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CHALLENGES, SPECIAL FEATURES AND SOLUTIONS IN FELINE TRAUMATOLOGY

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INTRODUCTION

Feline traumatology is a field with specific clinical challenges, given the physiology, anatomy and behaviour of cats. Although this species shows remarkable agility and resistance to trauma, the clinical manifestation of injuries can be subtle, complicating early diagnosis. This conference addresses the most common challenges in the surgical management of feline fractures and presents technical and clinical solutions based on specialised experience and scientific evidence.

From an anatomical point of view, cats have a thinner skeleton, slightly lower bone density and more compact musculature compared to other species, which requires adapting internal or external fixation surgical techniques. In addition, the proportions of long bones and their smaller diameter require careful planning in the choice of implants and stabilisation methods, such as miniplates, small-gauge screws, or lightweight external fixators. Any error in the application of these techniques can result in loss of alignment, delayed healing, or treatment failure.

Feline traumatology requires not only technical precision but also an individualised approach, taking into account factors such as the patient's age, the presence of concomitant systemic diseases (e.g., chronic kidney disease), and the home situation (access to the outdoors, possibility of confinement). Careful preoperative planning, anaesthetic risk assessment, and multimodal analgesia adapted to the sensitivity of the species are essential aspects for optimising therapeutic outcomes.

In many cases, a favourable prognosis in feline traumatology depends not only on anatomical reduction and rigid stabilisation of the fracture, but also on the correct choice of surgical timing, type of intervention (open or minimally invasive), and rigorous clinical follow-up. For example, in simple diaphyseal fractures, the use of MIPO (minimally invasive plate osteosynthesis) techniques has been shown to be advantageous in reducing periosteal disruption and maintaining bone vascularisation, which are key factors in the biology of feline healing.

Another distinguishing factor in this species is the postoperative response. Cats tend to be less cooperative during the rehabilitation process and may reject the use of bandages, splints, or Elizabethan collars, requiring alternative strategies for movement restriction and pain management. Prolonged hospitalisation or the use of special cages during the first few weeks after surgery may be necessary to ensure proper recovery.



The current trend in feline traumatology promotes an integrated approach that combines surgical precision with personalised care, where success is measured not only by perfect radiographic reduction, but also by complete functional recovery and patient well-being. This approach also involves clear and realistic communication with owners about recovery times, possible complications and the need for active engagement throughout the rehabilitation process.

Thus, feline traumatology is positioned as a demanding but rewarding surgical discipline, which continues to evolve with the development of new techniques, species-adapted implants, and individualised protocols that seek not only to save bones, but also to restore quality of life in a particularly sensitive and complex patient such as the domestic cat.

ANATOMICAL FEATURES OF FELINES

Cats have a light skeletal structure, with long, thin bones, mobile joints and compact musculature. This conformation gives them great flexibility, but also makes surgical manipulation difficult and requires adapted instrumentation. Lower bone density than in dogs and lower tolerance to surgical stress mean that surgical techniques must be meticulous and conservative in terms of soft tissue integrity.

The small size of the bones imposes limitations on the selection of implants, and in many cases it is necessary to resort to miniplates, 1.5 or 2.0 mm screws, and techniques that minimise iatrogenic damage. Likewise, feline behaviour—more reserved and less cooperative in the postoperative period—adds an additional challenge in clinical follow-up.

COMMON TYPES OF TRAUMA IN CATS

The most common types of trauma in cats include:

- Falling cat syndrome: fractures from falls from heights, usually from balconies or windows.
- Road traffic accidents: multiple injuries affecting the limbs, pelvis or chest and abdominal cavities.
- Bite wounds: often accompanied by open fractures or traction injuries.
- Closed trauma: affecting the viscera or skeleton without apparent skin injury.

Fractures of the femur, pelvis, jaw, ulna and radius are particularly common. In cats with multiple trauma, it is essential to prioritise systemic stability before undertaking orthopaedic surgery.

DIAGNOSTIC APPROACHES

Orthogonal radiography remains the fundamental tool, but computed tomography (CT) is indispensable for planning complex surgeries, especially on the pelvis, spine, or skull. Abdominal ultrasound and thoracic evaluation complete the initial workup in polytrauma cases. Analgesia should be instituted early, even before the definitive diagnosis. Orthogonal radiography remains the fundamental tool, but computed tomography (CT) is indispensable for planning complex surgeries, especially in the pelvis, spine, or skull. Abdominal ultrasound and thoracic evaluation



complete the initial examination in cases of multiple trauma. Analgesia should be administered early, even before the definitive diagnosis.

In the initial assessment of a polytraumatised feline patient, it is essential to maintain a methodical and orderly approach. After primary stabilisation according to the ABCDE protocol, a complete orthopaedic evaluation is performed, which should include inspection, palpation, mobility tests and neurological assessment. The identification of pain points, crepitus, deformities or dislocations, together with the analysis of the state of consciousness, spinal reflexes and deep sensitivity, allows isolated musculoskeletal injuries to be differentiated from those involving the nervous system.

Orthogonal radiographs should be taken with the patient stabilised and preferably under sedation or mild general anaesthesia to obtain diagnostic-quality images without causing additional pain. At least two projections per suspicious anatomical region should be included, and additional studies of contralateral limbs should be considered to compare bone and joint symmetries, which is especially useful in metaphyseal or epiphyseal fractures.

Computed tomography has gained prominence in trauma diagnosis, as it allows for accurate three-dimensional reconstructions that are essential for planning complex osteosynthesis. In cats, where the size and shape of bone structures are more delicate, CT allows for the identification of intra-articular fragments, fracture lines hidden on conventional radiographs, and minimal lesions that could affect the surgical stability of the assembly.

Abdominal ultrasound is useful not only for detecting internal bleeding or visceral injuries (spleen, liver, bladder), but also for monitoring response to treatment in unstable patients. Thoracic ultrasound or the use of the FAST (Focused Assessment with Sonography for Trauma) protocol can reveal pneumothorax, pleural effusions, or pulmonary contusions that must be managed before orthopaedic intervention.

Analgesia, as part of the initial diagnosis, should not be underestimated. The use of opioids, local nerve blocks, or epidural anaesthesia allows for safer exploration without exacerbating the patient's pain. This early intervention improves not only the animal's comfort but also the quality of the physical diagnosis, as a properly anaesthetised patient allows for more effective manipulation.

In cases of blunt trauma, it is recommended to remain vigilant, as many injuries may go unnoticed in the initial assessment. Follow-up with serial radiographs or periodic clinical re-evaluations can be crucial in identifying stress fractures, ischaemic necrosis, or malunions in the early stages. In all cases, fluid communication with the owner regarding the diagnostic process and the need for additional tests is key to shared decision-making and better adherence to the proposed treatment.

THERAPEUTIC AND SURGICAL STRATEGIES



Surgical treatment is the cornerstone in the resolution of most feline fractures, especially when there is bone displacement, joint involvement, or functional compromise. Surgical stabilisation must be adapted to the particular feline anatomy, which requires delicate instruments, technical precision, and in-depth knowledge of the most appropriate techniques for each type of fracture.

Internal fixation

Internal osteosynthesis using dynamic compression plates (DCP), locking plates (LCP) and cortical or cancellous screws is the treatment of choice for most long bone fractures. In cats, the use of miniplates (1.5 or 2.0 mm) is common due to the size of the bone. Fixation with plates and intramedullary nails may be considered in complex diaphyseal fractures, especially in bones such as the femur or humerus.

External fixation

Indicated in open, unstable fractures or those involving soft tissue. External fixation systems (with threaded pins and lightweight connectors) are useful in cats due to their low weight. They require frequent monitoring and local care to prevent infection due to traction or movement.

Anatomical reduction and surgical technique

Precision in reduction is critical, especially in joint or metaphyseal fractures. The use of intraoperative fluoroscopy, surgical loupes and minimally invasive approaches is recommended whenever possible. Surgical bleeding is usually limited, but hypothermia must be monitored, as cats are very sensitive to heat loss during prolonged procedures.

Implant selection

The choice of stabilisation system should consider:

- Type of fracture (transverse, oblique, comminuted, joint).
- Location (tibia, femur, humerus, radius, pelvis, mandible).
- Age and condition of the patient.
- Available surgical resources.

The current trend favours the use of locked plates and MIPO (minimally invasive plate osteosynthesis) techniques due to their lower impact on soft tissues and better healing rates.

Postoperative care

This includes multimodal analgesia (opioids, NSAIDs and gabapentin), early supervised physiotherapy and movement restriction (cage or controlled space) for 4 to 6 weeks. X-ray checks should be scheduled periodically to assess the progress of healing.

COMMON COMPLICATIONS AND THEIR MANAGEMENT

Appropriate management includes constant monitoring, early therapeutic adjustments and, in some cases, reoperation. Physiotherapy and pain management are essential for a full functional recovery.

CONCLUSIONS



Feline surgical traumatology represents a technical challenge that requires careful planning, specific knowledge, and surgical experience. The appropriate selection of stabilisation techniques and rigorous postoperative care allow for satisfactory functional recovery in most cases. With a systematic and individualised approach, it is possible to achieve excellent results even in complex fractures.

BIBLIOGRAPHICAL REFERENCES

1. Piermattei DL, Flo GL, DeCamp CE. Handbook of Small Animal Orthopaedics and Fracture Repair. 4th ed. St. Louis: Saunders Elsevier; 2006.
2. Langley-Hobbs SJ, Meeson RL, Bray JP. Feline Orthopaedic Surgery and Musculoskeletal Disease. 2nd ed. Saunders Elsevier; 2021.
3. Hudson CC, Lewis DD, Pozzi A. Minimally Invasive Plate Osteosynthesis: Radius and Ulna. Vet Clin North Am Small Anim Pract. 2020 Jan;50(1):135-153. doi: 10.1016/j.cvsm.2019.08.006. Epub 2019 Oct 18. PMID: 31635915.
4. Clayton D, Costello S, Olive M, Levien AS, Hoon QJ, Loh JR, Lai A, Mac K, Hall E, Basa RM. Incidence of Bandage-Associated Complications in Cats following Clean Orthopaedic Procedures: A Retrospective Study of 152 Cases. Vet Comp Orthop Traumatol. 31 July 2025. doi: 10.1055/a-2655-9218. Epub ahead of print. PMID: 40744091.
5. Choi Y, Pilton J, Foo T, Malik R, Haase B. Feline Skeletal Reference Guide: A Cadaveric Radiographic Measurement on Lower Limb Extremities. Vet Comp Orthop Traumatol. 2021 Nov;34(6):401-410. doi: 10.1055/s-0041-1735289. Epub 6 September 2021. PMID: 34488232.
6. İnal KS. Minimally Invasive Radial-Ulnar and Tibial Fracture Management with Supracutaneous Locking Plates in Dogs and Cats. Vet Comp Orthop Traumatol. 2025 Jan 15. doi: 10.1055/a-2496-2471. Epub ahead of print. PMID: 39814045.