

7 Summary

“Surgical method for pressure reduction in DIP joint disease in horses-experimental study”

To reduce pressure in the DIP joint a communication should be created from the digital sheath to the DIP joint. This allows increased synovial fluid to flow out of the DIP joint into the digital sheath. As a synovial fistula it should be durable in decreasing the pressure in the DIP joint.

The aim of this study is to show the anatomical relationship of the structures in question as well as a comparison of the possible surgical methods. Surgical access, effectiveness and complications will be discussed.

This study is based on anatomical studies of 41 leg cadavers and 3 different surgical methods.

The 41 front leg cadavers for the experiment were from horses that had to be euthanised at the Equine Department of the Veterinary Hospital of the Free University of Berlin or from a local abattoir.

The cadaver included all breeds other than ponies, any gender, age and bodyweight. They were all front legs, resected in the carpal area.

In the anatomical study access through the disto palmar pouch of the digital sheath could be tested. The aim is an opening of 2.5 cm by 1.2 cm as a result of the surgical separation of connective and elastic tissues in between both structures.

All three surgical methods are minimal invasive and achieve the desired reduction of pressure in the DIP joint.

A bi manual method controlled by tendinovaginoscopy proved to be very safe.

Difficulties were due to tight spaces within the digital sheath.

The method with fluoroscopy had the advantage of a single access site only, but time and technical expenses weren't in relation to that.

The third method without any visual control was the easiest and without the need of technical equipment but needed a detailed knowledge of the anatomical structures and surgical experience in this approach.

The choice of instruments for the tissue separation depends on the surgical methods and the long term reactions to HF surgery. HF surgical instruments should not be used without visual control. Further evaluation is needed to see if there is an advantage to coagulating incisions regarding their durability.

A control study with in vivo pressure applied to the distal phalanx proved effectiveness of the surgical principle.

Due to the described possible complications this surgical procedure should be used only in chronic and therapy resistant cases.

The communication of DIP joint and digital sheath allows increased synovial fluid to flow into the digital sheath and an exchange of synovial fluid with tendovaginal fluid is possible. This way you can then get a tendovaginitis as well, which might increase the degree of lameness.