed with a robust son, now a delightful 1-year-old.

There is something else. I know the results of the fetal autopsy because they were sent to our home by mistake. According to the pathologist, the baby seemed to have "crushing" deformities probably owing to insufficient amniotic fluid in the womb -- a not-uncommon consequence of genetic defects. Without adequate room to develop, the baby's facial features had grown distorted, and all the joints had been damaged, suggesting that it would not have had the use of its limbs.

"You must feel vindicated," a friend said after I told her the news. Not really. Vindicated suggests there was a right or wrong choice to make. But if there is a moral to my story, it is that there is no moral. Embarking down the path of prenatal testing, I did not foresee where it might lead, and I made my choice without knowing what the future held.

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