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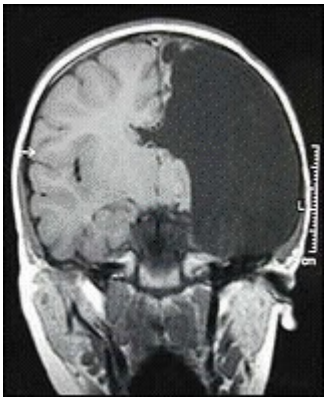
Girl with half a brain becomes fluent in two languages

By Hannah Cleaver and David Derbyshire
(Filed: 23/05/2002)

A girl of seven who had half her brain removed, including its speech centre, has astonished doctors by becoming fluent in two languages.



Her doctor said her recovery highlighted the flexibility of the brain, even after the most traumatic surgery.

The remaining half of Busra's brain has compensated for the missing speech centre Busra was diagnosed with Rasmussen syndrome, a rare, progressive disorder that affects just one side of the brain, at the age of three.

Surgeons at Utrecht University Hospital in Holland decided that the left hemisphere, which included the speech centre, had to be removed. The gap was filled with marrow fluid during the hemispherectomy.

Earlier this year, Dr Johannes Borgstein, an ear, nose and throat specialist at Rotterdam Hospital was treating Busra for tonsillitis.

"She was fairly well and we had decided not to take out her tonsils but realised that she had this enormous case file," he said.

"We generally have just seven minutes for each patient but I thought I had to take a look through it. The word hemispheric kept occurring and we then came across an MRI brain scan and that is when we saw that there was only half of her brain left.

"Apart from a slightly awkward handshake the first impression was unremarkable. Fluently bilingual, she had been arguing with her little sister in perfectly-constructed Dutch, then turned to answer her mother in Turkish."

Dr Borgstein said Busra's sight was impaired but that she could hear perfectly with both ears, the right side of her brain having compensated completely for the lack of the left side.

"It was amazing. I had to tell my students to forget all the neurophysiological theory they were learning," he said. "If this little girl could achieve so much with only half a brain what could we not do with a complete one?" Children will often recover well from a hemispherectomy up until the age of 10. If the operation is carried out before the age of eight, they will usually recover language.

Before the operation Busra had had problems with co-ordination of her right side and some difficulties with language, a result of the epilepsy which accompanies Rasmussen syndrome.

Dr Borgstein said: "We should see the brain as a dynamic system fully capable of functional reorganisation to re-establish the most essential functions for independent survival, rather than the somewhat static collection of neurons it is often made out to be."

External links

Rasmussen's Encephalitis Support Network