

## **MEDICAL BREAKTHROUGHS** **RESEARCH SUMMARY**

TOPIC: LIVER TRANSPLANTS FOR KIDS: NEW TREATMENTS SAVE LIVES  
REPORT: MB #4802

**LIVER PROBLEMS:** The liver is an organ about the size of a football. It sits just under your rib cage on the right side of your abdomen. The liver is essential for digesting food and ridding your body of toxic substances. Liver disease can be inherited (genetic). Liver problems can also be caused by a variety of factors that damage the liver, such as viruses, alcohol use and obesity. Over time, conditions that damage the liver can lead to scarring (cirrhosis), which can lead to liver failure, a life-threatening condition. Liver disease has many causes including infection (hepatitis viruses), immune system abnormality, genetics, cancer, growths, chronic alcohol abuse, fat accumulation in the liver (nonalcoholic fatty liver disease), certain prescription or over-the-counter medications and certain herbal compounds.

(Source: <https://www.mayoclinic.org/diseases-conditions/liver-problems/symptoms-causes/syc-20374502>)

**BILIARY ATRESIA LIVER DISEASE:** Biliary atresia is a rare disease of the liver and bile ducts that occurs in infants. About 1 in 15,000 to 20,000 babies do not have complete bile ducts and it seems to affect girls more than boys. Within the same family, it is common for only one child in a pair of twins or only one child within the same family to have the disease. Asians and African Americans are affected more frequently than Caucasians. Symptoms appear or develop about two to eight weeks after birth. Cells within the liver produce liquid called bile which helps to digest fat. It also carries waste products from the liver to the intestines for removal from the body. This network of channels and ducts is called the biliary system. When a baby has biliary atresia, bile flow from the liver to the gallbladder is blocked. This causes the bile to be trapped inside the liver, and it quickly causes damage, and scarring of the liver cells (cirrhosis), and eventually liver failure. Biliary atresia in children may occur because the bile ducts did not form properly during pregnancy. For other children, the bile ducts may be damaged by the body's immune system in response to a viral infection acquired after birth. Biliary atresia is treated by a Kasai procedure (also known as a or hepatopertoenterostomy) to re-establish bile flow from the liver into the intestine. The surgeon removes the damaged ducts outside of the liver (called extrahepatic ducts) and identifies smaller ducts that are still open and draining bile. The surgeon then attaches a loop of intestine to this portion of the liver, so that bile can flow directly from the remaining healthy bile ducts into the intestine.

(Source: <https://www.cincinnatichildrens.org/health/b/biliary>)

**LIVING LIVER DONOR TRANSPLANTS IN CHILDREN AND BABIES:** In 15-40 percent of patients the Kasai procedure does not work. Of infants who have had a Kasai procedure, half still require liver transplantation before age five. A liver transplant operation removes the damaged liver and it is replaced with a new liver from a donor. Survival after surgery has increased dramatically in recent years and children with biliary atresia are now surviving well into adulthood. Improvements in transplant surgery have led to a greater availability of livers for transplantation in children. In the past, only livers from small children were deemed a suitable match for a transplant. Today, advances in treatment allow the option of "reduced size" or "split liver" transplants, with a piece of an adult liver for transplantation in a child with biliary atresia. Parents or relatives of children with biliary atresia may now be considered potential donors. Because healthy liver tissue regenerates quickly, the living donor and the child can expect their livers to grow back over time.

(Source: <https://www.cincinnatichildrens.org/health/b/biliary>,  
<https://transplantsurgery.ucsf.edu/conditions--procedures/biliary-atresia.aspx>)

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**If this story or any other Ivanhoe story has impacted your life or prompted you or someone you know to seek or change treatments, please let us know by contacting Marjorie Bekaert Thomas at [mthomas@ivanhoe.com](mailto:mthomas@ivanhoe.com)**