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Which hemostatic ligatures practiced by inexperienced veterinary surgeons is more effective?

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Veterinary medicine schools always thrive to improve students' skills in order to be ready for the post-graduate practice. Many veterinary schools have moved away from the use of procedures-based methods, toward the use of a skills-based approach for teaching surgery. [1-2] Considering the importance to improve student's skills, and evaluating the patient safety and budgetary constraints, veterinary medicine schools have developed laboratory-based training programs using bench models and simulators to provide surgical skills. [1,3] It is important to assess the skills acquired by undergraduate students of Veterinary Medicine, to be sure that they will be able to effectively perform basic surgical techniques. One of the major issues is the ability of performing efficient vessel ligatures. To our knowledge, there is no report defining the best haemostatic knots in the hand of a beginner surgeon. The aim of the present study was to evaluate the different types of knots performed by 12 Veterinary Medicine 5th year students. Five different knots (Giant, Slip, Strangle, Surgeon's, Transfixing knots) were showed to students, and for two weeks students self-trained at home. Then they were asked to perform each learned knot four times on an hemostasis simulator that evaluated the end-pressure of the simulated vessel distal to the ligature. [3] Then they were asked to fill a form to express their personal feeling about knots' learning easiness, execution easiness and sealing security. Data were matched in order to evaluate a possible correlation among the confidence of the students concerning the procedure, the suture material, the type of knot and the effectiveness in reducing vessel pressure distal to the ligature. Data were statistically analysed using Friedman test, Fisher's exact test. Students considered the Surgeon's knot the easiest to learn and the Strangle the hardest. They also reported that the easiest knot to perform was the Surgeon's

and the hardest the Giant knot. Students felt the most effective knot to seal a vessel was the strangle and the least effective were the Transfixing knot and the Slip knot.

The strangle knot resulted to be the most effective in reducing vessel pressure distal to the ligature compared to other knots.

In conclusion a combination of video tutorial and self training with the aid of an hemostasis simulator confirmed to be useful tools to implement and consolidate students' surgery skills.

The strangle knot is the most effective hemostatic knot in inexperienced hands, although it is considered by students more difficult to learn compared to other, perhaps more commonly taught, knots.

Reference:

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