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Surgical tail amputation for severe traumatic coccygeal injury in a sugar glider (*Petaurus breviceps*)

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ABSTRACT: Sugar gliders (*Petaurus breviceps*) are kept as companion animals and may be predisposed to tail injuries due to aggression, self-mutilation, or environmental trauma. This report describes the clinical presentation, surgical management, and postoperative outcomes of tail amputation in a sugar glider with a coccygeal fracture complicated by self-mutilation. A 2-year-old intact male sugar glider presented with reduced appetite, repeated tail biting, and a five-day history of tail injury. Physical examination revealed an open wound with swelling, purulent discharge, pain on palpation, and crepitus. Radiography confirmed a complete transverse fracture of the distal coccygeal vertebra. Tail amputation was performed under anesthesia using 2% lidocaine at 4 mg/kg. The fractured segment was removed, and the skin was closed using simple interrupted sutures. Postoperatively, the patient was administered enrofloxacin, meloxicam, and topical gentamicin. Complete wound closure occurred by postoperative day 7, without complications.

Keywords:
coccygeal fracture, exotic pet, self-mutilation, sugar glider, tail amputation

■ INTRODUCTION

Traumatic injuries commonly affect captive sugar gliders (*Petaurus breviceps*) housed in environments that predispose them to fighting, entrapment, or trauma. The causes include interspecific or intraspecific aggression, self-mutilation, underlying disease, and enclosure hazards (Miwa *et al*. 2016; Kurt *et al*. 2020). The tail is particularly vulnerable due to exposure and contact with enclosure equipment. Trauma ranges from lacerations to tissue damage, ischemic injury, infection, necrosis, and fractures (Kubiak 2021).

In sugar gliders, the tail is used for balance, postural control, climbing, and gliding. Consequently, severe tail injuries may compromise mobility and activity, causing pain, contamination, progressive infection, and tissue devitalization (Kubiak 2021). Mild, uncomplicated wounds can be managed with wound care, antimicrobial therapy when indicated, and environmental correction. However, with poor tissue viability, fracture, progressive infection, or unlikely functional recovery, tail amputation may provide definitive management by removing the nonviable tissue.

Despite the importance of tail trauma in sugar gliders, reports on surgical tail amputation in this species remain limited in the veterinary literature. Information on indications, techniques, perioperative considerations, and postoperative outcomes is needed for practice. This case report describes the assessment, amputation, and outcome of a sugar glider with severe tail injury.

■ CASE

Anamnesis and Signalment: A 2-year-old, intact male sugar glider weighing 198 g was presented with loss of appetite, a five-day history of biting his tail, and tail injury. **Examination**: The respiratory rate was 24 breaths/min and the heart rate was 210 beats/min. During the physical examination, a 1 cm open wound was observed at the distal end of the tail, accompanied by multiple bite marks, swelling, and pus accumulation. Palpation of the area revealed tenderness, and crepitus was detected. **Diagnostic imaging**: Lateral radiographs demonstrated a complete transverse fracture of the coccygeal vertebrae (Figure 1a). **Differential diagnosis:** Traumatic coccygeal fracture, infected bite wound or abscess, tail self-mutilation secondary to pain or irritation, tail-tip necrosis, severe soft tissue infection, and entrapment-related tail injury. **Diagnosis**: Open infected traumatic wound with complete transverse fracture of the distal coccygeal vertebrae. **Prognosis**: Favorable after surgical correction. **Treatment**: Tail amputation. **Preoperative**: The tail area was cleaned using normal saline solution and povidone-iodine. Lidocaine 2% was administered intramuscularly around the amputation site

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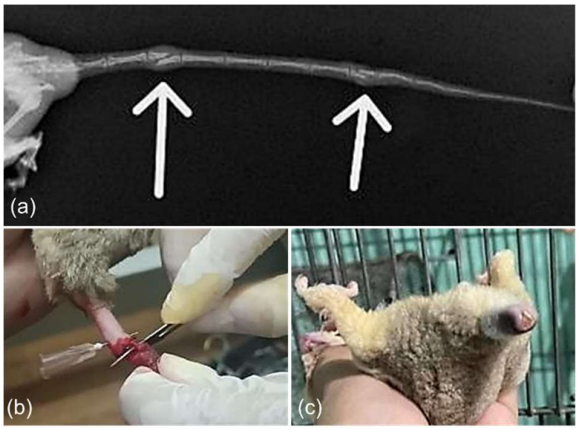

Figure 1. Coccygeal fracture and surgical management of tail injury in a sugar glider. (a) Lateral radiograph showing a coccygeal vertebral fracture at the distal tail segment (white arrow). (b) Intraoperative appearance during tail amputation. (c) Wound healing progression at 7 days postoperatively.

(ring block technique) at a total dose not exceeding 4 mg/kg. **Surgical techniques**: The area to be amputated was marked using a 26-gauge needle (Figure 1b). A V-shaped incision was made approximately 1 cm at the marked location using a surgical blade. Soft tissue was carefully dissected to expose the coccygeal vertebra. Hemostasis was performed by ligation of the blood vessels using absorbable suture material (USP 5/0, AssuCryl), and bone amputation was performed (Figure 1b). The remaining skin was closed using a simple interrupted pattern with non-absorbable suture material (USP 5/0, Silk). **Postoperative**: The sugar gliders were administered enrofloxacin at a dose of 2.5 mg/kg intramuscularly, once daily for 5 days, and meloxicam at a dose of 0.2 mg/kg intramuscularly, once daily for 3 days. The wound was irrigated with iodine solution and treated with gentamicin ointment twice daily. By day 7, the sutures were removed as the wound had fully closed (Figure 1c). At 14 days postoperatively, the sugar glider had returned to normal activity and appetite, with no evidence of wound infection, dehiscence, or recurrent self-mutilation.

■ RESULTS AND DISCUSSION

Tail amputation was selected because the coccygeal fracture involved an open wound, purulent discharge, pain, and self-mutilation in the tail. In sugar gliders, self-mutilation may occur secondary to pain, stress, irritation, or tissue injury (Fisher *et al.* 2022). Once established, biting can perpetuate trauma, increase contamination, delay healing, and promote tissue damage (Miwa *et al.* 2016; Wang *et al.* 2025). Thus, conservative treatment was inappropriate because preserving the injured tail segment was unlikely to restore the function or prevent recurrent trauma.

The surgical approach removed the unstable and contaminated tail segment while preserving sufficient healthy tissue for primary closure. Manual restraint with a towel wrap minimized movement and handling-associated stress. Local anesthesia with 2% lidocaine administered as a ring block provided analgesia, as evidenced by the absence of pain-related responses, struggling, or defensive movements during tissue manipulation. The patient recovered, with no anesthesia-related complications observed. In exotic mammals, local anesthesia may be advantageous for surgical procedures, avoiding the risks of general anesthesia and allowing postoperative recovery when restraint and analgesia can be achieved (Miwa *et al.* 2016; Kubiak 2021).

Although tail injuries are clinically relevant in sugar gliders, descriptions of tail amputation in this species remain limited. This case provides practical information on the indication, perioperative management, surgical technique, and early outcomes of tail amputation for coccygeal fractures complicated by self-mutilation. Similar principles have been applied in small mammals, including rodents, when tail trauma is associated with fractures, devitalized tissue, infection, or poor likelihood of functional recovery (Kubiak 2021). Wound closure was achieved by postoperative day 7, supporting the clinical value of early intervention.

■ CONCLUSION

Tail amputation effectively treated an open coccygeal fracture complicated by self-mutilation in this case, resulting in complete wound closure by postoperative day 7 without early complications. However, recurrent self-mutilation and stress-related morbidity remain risks; adequate analgesia, behavioral monitoring, and protective measures, such as an Elizabethan collar, are recommended.

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■ REFERENCES

Fisher CJ, Schiavone S, Gutiérrez JFM, Lopez GT. 2022. Microchip Implant Induced Dermatitis and Self-mutilation in Four Sugar Gliders (*Petaurus breviceps*). Journal of Exotic Pet Medicine. 42:20-25.

Kubiak M. 2021. Sugar gliders. In: Handbook of Exotic Pet Medicine. First Ediction. John Wiley & Sons Ltd; 125-139.

Kurt T, Atespare Zd, Cerkez EE. 2020. Penile Prolapse and Treatment in a Sugar Glider (*Petaurus breviceps*). Turkish Veterinary Journal 2(21):80-83.

Miwa Y, Sladky KK. 2016. Small mammals: common surgical procedures of rodents, ferrets, hedgehogs, and sugar gliders. Veterinary Clinics of North America: Exotic Animal Practice. 19:205-244.

Wang C, Hua X, Yang H, Zhang K, Zhu Y, Liu D, Lei M, Bao J. 2025. Blood Vessels in The Mouse Tail: Progress in Anatomical Studies. American Journal of Translational Research. 17(5):3982-3993.