Surgical Application of New Technologies: An Unruly Scientific Process

To progress in their field of research, scientists follow a step-by-step reasoning. First, they have to identify a problem, and to elaborate a pertinent question concerning it. Once this has been done, they develop a specific instrument which should theoretically serve to solve the problem. Finally, they test its actual efficiency to do so. This step-by-step procedure is not always respected in the application of new technologies in surgery. Such is the case for the use of a laser beam in endoscopic surgery of head and neck malignancies. Organ preservation surgery is a concept developed on the knowledge of biological aspects of tumor growth and spread. For each organ, the indications, contraindications, and the modalities of the open neck procedures are precisely described. At that moment, there was no question about the validity of the type of knife used to remove the tumor. In fact, surgeons who first used laser for endoscopic resection of malignancies acted as opportunists since different types of laser beams had long been developed and already utilized for many industrial works. Of course, some adaptations were required to render its use safe for patients and surgical teams. However, the fundamental question whether it would help in treating malignancies was raised only after it had already been used for some time! As cancer is a biological disorder, we may wonder how the course of the disease can be influenced by the kind of tool used to remove it, why it is no longer necessary to respect the classical margins of resection established on the basis of the

biological behavior of tumors and the existence of natural barriers to its spread, as claimed by the most enthusiastic laser users. Is the question of the knife pertinent? Is the choice of the laser beam instead of conventional blades a matter of fashion? Is the choice of endoscopic resection reasonable in terms of biological control of the tumor? The public is often fascinated by new developments. Therefore, when a reputed center starts using a new technology, others are compelled to adopt it to avoid losing credibility, even before the efficiency of such technologies has been convincingly proven. Surgeons are also encouraged to resort to new developments by manufacturers for obvious commercial benefits.

We hope, this discussion on laser surgery for the management of ENT malignancies will help clarify the safety of the use of lasers, the advantages for the patients and the convenience for the surgeon to use it in comparison with standard procedures, the indications and contraindications for laser surgery, and the consequences of laser burns on the histological examination of the resected tissue. We deeply regret that some reknown promoters of this method renounced to participate in the debate. However, we expect that some of the opinions expressed in this issue will raise additional comments among readers which we will be pleased to publish in the next issue of the journal.

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