

Publication

An Interlaminotomy New Zealand White Rabbit Model to Evaluate Novel Epidural Strategies

Journal Article (Originalarbeit in einer wissenschaftlichen Zeitschrift)**ID** 4525901**Author(s)** Nevzati, Edin; Soleman, Jehuda; Schöpf, Salome Aglaia; Coluccia, Daniel; Fandino, Javier; Marbacher, Serge**Author(s) at UniBasel** [Soleman, Jehuda](#) ;**Year** 2015**Title** An Interlaminotomy New Zealand White Rabbit Model to Evaluate Novel Epidural Strategies**Journal** Journal of neurological surgery. Part A, Central European neurosurgery**Volume** 76**Number** 6**Pages / Article-Number** 466-472**Keywords** Female, Animals, Cicatrix, Disease Models, Animal, Epidural Space, Laminectomy, Microsurgery, Rabbits

OBJECTIVE: The New Zealand White (NZW) rabbit model is an established animal model for examining surgical methods to prevent epidural scar formation after spine surgery. As most approaches include complete laminectomy of the rabbit vertebra, this procedure is associated with high morbidity and mortality rates. We examined a less invasive technique, the microsurgical interlaminotomy, for testing epidural substance application in the rabbit spine. **METHODS:** Surgery was performed in the cadaver rabbit spine to evaluate the approach before performing it in NZW rabbits. All surgical procedures were performed under an operation microscope. Female rabbits with a mean weight of 4770±240 g were used. Neurologic symptoms were analyzed based on predefined scores. After resection of the spinal process, the caudal part of the upper lamina was resected using a drill and a 1-mm Kerrison punch. The yellow ligament was resected resulting in a dural exposure of 5-10 mm. **RESULTS:** Eight pilot interlaminotomies were performed on three cadaveric spines to establish the surgical approach. Twenty-one NZW rabbits were then operated on using the interlaminotomy model. Three rabbits (14.3%) died during surgery due to anesthesia-related complications. Two rabbits (9.5%) showed partial paresis of the lower extremities and one (4.8%) a complete paraplegia. The remaining 15 rabbits (71.4%) had an uneventful recovery without neurologic symptoms. The mean surgical duration was 88 ± 28 minutes. **CONCLUSION:** The rabbit interlaminotomy model is associated with few neurologic deficits and a relatively short operating time.

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