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# Baby Was Infected With Coronavirus in Womb, Study Reports

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5-6 minutes

Researchers said the case strongly suggests that Covid-19 can be transmitted in utero. Both the mother and baby have recovered.





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Researchers on Tuesday reported strong evidence that the [coronavirus](#) can be transmitted [from a pregnant woman to a fetus](#).

A baby born in a Paris hospital in March to a mother with Covid-19 tested positive for the virus and developed symptoms of inflammation in his brain, said Dr. Daniele De Luca, who led the research team and is chief of the division of pediatrics and neonatal critical care at Paris-Saclay University Hospitals. The baby, now more than 3 months old, recovered without treatment and is “very much improved, almost clinically normal,” Dr. De Luca said, adding that the mother, who needed oxygen during the delivery, is healthy.

Dr. De Luca said the virus appeared to have been transmitted through the placenta of the 23-year-old mother.

Since the pandemic began, there have been isolated cases of newborns who have tested positive for the coronavirus, but there has not been enough evidence to rule out the possibility that the infants became infected by the mother after they were born, experts said. A recently published [case in Texas](#), of a newborn who tested positive for Covid-19 and had mild respiratory symptoms, provided more convincing evidence that transmission of the virus during pregnancy can occur.

In the Paris case, Dr. De Luca said, the team was able to test the placenta, amniotic fluid, cord blood, and the mother’s and

baby's blood.

The testing indicated that “the virus reaches the placenta and replicates there,” Dr. De Luca said. It can then be transmitted to a fetus, which “can get infected and have symptoms similar to adult Covid-19 patients.”

A study of the case was published on Tuesday in the journal *Nature Communications*.

Dr. Yoel Sadovsky, executive director of Magee-Womens Research Institute at the University of Pittsburgh, who was not involved in the study, said he thought the claim of placental transmission was “fairly convincing.” He said the relatively high levels of the coronavirus found in the placenta and the rising levels of virus in the baby and the evidence of placental inflammation, along with the baby's symptoms, “are all consistent with SARS-CoV-2 [infection](#).”

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Still, Dr. Sadovsky said, it is important to note that cases of possible coronavirus transmission in utero appear to be extremely rare. With other viruses, including Zika and rubella, placental infection and transmission is much more common, he said. With the coronavirus, he said, “we are trying to understand the opposite — what underlies the relative protection of the fetus and the placenta?”

[Another study](#) published on Tuesday in *eLife*, an online research journal, may help answer that question. It found that while cells in the placenta had many of the receptor proteins that allow viruses to propagate, there was evidence of only “negligible” amounts of a key cell surface receptor and an enzyme that are known to be involved in allowing the coronavirus to enter cells and replicate. The study was led by Dr. Robert Romero, chief of

the perinatology research branch at the Eunice Kennedy Shriver National Institute of Child Health and Human Development.

The report from doctors in Paris said that the woman was 35 weeks pregnant when she came to the hospital with a fever and a cough that she developed a couple of days earlier in what was an otherwise healthy pregnancy. She tested positive for the coronavirus. After three days, fetal heart monitoring indicated signs of distress, and the baby was delivered by emergency cesarean section.

The baby was placed in the neonatal intensive care unit and was connected to a ventilator for about six hours, the authors reported. He seemed to be doing well, but on his third day he became irritable, had trouble feeding and was experiencing muscle spasms and rigidity.

A brain scan showed some injury to the white matter, which Dr. De Luca said resembled symptoms of meningitis or inflammation in the brain. He tested negative for other viruses or bacterial infections that could have caused such symptoms, while tests of his blood and fluid from his lungs were positive for coronavirus infection, the authors said. The baby gradually recovered and left the hospital after 18 days.

The authors said that the highest levels of the coronavirus were found in the placenta, higher than those in the amniotic fluid and in the blood of the mother and baby, which Dr. De Luca said suggested that the virus might be able to replicate in placental cells.

Dr. De Luca, who is also the president-elect of the European Society for Pediatric and Neonatal Intensive Care, said his team was analyzing other suspected cases of placental transmission of the coronavirus.

“This will be helpful for clinicians and policymakers in order to manage pregnant women, check neonates and reduce the risk of viral transmission from mothers to neonates,” he said, adding, “The good news is that the baby recovered spontaneously and gradually despite all this, and this confirms that the disease is milder in early infancy.”