

# Aural hematoma treatment using the button suture technique

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**ABSTRACT:** Aural hematoma is a condition in which blood accumulates in the pinna and is characterized by fluid-filled swelling and erythema. One cause of aural hematoma is trauma, specifically an increased frequency of ear scratching and head shaking due to *Otodectes cynotis* ear mite infestation. Diagnostic tests in this case involved microscopic examination of ear cerumen, blood hematology, and blood biochemistry. The button suture technique is aimed at releasing the accumulated blood and preventing dead space in the pinna. Post-operative medication includes intramuscular injection of oxytetracycline and meloxicam, oral administration of albumin, administration ear drops (Sagestam®), and anti-mite treatment. The wound healing treatment was supported by a wound ointment (Digenta®) and the use of an Elizabethan collar. The patient's condition gradually improved after surgery, and the patient was allowed to return home 30 days postoperatively.

## Keywords:

aural hematoma, cat, button suture technique

## INTRODUCTION

Aural hematoma or othematoma is a condition in which blood accumulates in one or both pinnae (Gokulakrishnan & Shammi 2016). The pathomechanism of aural hematoma involves the rupture of blood vessels accompanied by the separation of cartilage and skin, resulting in the formation of a dead space filled with blood (Hnilica & Patterson 2017). The clinical signs of aural hematoma include swelling, erythema, and warmth of the pinna (Gothelf 2005).

The causes of an aural hematoma include direct trauma, such as an animal bite, or repeated trauma resulting from an increased frequency of head shaking and ear scratching due to pruritus caused by ectoparasite infestation (*Otodectes* sp.), bacteria, fungi, or foreign bodies. Polyps, otic neoplasms, coagulopathy, and endocrine disorders can also cause othematoma, although they are less common (Coleman 2024). The therapeutic principles of aural hematoma include removing accumulated fluid, preserving the skin and cartilage tissue, and minimizing factors that contribute to trauma (Seibert & Tobias 2013). This article reports the surgical treatment of aural hematoma in a Maine Coon cat using the button-suture technique.

## CASE

**Signalment and Anamnesis:** A two-year-old male Maine Coon cat named Dobriy. Before swelling appeared, Dobriy frequently scratched his ear. **Clinical Findings:** Swelling and erythema in the right ear. Palpation revealed warmth and presence of fluid (Figure 1A). **Physical Examination:** The body weight of Dobriy was 7.2 kg, and rectal temperature was 39.2 °C. The respiration, pulse, and heart rates were

normal. **Diagnostic Tests:** Based on microscopic examination of the ear cerumen, infestation of ear mites (*Otodectes cynotis*) was found (Figure 1B). Subsequently, blood hematology and biochemistry tests were performed to assess the patient's condition before surgery. **Differential Diagnosis:** Cyst, pinna abscess, and neoplasia. **Diagnosis:** Aural hematoma dexter. **Prognosis:** Fausta. **Treatment:** Surgical correction using button suture technique.

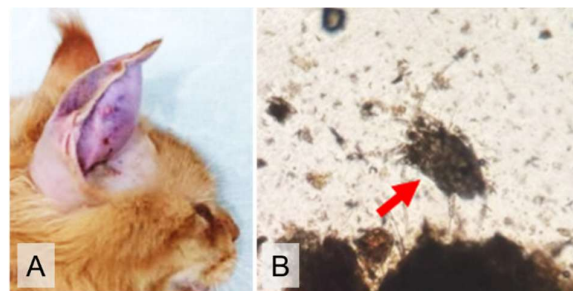


Figure 1 Swelling of the right ear (A) and *Otodectes cynotis* ear mites (red arrow) in microscopic examination of ear cerumen (B)

## RESULTS AND DISCUSSION

Hematological tests revealed a decrease in hematocrit values, whereas other parameters remained normal (Table 1). A decrease in the hematocrit values can indicate acute blood loss (Jackson, 2007). Hematological test results indicated that the patient was suitable for surgery.

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Table 1 Hematological profile of a Maine Coon cat.

Parameter	Normal Value (Schalm <i>et al.</i> 2010)	Results
Leukocytes 10 <sup>3</sup> /μL	5.5-19.5	11.8
Lymphocytes 10 <sup>3</sup> /μL	0.8-7.0	2.2
Monocytes 10 <sup>3</sup> /μL	0-1.9	0.7
Granulocytes 10 <sup>3</sup> /μL	2.1-15.0	8.9
Lymphocytes%	12-45	18.5
Monocytes%	2.0-9.0	6.2
Granulocytes%	35-85	75.3
Eosinophils%	2-12	2.3
Erythrocytes 10 <sup>6</sup> /μL	4.6-10.0	5.57
Hgb g/dL	9.3-15.3	9.4
Hct %	28-49	26.4
MCV fL	39-52	40.2
MCH pg	13-21	14.3
MCHC g/dL	30-38	35.6
Platelets 10 <sup>3</sup> /μL	100-514	248

Blood biochemistry tests showed decreased globulin and increased glucose levels, whereas other parameters remained normal; therefore, the patient was suitable for surgery (Table 2). Hypoglobulinemia may indicate acute blood loss. Hyperglycemia in cats is often postprandial-related (Jackson 2007). The button suture technique was used for the surgical treatment of aural hematoma. The advantages of this method include adaptability to the ear anatomy, minimal risk of distortion and complications, and ease of application (Worley & Cohen 2018). Surgery began with induction of atropine sulfate (0.1 mL/kg SC) and zolazepam-tiletamine (0.1 mL/kg IM). An incision was made in the right concave pinna (Figure 2A) to release fluid from the pinna (Figure 2B). Buttons were sewn around the incision area using simple interrupted sutures with Aviallein cutting 3/0 to prevent dead space formation (Figure 2C), and were removed on postoperative day 14. Thirty days after surgery, the incision area was closed using simple interrupted sutures with PGA cutting 3/0, causing the wound to not close (Figure 2D).

Postoperative treatment included administering oxytetracycline (0.05 mL/kg IM) every 3 days, meloxicam (0.02 mL/kg IM) twice a day, oral albumin twice a day, wound ointment (Digenta®) twice a day, ear drops (Sagestem®), and supplement (Hematodin®). Two days after surgery, the cat received antiparasitic drug (Revolution for Cats Blue®). An Elizabethan collar is used to prevent wound scratching (Kuma *et al.* 2022). All treatments were administered at the clinic.

Table 2 . Blood biochemistry profile of a Maine Coon cat

Parameter	Normal Value (Schalm <i>et al.</i> 2010)	Results
Albumin g/dL	1.8 – 3.6	3.1
Total Protein g/L	60.0 – 94.0	68.1
Globulin g/L	40.0 – 62.0	37.5
A/G	0.35 – 1.50	0.82
Total Bilirubin μmol/L	0.0-15.0	<0.1
ALT U/L	5 – 130	46
ALP U/L	20 – 111	23
Creatinine mg/dL	0.8 – 2.4	0.5
Uric Acid μmol/L	0 – 60	<10.00
BUN mg/dL	11.24 – 36.25	18.24
BUN/Creatinine	27.000 – 182.000	94.797
Glucose mmol/L	4.11 – 8.83	10.31
K+ mmol/L	3.50 – 5.80	3.97
Na+ mmol/L	140.0 – 160.0	138.6

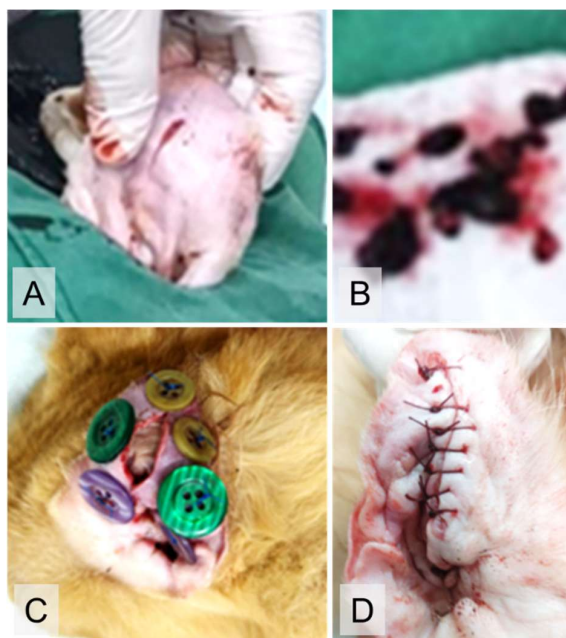


Figure 2 Button suture technique procedure. Incision of the pinna (A), released fluid from the pinna (B), button suturing around the incision area (C), and closed the incision site (D)

## CONCLUSION

Aural hematomas in cats can be treated using the button suture technique.

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