

# Moyamoya Center Children's Hospital Zurich

## International Competence Center for Treatment of Moyamoya Children

The Moyamoya Center at the Children's Hospital in Zurich is one of the few centers in the world specialized in treating children suffering from the neurological disease known as Moyamoya and to restore their normal daily lives. Children with Moyamoya usually present with signs and symptoms of ischemia. Parents from all over the world travel to Zurich with their affected children to seek treatment: Currently the children managed at our center come from 14 different countries.

### A center especially for children

The Moyamoya Center was set up in 2011 by the internationally renowned Moyamoya specialist, PD Dr. med. Nadia Khan. After several years of neurosurgical (clinical and research) practice in Switzerland and abroad, she returned to the Children's Hospital Zurich to

establish the center of expertise for treatment of patients up to the age of seventeen. Together with her team during the first two years as many as 80 revascularisation surgeries were performed and over seventy Moyamoya patients from all across the globe have been managed successfully.

At the Moyamoya Center, the focus is on the individual disease history and presentation of the children. Treatment is provided in an infrastructure which is specially designed for patients from under one year to seventeen years of age. Child-oriented specialised medical and neurosurgical care attuned to the needs of the young patients and combined with close personal support is the main goal at the Moyamoya Center. For this reason, support for the children affected is not terminated after surgery but continues systematically with meticulous follow-ups until adulthood.



### Pioneering work

PD Dr. med. Nadia Khan, has been carrying out pioneering work to raise awareness of stroke in children. Moyamoya Angiopathy still remains a neurological disorder unappreciated in all respects. At an early stage, she established an international group of specialists to collaborate in increasing awareness and understanding the disease. She continues to be involved in research projects,

teaches at universities, organises specialist working-group meetings and a Moyamoya support group for patients. Last but not least she treats Moyamoya patients referred from all over the globe on a daily basis. As a result of her great commitment and extensive international collaboration, the Moyamoya Center is constantly at the forefront of highly specialised neurosurgical care and clinical research.



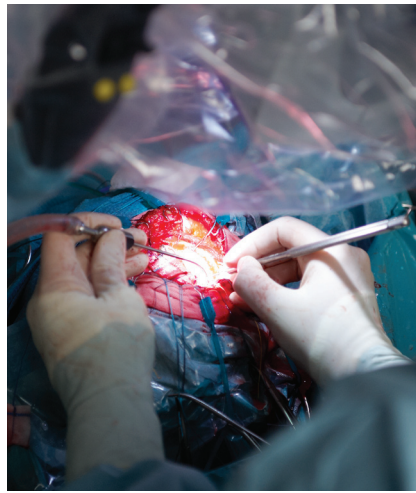
## Moyamoya Angiopathy

This is a neurological disorder in which the major brain arteries narrow and disappear over time. Nature tries to compensate for the impaired circulation by forming compensatory vessels deep in the brain. Japanese neurosurgeons J. Takeuchi and K. Shimizu, who first described the disease in 1957, named it Moyamoya, which means small clouds or puff of smoke in Japanese describing this compensatory vessel formation seen typically at the base of the skull, deep in the brain.

In Nippon, around three in every 100 000 inhabitants suffer from Moyamoya. These include a remarkable number of five-year-old children and adults around forty. In Europe the number of patients who have the same diagnosis is only around a tenth of this number. This is attributable to the fact that Moyamoya is still largely unknown in the Western world. This neurological disorder is unfortunately all too often not recognised and remains un- or misdiagnosed. The consequences for those affected hence are repeated strokes leading to severe sensorimotor deficits, physical disabilities as well as mental retardation and even death.

Early diagnosis can not only prevent a whole range of disabilities resulting from repeated strokes but also significantly improve the chances of recovery. It is noticeable that in children under five the disease is generally well advanced at the time of first diagnosis. Symptoms range from headaches, transient-ischemic events, loss of motor or sensory function of an arm or leg, speech disturbances, visual problems as

well as epileptic attacks. As the disease progresses multiple strokes can occur resulting in progressive brain damage. The cloud-like Moyamoya vessels can be recognized on MRI-MRA (Magnetic-Resonance-Imaging/Angiogram).



In addition to the general lack of knowledge regarding Moyamoya, the treatment options are also largely unknown among medical doctors and only a few specialists are able to provide help. The Moyamoya Center at the Children's Hospital Zurich is the most renowned international competence center for treating children with Moyamoya. You will receive treatment and care here tailored specifically to your needs.

In most of the cases this means one or several revascularization surgeries. After revascularization surgery blood flow is restored to the affected brain regions, hence preventing future strokes. The Moyamoya Center team of experts have enabled many children from across the globe to live a stroke free, normal life again.

## You too can give Moyamoya children to smile again

Moyamoya Angiopathy continues to be less known amongst medical professionals and the public. This results in incorrect or late diagnosis of the illness. The time lost between first symptoms and correct diagnosis usually results in a number of strokes and neurological deficits which could have been prevented. Increasing awareness, improving treatment methods and continuing research in Moyamoya cannot be overemphasized. This can only be achieved in a specialised center where all involved are dedicated to support every child and family affected by this disease both medically and personally.

In the light of the ever increasing number of referrals of Moyamoya children from across the globe, the dedicated goals and unwavering visions of the Moyamoya Center can in no way be achieved and sustained when predefined institutional budgets, limited resources, both at the personnel and financial level dictate the daily norm. Support our Moyamoya Center and be an active part of increasing awareness and ensuring quality specialised care of all Moyamoya children. Donate and help Moyamoya children live a normal life. Thank you very much.

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