

IS SELECTIVE AMYGDALOHIPPOCAMPECTOMY INFERIOR TO STANDARD RESECTION IN TEMPORAL LOBE EPILEPSY? – NO

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Epilepsy surgery has two aims: first, to help provide seizure freedom to the patient and secondly, to cause no further neurological deficits by the operation. When considering the latter aspect, we usually think that performing a resection in a so-called eloquent area is negative for the patient because it causes neurological deficits. Thus, in cases such as these, epilepsy surgery resective procedures cannot be performed. However, this aspect is different in the temporal lobe. In temporal lobe epilepsy, there are three different ways in which an operation can be performed. Firstly, a selective amygdalohippocampectomy can be performed if the epilepsy is focused to the mesial temporal lobe. Secondly, a two-thirds resection of the entire temporal lobe can be done in those cases in which the pre-surgical work-up is either not sufficiently specific or the patient's seizure origin cannot be individualized within the certain structures of the temporal lobe. Thirdly, a tailored resection within the temporal lobe can be performed according to the results of the pre-surgical work-up. When taking into account the eloquent area within the temporal lobe, one must consider memory. Memory, however, is very difficult to localize. Usually, we assume a lateralization of declarative memory performance. This means that verbal memory is processed in the left temporal lobe and non-verbal memory in the right temporal lobe. Since H.M., we know that the hippocampus is a bottleneck for memory consolidation and memory retrieval. Even when considering the fact that no one will take out both mesial temporal lobes, the resection of one temporal lobe always carries the risk of an additional memory deficit and this is usually accepted. Therefore, we must ask ourselves if larger resections are inferior to smaller resections (i.e. selective amygdalohippocampectomies). By doing this, the surgical procedure itself comes into place. As a rule, the selective amygdalohippocampectomy is done via the sylvian fissure. There, many vessels can be damaged. When putting this to our initial question, this means that selective amygdalohippocampectomies are much more demanding for the neurosurgeon and cover a higher risk of additional damages within the memory system due to surgical skills. Therefore, the two-thirds resection itself is probably more easily done. Taking into account the controversy, one must argue that in all cases where the skill of the neurosurgeon is not very high due to the amount of resections or for other reasons, selective amygdalohippocampectomies must be avoided and, to be on the safe side, a two-thirds resection should be done. In addition, in more difficult cases of temporal lobe epilepsy, selective amygdalohippocampectomies require a more intensive work-up, sometimes using invasive electrode monitoring which can cause additional complications. As a whole, it is difficult to say that a two-thirds resection is inferior to a selective amygdalohippocampectomy because the reason why smaller resections must be done is memory performance. We assume that by taking out the lateral temporal lobe the working memory will probably be a bit more likely to be influenced than in cases of selective amygdalohippocampectomy. However, in less experienced neurosurgeons, this is more than outweighed by the surgical risk of selective amygdalohippocampectomies.