



Hind limb amputation for presumptive appendicular osteosarcoma in a domestic cat

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ABSTRACT: Osteosarcoma is the most common primary malignant bone tumor in cats and most often affects the appendicular skeleton. This case report describes the diagnosis and surgical management of presumptive appendicular osteosarcoma in a domestic cat. A seven-year-old male domestic cat weighing 2.6 kg presented with a progressively enlarging mass and a moist open wound on the left hind limb. Radiographic examination revealed an aggressive osteolytic lesion, suggestive of osteosarcoma. Hind limb amputation was performed under premedication with atropine and acepromazine (0.02 mg/kg BW each) and general anesthesia with zolazepam-tiletamine (5 mg/kg BW). Postoperative therapy included oral antibiotics, analgesics, and vitamin supplementation. The patient remained clinically stable after surgery and recovered well. By postoperative day 18, the wound had healed adequately, the sutures were removed, and the patient was discharged. Hind limb amputation provided a favorable short-term outcome in this cat with presumptive appendicular osteosarcoma.

Keywords:

amputation, appendicular, cat, osteosarcoma, surgery

■ INTRODUCTION

Osteosarcoma is one of the most frequently diagnosed primary malignant bone tumors in companion animals. The tumor develops within osteoid tissue as a result of abnormal bone remodeling, characterized by dysregulated activity of osteoblasts and osteoclasts (Pfitzer *et al.* 2022). It is most commonly identified in geriatric animals, particularly those aged 8–10 years, although younger animals may also be affected (Giuliano *et al.* 2022). The appendicular skeleton, especially the long bones, is the predominant site of occurrence, whereas other locations, such as the skull, pelvis, ribs, and vertebrae, can also be involved (Breitreiter 2019).

Compared with dogs, cats with appendicular osteosarcoma generally show a lower metastatic rate, which partly explains their more favorable prognosis (Giuliano *et al.* 2022). Limb amputation is the treatment of choice, providing favorable outcomes in feline cases (Breitreiter 2019). However, treatment decisions depend on lesion characterization and disease extent; therefore, a reliable diagnosis should be established through diagnostic imaging, particularly radiography or computed tomography (Pfitzer *et al.* 2022). This case report describes appendicular osteosarcoma in a domestic cat and emphasizes clinical findings, imaging features, and surgical treatment.

■ CASE

Signalment: A seven-year-old male domestic cat named Tambak Sawah, weighing 2.6 kg. **Anamnesis:** The cat had an open wound resembling a muscle mass in the left hind

limb. The mass increased in size over several months. Mostly outdoors, the lesion's progression was not monitored. The cat had a good appetite and normal urination. **Physical Examination:** Body temperature was 38.3°C, respiratory rate was 30 breaths/min, and heart rate was 144 beats/min, all within normal range. The oral mucosa was pale pink, and the patient was thin with a body condition score of 2/9. The cat ambulated but showed lameness, often lifting the left hind limb. **Clinical Findings:** Abnormal swelling was observed in the left caudal extremity around the tarsal region. The lesion appeared as a mass with exposed muscle tissue, purulent exudate, and extensive necrotic tissue covering almost the entire surface. **Diagnostic Imaging:** Due to financial constraints, only radiography was performed. A lateral view showed a solid mass from the distal tibia-fibula to the proximal metatarsal, with increased radiopacity in the tarsal area. Osteolysis of the talus and calcaneus was observed (Figure 1). **Differential Diagnosis:** Appendicular osteosarcoma, chronic osteomyelitis, chondrosarcoma, fibrosarcoma involving bone, and soft tissue sarcoma with secondary bone invasion. **Diagnosis:** Presumptive appendicular osteosarcoma of the left hind limb. **Prognosis:** Guarded to fair. **Treatment:** Hind limb amputation was performed via joint disarticulation. The patient received intravenous 0.9% NaCl fluid therapy before

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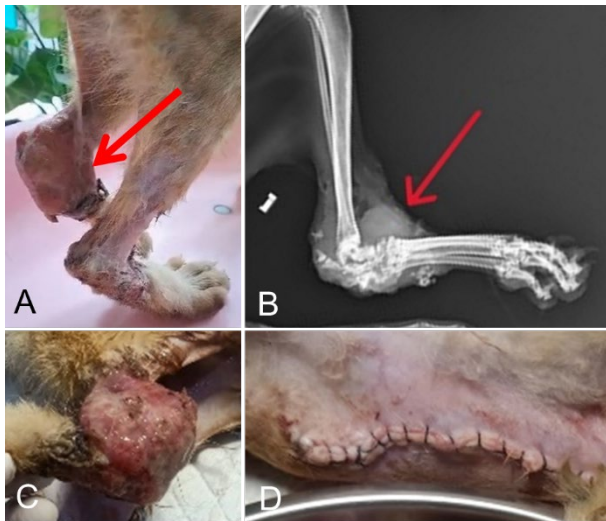


Figure 1. Clinical presentation, radiographic features, and postoperative condition of a cat with presumptive appendicular osteosarcoma (red arrow). (A) Proliferative mass in the left hind tarsal region during inspection. (B) Radiograph showing a soft-tissue mass with an aggressive osteolytic lesion in the left hind limb. (C) Gross view of the tarsal joint mass. (D) Postoperative limb appearance after amputation and suturing.

surgery. Premedication included atropine and acepromazine (0.02 mg/kg BW) intramuscularly. Anesthesia was induced with zolazepam-tiletamine (5 mg/kg BW) intravenously. The patient was in right lateral recumbency, and the area was prepared with povidone iodine. The procedure involved dissecting the muscles around the knee and disarticulating the femorotibial joint. Muscle closure used 3-0 catgut, and skin closure used 4-0 silk. An antibiotic ointment containing neomycin sulfate and bacitracin zinc was applied to the suture area. Postoperative therapy included oral amoxicillin (20 mg/kg BW) twice daily, metronidazole (10 mg/kg BW) twice daily, meloxicam (0.05 mg/kg BW) once daily, vitamin B12 (50 mcg) once daily, and cyproheptadine (4 mg) twice daily for 14 days. An albumin supplement (Procena) was administered at 500 mg twice daily for seven days.

■ RESULTS AND DISCUSSION

Bone lysis, which indicates bone tissue destruction, supported the presumptive osteosarcoma diagnosis. This osteolytic pattern is associated with aggressive primary bone tumors. The exact cause of osteosarcoma is unclear but involves genetic and environmental factors. As the neoplastic process compromises the bone, patients are at risk of pathologic fractures (Pfitzer *et al.* 2022).

Amputation is the recommended treatment for feline appendicular osteosarcoma. Unlike in dogs, chemotherapy or radiation is often unnecessary in cats because of the lower frequency of metastasis (Baum *et al.* 2018). Amputation is indicated for limbs with malignant neoplasia, severe injury, or congenital abnormalities that cause non-functionality (Wagner *et al.* 2022). Postoperative treatment included antibiotics to prevent infection and an NSAID for pain and inflammation. Albumin was administered to support tissue repair and nutritional recovery (Astini *et al.* 2025).

The postoperative course was uneventful. By the fourth day, the cat had adapted to three-legged ambulation. On day nine, the cat's condition, including appetite and waste elimination, was normal. The wound healing process progressed rapidly. The cat recovered and was discharged on day 18. This supports the notion that cats adapt well post-amputation, recovering mobility with minimal long-term limitations. However, limb loss may affect stability during rapid movements and increase the burden on the remaining limbs (Wagner *et al.* 2022) and blood profiles during recovery (Prasaja *et al.* 2024).

■ CONCLUSION

Limb amputation can serve as a highly effective therapeutic intervention for appendicular osteosarcoma case in cats. This method can prevent recurrence and is considered effective in maintaining their quality of life.

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Author Contributions

KP, MNF: conceptualization and drafted the manuscript. KP, FFP: data collection. All authors have given approval to the final version of the manuscript.

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