SUCCESS STORY

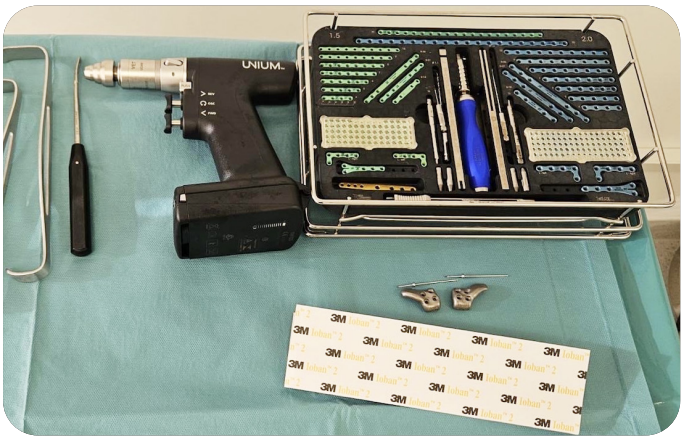
RITA LEIBINGER MEDICAL

World Premiere in Feline Orthopedics: The First Documented 3D Hip Shelf Arthroplasty in a Cat

by Malte Pfohl (Tiergesundheitszentrum List)

Clinical Innovation

Patient-specific 3D implants have made a real difference in complex canine hip surgery. In cats, there is still little published experience with comparable procedures. Dr. Spencer Reid, a Maine Coon mix, is the first documented feline patient to undergo a 3D hip shelf arthroplasty. The case indicates that a custom 3D-printed solution can be used safely in cats when both planning and implant design are built around feline anatomy.



Diagnosing the Silent Patient

Dr. Spencer Reid was presented to the Tiergesundheitszentrum List for a dental check. During the general exam, severe hind limb lameness and clear pain on hip manipulation were noted. Radiographs confirmed instability, but they were not enough for precise planning. A high-resolution CT scan with 3D pelvic reconstruction was used to support digital planning.

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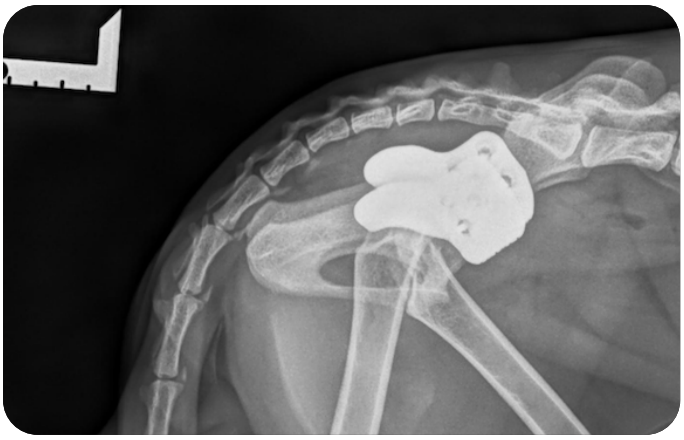
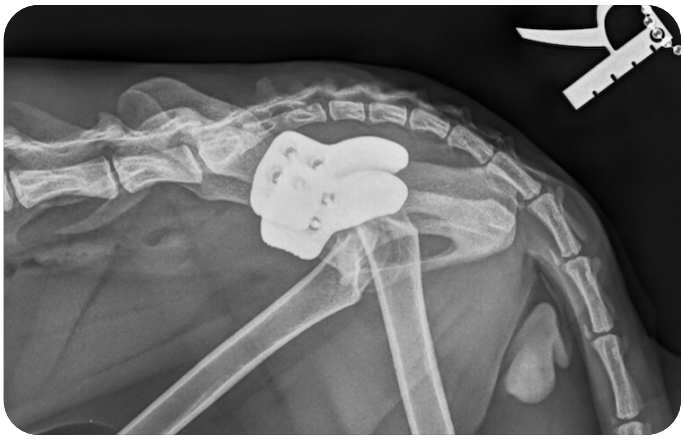
A New Implant Design Built for Feline Anatomy

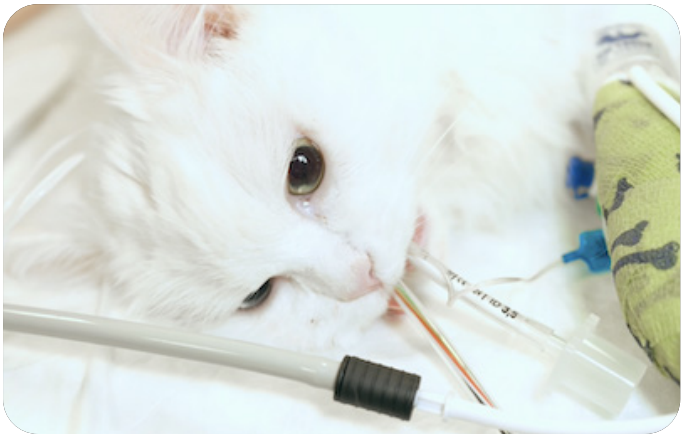
A canine concept cannot simply be scaled down for a cat. The pelvis is smaller, the bone stock is finer, and screw placement leaves little room for error. Early simulations showed a risk of screw trajectories heading towards the sacrum. That meant the team had to abandon the established canine design and develop a new implant concept. The final titanium implant was fixed with four 1.5 mm locking screws and shaped to anchor securely at the acetabulum while protecting the surrounding structures.





Surgery with Focus on Function

An interdisciplinary team performed the procedure with particular attention to the soft tissues. In cats, key hip musculature lies directly over the acetabulum and must be preserved. Because the implant fit and orientation were defined preoperatively, positioning was predictable once the joint was exposed. Intraoperative checks confirmed correct alignment and a clear improvement in joint stability.



Outcome

Postoperatively, Dr. Spencer Reid showed a cautious but steady recovery. Within weeks, weight-bearing improved and the hip remained stable with no further subluxations. Now pain-free, he has returned to full activity and jumping. This case serves as a strong proof of concept for treating complex feline hip disease through CT-based planning and patient-specific 3D manufacturing.

"The successful 3D hip surgery performed on Dr. Spencer Reid marks a milestone in veterinary surgery. It demonstrates that by combining advanced imaging, digital planning, and additive manufacturing, even the most complex feline hip conditions can be successfully treated."

Malte Pfohl, TGZ List

Surgery by: TGZ List (Hannover)
Implant System Used: 3D HIP
Manufacturer: Rita Leibinger Medical

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