LETTER TO THE EDITOR

MICROSURGERY 31:167–168 2011

A NOVEL AND INEXPENSIVE RETRACTOR INDIVIDUALLY USABLE FOR MICROSURGICAL TRAINING

Dear Editor,

Inspired by a study published in this journal some years ago by Narayanan and Ramasastry,[1] this letter is to introduce a new kind of retractors utilizable in microsurgical training. Although a recent publication seized the concept of designing inexpensive microretractors using common supplies,[2] we found certain disadvantages using both of the microretractors mentioned beforehand. Mainly, these disadvantages are lack of stiffness and oxidation caused by the sterilizing process, our aim was to overcome these problems by using medical products of certain stiffness.

Spring hard dental straight wires (0.7-mm thick) were purchased inexpensively from Dentaurum® in a length of 30 cm (REF 527-070-00, Dentaurum, Ispringen, Germany). A three-point wire bending plier purchased from the same manufacturer was utilized to bend wires to the desired shape (REF 003-200-00, Dentaurum, Ispringen, Germany). Different shapes were bent to obtain the ideal retractor for different tissues. The unmodified end of the retractor was bent in a spiral manner, thus it could be clipped to a simple metal frame which was laid on the operation platform (Fig. 1A). As no greater forces have to be dealt with in microsurgical training, we found our retractors to be sufficiently secured for all microsurgical applications by the weight of the frame. In this manner the hook was applicable in every region of the operation area, including deep microsurgery (Fig. 1B). Additionally, a surgical clamp could be fixed as weight to the distal end of the retractor or, if possible, it could simply be pierced in the operation platform. We could never observe any damage in the retracted tissue, which we attributed to the soft edges of the hook-like ends of the retractors. As the wire leaves the operation field in a divergent manner while the bent angle is close to the superficial edges of the operation situs, the entrance to the operation field is as opened and wide as possible (Fig. 1A). No hindering of entrance of instruments and no rotating or twisting of the wire could be observed, probably because of the spring-hard stiffness.

Comparing our approach to the use of staples or paper clips in microsurgical training,[1,2] it has to be noted that staples display a very short length and thus may be affected by restrictions. While these could be secured just by their own weight and by the use of sterile clamps, our retractors granted superior security according to the different and more sufficient possibilities of fixation. Due to their relative moldability, they can easily be deformed accidentally. In contrast, the microretractors presented here were spring-hard and thus accidental deformation could be avoided. Additionally, they are medical products which are not oxidated even after more than one sterilizing processes, as staple or paper clip retractors may do. Spring-tightened microretractor, as previously described, were especially designed for microvascular surgery with hooks on both ends.[3] This special design also restricts their usage to other fields of microsurgery. In contrast, the microretractors developed here could be used in a more universal manner because of their lengths and shapes of the retracting ends, which could be adapted easily to multiple settings (Fig. 1B). The adjustable microretractors presented in this letter might be helpful in microsurgical training by optimizing the exposition of the

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Received 18 April 2010; Accepted 5 October 2010
Published online 28 January 2011 in Wiley Online Library (wileyonlinelibrary.com). DOI 10.1002/micr.20853

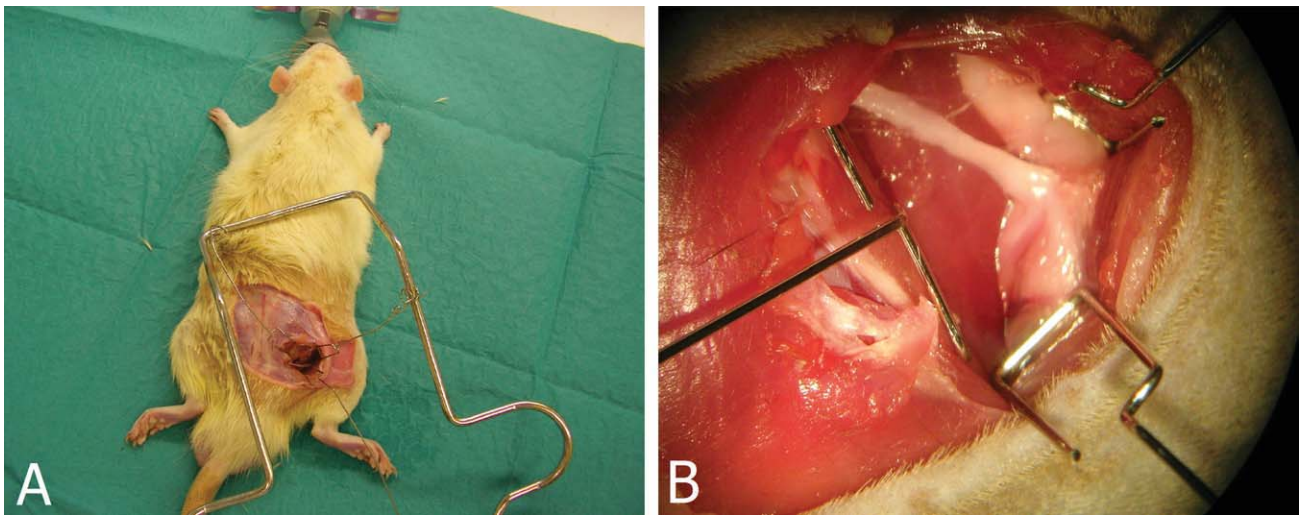

Figure 1. Microretractors in use during microsurgical training in peripheral neurosurgery in a rat. ***A****: Overview of operation platform with microretractors in use fixed on a simple metal frame. Note the divergent angle of the retractors.* ***B****: Microretractors in deep microsurgical with sciatic nerve exposed, viewed through an operation microscope.*

surgical field in different ways without harming the surrounding tissue.

ACKNOWLEDGMENTS

Animal experiments were performed with the approval of the Lower Saxony State Office for Consumer Protection and Food Safety with the reference number 33.42502-05-02A137, according to the German Animal Welfare Law and the Directives of the European Union.

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