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Anterior Cruciate Ligament Reconstruction in Veterinary Medicine: Advancements, Challenges, and Patient-centric Approaches

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INTRODUCTION

Anterior Cruciate Ligament (ACL) injuries are prevalent in both human and veterinary medicine, impacting the stability and functionality of the knee joint. In recent years, there has been a growing interest and evolution in the field of veterinary orthopedics, particularly concerning the treatment of ACL injuries in animals. This article delves into the complexities of ACL injuries in veterinary patients, explores the various surgical techniques employed for reconstruction, and discusses the advancements, challenges, and patient-centric approaches in the evolving landscape of veterinary orthopedics. The anterior cruciate ligament plays a crucial role in stabilizing the knee joint by preventing excessive forward movement and rotational instability. In veterinary medicine, ACL injuries are common among dogs, affecting various breeds and sizes. Canine ACL injuries often result from trauma, degeneration over time, or breed predispositions. High-impact activities, such as running, jumping, or sudden stops, can lead to ACL tears in dogs. Trauma-induced injuries may occur during play, athletic activities, or accidental falls. Aging and wear-and-tear on the joint can contribute to degenerative ACL injuries in veterinary patients. Over time, the ligament weakens, making it more susceptible to tears or ruptures. Certain breeds, such as Labrador Retrievers, Golden Retrievers, and Rottweilers, are more predisposed to ACL injuries.

DESCRIPTION

Recognizing the signs of ACL injuries in veterinary patients is crucial for early intervention. Common symptoms include: Sudden or progressive lameness, particularly in one hind limb, is a key indicator of a potential ACL injury. Dogs with ACL injuries may exhibit a reluctance to engage in physical activities, play, or exercise. Swelling around the knee joint and joint effusion may be visible or palpable in cases of ACL injuries. Dogs with ACL injuries may display signs of pain, including vocalization, reluctance to bear weight on the affected limb, and signs of discomfort during movement. Instability in the knee joint, often observed during physical examination, is indicative of ACL damage. Several surgical techniques are employed for ACL reconstruction in veterinary medicine. The choice of technique depends on factors such as the size and breed of the dog, the severity of the injury, and the surgeon's expertise. The two primary surgical approaches are extracapsular techniques and intra-articular techniques.

CONCLUSION

Anterior cruciate ligament reconstruction in veterinary medicine represents a dynamic and evolving field, with advancements in surgical techniques, diagnostics, and patient management. As our understanding of ACL injuries in veterinary patients deepens, the integration of biomechanical studies, advanced imaging, and personalized approaches is shaping the landscape of veterinary orthopedics. While challenges such as postoperative complications and limited long-term studies persist, the commitment to patient-centric care, owner education, and interdisciplinary collaboration among veterinarians, surgeons, and rehabilitation specialists are driving positive changes. With a focus on refining surgical techniques, embracing technological advancements, and promoting comprehensive rehabilitation, veterinary ACL reconstruction continues to progress towards achieving improved outcomes and enhanced quality of life for our beloved animal companions.

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CONFLICT OF INTEREST

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