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NEWS

RSNA Press Release

Vaginal Birth Increases Risk of Hemorrhage in Newborns

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At A Glance

- One out of four babies born vaginally may experience bleeding in and around the brain.
- Most of these bleeds are small and will resolve naturally.
- The bleeds may be caused by compression of the brain or tearing of blood vessels in the head as the baby moves through the birth canal.

OAK BROOK, Ill. - The first researchers to use magnetic resonance imaging (MRI) to study the brains of a large group of babies soon after birth found a small amount of bleeding in and around the brains of one in four babies who were delivered vaginally. The study appears in the February issue of *Radiology*.

"Small bleeds in and around the brain are very common in infants who are born vaginally," said John H. Gilmore, M.D., professor of psychiatry and Vice-Chair for Research and Scientific Affairs at the University of North Carolina School of Medicine in Chapel Hill. "It seems that a normal vaginal birth can cause these small bleeds."

For the study, 88 asymptomatic infants, equally divided between male and female, underwent MRI between the ages of one and five weeks. Sixty-five had been delivered vaginally and 23 had been delivered by cesarean section. MR images showed that 17 (26 percent) of the babies who had been delivered vaginally had intracranial hemorrhages (ICH), or small bleeds in and around the brain. Seven infants had two or more types of ICH. Prior studies have shown a smaller incidence—approximately 10 percent—of intracranial hemorrhage associated with vaginal birth.

While ICH was significantly associated with vaginal birth, it was not dependent on prolonged duration of labor or on traumatic or assisted vaginal birth.

"In our study, neither the size of the baby or the baby's head, the length of the labor, nor the use of vacuum or forceps to assist the delivery caused the bleeds," Dr. Gilmore said. "The bleeds are probably caused by pressure on the skull during delivery."

In a newborn, the bones of the skull have not fused together, so the bones of the skull can shift and frequently overlap each other during vaginal delivery, to allow the baby's head to fit through the birth canal. This shifting can compress the brain or cause blood vessels to tear, which causes bleeding.

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Most of the bleeds identified were very small subdural hematomas—bleeding between the brain and the thick membrane that covers the brain below the skull—and a majority of them were located in the lower, back part of the brain over the occipital lobe or the cerebellum, which is below the occipital lobe.

Typically, small bleeds resolve over time without causing problems, though larger ones may cause problems later in the child's life, including seizures, subtle learning problems or problems with motor development.

"We just don't know at this time what these bleeds may mean over the long term," Dr. Gilmore said.

Further studies must be done to measure the long-term effects of ICH in infants, but Dr. Gilmore noted that expectant parents should not rule out vaginal delivery because of these findings.

"Obviously, the vast majority of us who were born vaginally and may have had these types of bleeds are doing just fine," he said. "Humans have been born vaginally for a very long time, and our brains probably evolved to handle vaginal birth without major difficulty."

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"Intracranial Hemorrhage in Asymptomatic Neonates: Prevalence on MR Images and Relationship to Obstetric and Neonatal Risk Factors." Collaborating with Dr. Gilmore were Christopher B. Looney, B.S., J. Keith Smith, M.D., Ph.D., Lisa H. Merck, M.D., M.P.H., Honor M. Wolfe, M.D., Nancy C. Chescheir, M.D., and Robert M. Hamer, Ph.D.

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