Rat Model for Practicing Microsurgical Vascular Anastomosis

Microsurgery is a precise surgical skill that requires an extensive training period and the supervision of expert instructors. The classical training schemes in microsurgery have started with multiday experimental courses on the rat model. These courses have offered a low threat supervised high fidelity laboratory setting in which students can steadily and rapidly progress. This simulated environment allows students to make and recognise mistakes in microsurgery techniques and thus shifts any related risks of the early training period from the operating room to the lab. To achieve a high level of skill acquisition before beginning clinical practice, students are trained on a comprehensive set of exercises the rat model can uniquely provide, with progressive complexity as competency improves. A paper of Shurey et al. presented the utility of the classical rat model in three of the earliest microsurgery training centres and the new prospects that this versatile and expansive training model offers [1].

Although the assumption remains that the use of live rats is essential, there is a clear need for a high-quality, comparative study to justify the continued use of such models given the quality of the alternatives now available [2].

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demonstrate a microsurgical suture technique performed without any vascular clamp on a rat model. This rat model was designed for training in the technique of microvascular anastomosis. Compared with microvascular clamps, silk slipknot is a cheap, easily available, less space-occupying technique while performing microvascular anastomoses training. This preliminary study provides a simple and effective alternative method for microvascular anastomosis training [3].

Results showed that rat's abdominal aorta and CIAs may be effectively used for all the anastomosis configurations used in cerebral revascularization procedures. We also provide technical nuances and anatomic descriptions to plan for practicing each bypass configuration [4].

Rat Model for Practicing Microsurgical Vascular Anastomosis [5].

Both CCA and CIA models could be efficiently used for practicing the end-to-side anastomosis technique. Each model provides the trainee with a specific set of advantages and disadvantages that could help with the optimal selection of the practice model according to trainee's skill level [6].

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