

## *Parathyroid Disease During Pregnancy and the Risks of Hyperparathyroidism to Baby and Mother*

Parathyroid disease (hyperparathyroidism) occurring during pregnancy is a very serious problem. Both the mother's and child's life may be at risk, and the chance for life-long calcium problems for the child exist. The treatment is surgery for the mom usually during the second trimester.

Parathyroid disease is not very common. Parathyroid disease during pregnancy is VERY RARE. However, this can be a VERY serious problem for both mother and child. It must be addressed in the correct fashion for the best results... and the obstetrician and the surgeon must communicate so that both the mother and the child do well.

### *Potential Risks of Hyperparathyroidism During Pregnancy:*

- Increased risk of hypertension (pre-eclampsia and eclampsia) in the mother.
- Risk of miscarriage can be as high as 25 percent.
- Risk of permanent hypoparathyroidism in baby (failure of the parathyroid glands to form).
- Risk of heart rhythm problems during labor / delivery.
- Risk of premature birth.
- Risk of seizures in the baby during first few days of life (due to LOW levels of calcium).

Parathyroid disease (hyperparathyroidism) is not common and it usually affects people in their 50's and 60s... but some young people DO get hyperparathyroidism. Treating parathyroid disease almost always involves elective surgery that can be scheduled weeks or even months ahead of time. One of the few times when parathyroid disease is dangerous and requires expert care and thoughtful preparation is during pregnancy. The pregnant female is at risk for significant pregnancy problems and complications, but more importantly, the life of the baby is at risk. Furthermore, even a 'normal' pregnancy and delivery do not eliminate the the baby's risk for development problems within their endocrine system -- because of the mother's high calcium levels. Lets look at some of these problems individually.

### *The Risk of Miscarriage*

The data about miscarriage (loss of the fetus) comes from the medical literature. Because of the rarity of the combination of hyperparathyroidism and pregnancy, the author of this page of the web site (Dr. Norman) has reviewed all the medical literature on his topic published during the past 12 years. There is a real and significant risk for miscarriage in a mother with

hyperparathyroidism. Importantly, the risk appears directly related to the calcium level in the mother. Mothers with a very high calcium level (above 12.0) appear to have the highest risk of fetal demise and death. Some reports show that the risk of fetal death can be as high as 25% in women with calcium levels above 12. The reasons for fetal death in mothers with hyperparathyroidism is not completely clear, but problems with maternal blood pressure and its effect on the placenta have been seen. In general, it is not completely known why hyperparathyroidism and high calcium levels cause such a high risk for fetal death.

### *The Risk of Permanent Hypoparathyroidism in the Baby*

Hypoparathyroidism is the OPPOSITE of hyperparathyroidism. Nearly all of this large web site is about hyperparathyroidism. There is only one page of this web site dedicated to hypoparathyroidism... click here to read more. When a person has no parathyroid glands and thus no parathyroid hormone (PTH), then they are said to have hypoparathyroidism. Since PTH is absolutely required to maintain the calcium in our bodies, people with hypoparathyroidism have difficulty with calcium metabolism. In fact, these people are required to take large amounts of calcium pills every day of their life, and possibly (probably) have a shot of PTH under the skin every day just as a diabetic takes insulin (insulin is a hormone just like PTH -- Insulin runs the blood sugar, PTH runs the calcium).

NORMAL parathyroid glands have a built-in regulatory system... they respond to calcium levels in the blood. When the calcium is low, normal parathyroid glands make PTH. When the calcium is high, normal parathyroid glands shut down and become dormant. This is the danger in the baby! If a pregnant woman has high blood calcium due to hyperparathyroidism, then the high calcium will be found in exactly the same way in the baby. So a pregnant female with a calcium of 12.0 will have a fetus with a calcium of 12.0. Since the parathyroid glands are formed some time during the second and early third trimester, they can be affected by the high calcium. If the calcium level is high, the parathyroid glands that are supposed to be forming can be shut down just as they are supposed to be growing into normal glands. Sometimes, they can be so suppressed that they don't form at all and the baby is born without functional parathyroid glands. If this is the case, the baby will need HIGH doses of calcium in the nursery during the first few days of life, and possibly for life. Again, just as the risk of miscarriage goes up with higher levels of calcium, so does the risk of hypoparathyroidism in the baby. Note... not all baby's that have signs of hypoparathyroidism (very low calcium levels) during their first few days of life will have permanent hypoparathyroidism. Most will have it temporarily and will be fine once they are given enough calcium early on... and their parathyroid glands have a chance to wake up and perform normally.

### *Risk of Seizures in the Baby During First Few Days of Life*

Throughout this web site we discuss the importance of calcium in the function of the human nervous system. Calcium is what makes our brain and nerves function (and muscles)... thus most of the symptoms of parathyroid disease can be traced back to the need for the nervous system to have calcium levels in a very tightly controlled normal range. Outside this range (8.5 to 10.2) we get symptoms -- with the symptoms of high calcium being the symptoms of hyperparathyroidism, while the symptoms of a low calcium being the

symptoms of hypoparathyroidism. When the calcium levels in the blood get very low (below 8), we can have seizures.

When a baby is born to a mother with hyperparathyroidism, the baby's parathyroid glands can be under-developed (as discussed above). But, even if the baby's parathyroid glands developed normally, they will be shut-down (suppressed) because that is what normal parathyroid glands do in the presence of high calcium. So, when this baby is born, they will have a high calcium (just like their mother), but over the next 24 hours their calcium will drop -- and continue to drop until their parathyroid glands wake up and start producing PTH. If the calcium goes to low during this time and the doctors are not monitoring it, the baby can have seizures. The treatment is straightforward -- give the baby some calcium into his/her veins to increase the blood calcium levels.

### *When to Operate on a Pregnant Woman with Hyperparathyroidism*

The medical literature is fairly consistent in recommending that the mother be operated on during the early part of the second trimester. The reasons are several. First, operating during the first trimester can be too dangerous for the baby -- the risk of complications due to the anesthesia and/or the surgery is less in the second and third trimester. Secondly, the parathyroids will be forming in the baby during the second and third trimesters, so to avoid the potential of the baby NOT developing his/her parathyroid gland the high calcium levels in the mother need to be removed. Thirdly, high calcium levels during the third trimester are associated with the development of high blood pressure and other complications in the mother (pre-eclampsia and eclampsia). Thus, hyperparathyroidism in a pregnant female should almost always be fixed. And, this should be done with a minimally - invasive procedure that is as quick as possible, and of course, has a high likelihood of cure. It should be performed in the early part of the second trimester, and it should be performed by an expert parathyroid surgeon. Typically, an obstetrician specializing in high-risk OB should be involved in the care of the mother and baby during this time.

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