How to Place an Orthopedic Drain in a Joint or Tendon Sheath to Treat Intrasynovial Sepsis

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A technique that describes placement of a drain to treat intrasynovial sepsis is described. This technique allows reliable and accurate placement of drains into joints/tendon sheaths where, in various situations, instrument manipulation can be difficult. Authors’ address: Dept. of Clinical Sciences, College of Veterinary Medicine, Cornell University, Ithaca, NY 14853. © 1999 AAEP.

1. Introduction

The placement of drains into joints and tendon sheaths has frequently been used to treat intrasynovial sepsis. Sepsis of joints and tendon sheaths can be difficult, costly, and time-consuming to treat. Studies of various techniques to treat joint/tendon sheath sepsis report that intrasynovial lavage and arthroscopy resulted in an improved outcome when compared to horses that were treated only with systemic antibiotics. Described methods of drain placement can be difficult in certain joints. Our technique of drain placement can be utilized with or without arthroscopic guidance, requires minimal instrument manipulation, and can be done with the horse standing.

2. Materials and Methods

The materials we use include a fenestrated 0.125-inch wound tubing, an egress cannula with a sharp trocar, a 60-ml syringe, a no. 15 scalpel blade on a blade handle, no. 1 nonabsorbable suture material, a 14-gauge needle, glue and an injection cap.

The joint or tendon sheath, as well as any wounds present, should be clipped and aseptically prepared. The most important aspect of adequately performing this technique is to obtain distention of the joint or tendon sheath. If a wound is present that allows free flow of synovial fluid, we attempt to temporarily block the exit of fluid by placing large, simple, interrupted sutures through the skin and synovial sheath. We then insert an 18-gauge needle into the joint/sheath. A 60-ml syringe filled with lactated ringers solution is attached to the needle, and the synovial capsule is infused until obvious distention is noted or resistance is encountered. An area is chosen on the joint or tendon sheath that is proximal, furthest from any wounds, and away from neurovascular structures. A no. 15 blade is used to make a stab through skin and synovial capsule. The egress cannula with sharp trocar is placed through the stab incision, carefully avoiding damage to underlying structures such as cartilage or tendons. The trocar is then removed and fluid within the capsule will flow through the cannula. The wound tubing is cut so the fenestrations will be within the capsule. The tubing is fed through the egress cannula until 2 to 3 cm of tubing are within the capsule. The tubing is advanced slightly as the
The egress cannula is backed out over the tubing. The no. 1 nonabsorbable suture material is placed in a pursestring fashion in the skin around the drain. The suture is tied around the tubing in a Chinese finger suture pattern to ensure adequate security of the tubing. A 14-gauge needle, with the point removed, is placed on the end of the tubing and glued to the tube. An injection cap is placed on the end of the needle.

After drain placement, we copiously lavage the synovial structure, perform an arthrotomy, instill antibiotics and heparinized saline through the tubing, and steriley bandage the limb.

3. Results

We have treated multiple septic joints/tendon sheaths using this drain placement technique and have always been able to attain adequate drain placement. We keep the drains in place a minimum of 5 days but have left them in as long as 14 days. We instill antibiotics through the drains 2 to 3 times daily and perform a once-daily lavage of the synovial structure. If the wound tubing is heparinized at the time of surgery, clotting of the tubing is not a problem.

4. Discussion

This technique of drain placement is easy, feasible, and allows one to treat the horse intrasynovially as often as desired. Other described methods of drain placement include using Ferris Smith rongeurs or forceps to enter and exit the capsule opposite the entrance point. The tubing is brought through the capsule. This can be difficult in smaller joints (such as the coffin joint) or in articulations (such as the femorotibial joint) in which structures such as the cruciate ligaments obstruct instruments. Furthermore, the incision that is needed for instrument manipulation to place the drain is larger than a stab incision. This results in subcutaneous diffusion of the septic fluid around the drain. Our procedure seems to cause minimal joint/tendon sheath morbidity and has resulted in a high success rate in treating intrasynovial infections. The drains can be placed on the cranial, caudal, medial, or lateral aspect of the joints/tendon sheaths and are easily removed by removal of the pursestring suture and gentle retraction of the drain.

References and Footnotes:


Wound Tubing, DePuy, Warsaw, IN 46581.
Egress Cannula, R. Wolfe Medical, Vernon Hills, IN 46875.