Intracranial tumors

Patient Information Series – What you should know, what you should ask.

What are Intracranial tumors?

Intracranial tumors, also known as brain tumors, are tumors that occur as a result of abnormal growth of cells in the brain. Brain tumors that are identified within 60 days of birth are usually said to be congenital brain tumors, i.e. the tumor was either present at or before birth. Brain tumors are not very common. They make up between 0.5% and 1.9% of all tumors in children. Less than one in a million babies born alive will have a congenital brain tumor. This can be due to the significantly low chances of a baby with brain tumor reaching full term.

How do intracranial tumors happen?

We do not know exactly what causes intracranial tumors to develop in early life but it is believed that if a pregnant woman is exposed to certain medicines, viruses or radiation, that may cause some abnormal changes in the unborn baby's brain. These changes may eventually cause a brain tumor to develop. Additionally, if cells in the brain fail to grow and mature normally, a tumor growth may result.

Some congenital brain tumors have been found to have abnormalities in their genetic makeup, suggesting that such genetic abnormalities may contribute to the development of tumors.

Should I have more tests done?

Recent advances in methods for identifying brain tumors have helped in making their diagnosis easier. The duration of a pregnancy is usually divided into thirds, each called a trimester. Congenital brain tumors are usually identified in the second and third trimesters of a pregnancy, and this is by the use of ultrasound techniques. Where available, magnetic resonance imaging (MRI), an advanced imaging technique, helps to characterise the tumor and its extent.

To make a conclusive diagnosis, however, a sample of brain tissue needs to be sent for examination by a doctor specially trained to do so. Unfortunately, it is usually not possible to safely obtain some tissue for examination before the baby is born.

You may request for a procedure called karyotyping, where a test is done to examine your set of chromosomes. It is not necessary in all cases but should be considered if other abnormalities are found.

What are the things to watch out for during pregnancy?

A brain tumor in an unborn baby may be associated with a number of findings during the course of the pregnancy. It is important that the pregnancy is monitored by ultrasound for the development of an enlarged fetal head, skull swelling, and accumulation of fluid in the head, bleeding into the brain or even heart failure. There may also be an increase in the fluid surrounding the unborn baby, a condition referred to as polyhydramnios.

What does it mean for my baby after it is born?

Sometimes a fetus with a brain tumor may also have other congenital abnormalities. These may include a cleft lip (split in the upper lip on one or both sides of the centre) or palate (split in the roof of the mouth), abnormalities in how the heart is formed, as well as abnormalities in the urine production system.

Generally, babies with congenital brain tumors do not do very well. About 28% of the babies survive. The rest usually die before, during, or soon after birth.

The timing of the delivery is very important. If the baby is delivered too early, there may be associated risks of having a premature baby. If the baby is delivered too late, the head may grow too big, thus making vaginal delivery risky for both the mother and the baby.

Treatment for the brain tumor is usually by surgery. Current advances in medicine have reduced a baby's risk of dying during the surgery, as often happened in the past.

In some children radiation treatment may be considered, which involves the use of high doses of radiation to kill and shrink the tumor cells. Radiation treatment however can affect the development of the baby and cause serious challenges with the baby's physical and intellectual progress.

Will it happen again?

Congenital brain tumors are very uncommon and occur in only about 3 out of 10 million babies born alive. There is, however, not much information currently about the risk of a woman having another baby with a brain tumor in any subsequent pregnancies.

What other questions should I ask?

- Can I attempt to deliver my baby normally or will I need a caesarean delivery?
- Is termination of this pregnancy an option for me?
- Can treatment be started whilst my baby is still in the womb?
- Which doctors will be involved in the care of me and my baby?
- What are the chances of my baby surviving after treatment?

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