

Media Release

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Surgeon duo save child in utero

Bern/Lausanne: Two experienced surgeons from the Department of Gynaecology and Obstetrics at Inselspital and the Department of Gynaecology and Obstetrics at the *Centre Hospitalier Universitaire Vaudois* (CHUV) have developed a new field of intrauterine operations. During an emergency operation, the doctors for the first time ablate a pulmonary tumour and are able to save the fetus. A healthy baby boy is born.

Inselspital, Bern University Hospital, 22 February 2016, 11:15: Two materno-fetal medicine specialists look at the ultrasound image on the monitor one last time. Then they start the ambitious intervention on the fetus:

A benign pulmonary tumour is exercising life-threatening pressure on the child's heart. Without undergoing the procedure, the young boy would not survive. Neither delivery nor waiting is an option in this precarious situation. Under the extraordinary circumstances, the attending physician consults extensively with the family. Then the decision: Together with his long-term colleague from Lausanne he undertakes to operate on the child in utero.

Proven technique - new area of application

The challenge: Luigi Raio (Inselspital, Bern University Hospital) and David Baud (CHUV - Lausanne University Hospital) have experience operating identical twins in utero who exchange disproportionate amounts of blood with one another through the placenta. Without intervention, in most cases, this so-called "twin-to-twin transfusion syndrome" leads to the death of one or both children. If, however, certain blood vessels in the placenta are successfully ablated using a laser, the blood supply to the babies once again achieves equilibrium. The children then have a good chance of thriving and being delivered in a healthy state. The Department of Gynaecology and Obstetrics in Bern is a pioneer in this type of fetoscopic laser procedure and has offered it since the early 90s.

The two surgeons now use a similar technique to operate on the pulmonary tumour. In this case, however, the operation takes place inside the child's body, in the immediate vicinity of the heart and the aorta. For this reason, the operation has to be even more precise and be performed with constant view of the ultrasound. But the procedure is successful: the pulmonary tumour is disconnected from the blood supply. In the ensuing weeks, the dying tissue shrinks and the child's heart recovers.

A healthy baby boy is delivered on April 13th. This is the first operation of its kind in Switzerland. Worldwide only 17 cases have been reported, with varying levels of success.

A finely-tuned team

Luigi Raio and David Baud have been operating side-by-side on babies in utero for the past three years. This perfect co-ordination allows them to perform delicate procedures on tiny structures: one

acts as the eye, the other as the hand during the operation – and vice versa. Over time, the team has developed extensive expertise and can now even advance into areas that were a utopian ideal just a few years ago. Their cooperation crosses the speech and cultural boundaries between the German-speaking and French-speaking parts of Switzerland, and shows that university resources can be used for advancing medical knowledge and for the direct benefit of little patients.

Figure legends:

[Luigi Raio and David Baud are operating on the child in utero together](#) (Photo, Inselspital, Bern University Hospital).

[The little boy on day eight after delivery](#) (Photo: Pia Neuenschwander).

This is how the operation was performed:

[A needle is inserted through the mother's abdominal wall and the child's rib cage. The surgeons can guide a laser to the blood supply of the tumor directly through this needle.](#) They orientate themselves using an [ultrasound image](#) (Diagram: CHUV / Photo: Inselspital).

[There is enough space for the child's heart after the successful operation](#) (Diagram: Gilbert Maurer on behalf of CHUV Lausanne University Hospital).

Press information:

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Swiss Centre for Fetal Laser Therapy Bern – Lausanne

Founded: 2013

Areas of application: Intrauterine endoscopic laser therapy for complicated twin pregnancies (fetoscopic laser therapy), for paediatric and placental tumours as well as for special malformations.

Intrauterine surgeries to date:

More than 160 procedures since 2000, of which 50 since foundation.