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When the Head Is Too Big for the Frame

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It is probably well known that the Leksell® Coordinate Frame is difficult to fit on a few patients with very big heads. I would here like to share how we managed this problem in a patient with an unusually big head.

In the case presented here, we attempted to place the stereotactic frame on the head of a patient scheduled for deep brain stimulation for Parkinson's disease. It was, however, impossible to pass the frame over the head. At inspection, it was obvious that the antero-posterior diameter of the head was far beyond that of the frame, and no attempts of angulating the frame could solve the problem. The fixation posts and the front piece were therefore removed and the frame could thereafter be passed over the head. The removed parts were put back in place (fig. 1a) and the reassembled frame could then be lifted up and fixed in a satisfactory position (fig. 1b).

In patients with big heads, it is sometimes impossible to fit the MRI indicator box on the Leksell stereotactic frame without removing the posterior part of the box. In other patients, the frame itself will not fit, at least not without using a different angulation. With the use of computerized navigation systems today, this is not a problem, since the images can be reformatted according to the anterior and posterior commissures. In 2 of about 600 procedures, I have encountered heads so big that the frame could not be passed over it. In the first case, I did not understand how this problem could be solved so I aborted the procedure. The patient was later operated on using the Laitinen frame, which has a larger diameter. In the second case described above, I realized that the problem could be solved by disassembling the frame, passing it over the head, and then lifting it upwards after it had been reassembled.

This can perhaps not be considered as a major scientific discovery, but it is my impression that it is not common knowledge and I have not seen it described in the literature. I therefore hope that this presentation might be of value for someone in the same situation who would perhaps not come to think of this solution in the heat of the moment.

Disclosure Statement

The author has worked as a consultant for Medtronic.

Fig. 1. Photographs demonstrating how the disassembled frame has been passed over the head and is being reassembled (a) before being lifted up and fixed to the head (b).