

## **Highend Duplexsonographie zur Kompensation von Navigationsversagern**

### **Value of Highend Duplex-Sonography for compensation of Neuronavigation Pitfalls**

Klaus D.M. Resch<sup>1</sup>, Dr Müller J<sup>2</sup>, Dr Dr Kleist W<sup>3</sup>, Dipl. Phys. Tschiltschke<sup>3</sup>, Prof Dr Schroeder HWS<sup>3</sup>

<sup>1</sup>Neurochirurgie  
Univ. Greifswald  
<sup>2</sup>NCH Greifswald  
<sup>3</sup>

Meanwhile neuronavigation is well established but the weak points are now more clear than at introduction. Therefore intraoperative imaging gained an increasing role to overcome these problems. Due to its excellent properties high end sonography is becoming an interesting tool in neurosurgery.

In a series of 63 cases of intraoperative highend sonography imaging we had 11 cases in which neuronavigation problems had to be compensated. There were 5 females and 6 males, mean age was 33,5 ( 0,1 – 57) years. Neuronavigation was done with the Zeiss Navigation System and sonography with the Pro Sound 5000 ALOKA machine.

In two cases the navigation system could not be used because of technical problems of hardware. In five cases the operative accuracy was too low to target the lesion, and in four cases navigation was displaced by sonography.

There were four small cavernomas, one melanoma, two cysts, two slit ventricles and two small astrocytomas. The advantages of the sonography was the real-time use, the online imaging, and the easy handling. The disadvantage was the unusual appearance of the sonographic images compared to CT or MRT.

In conclusion highend sonography can compensate neuronavigation pitfalls easily regarding targeting and orientation.