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https://doi.org/10.1590/0103-8478cr20260052

Submitted on: 2026-11-26
Posted on: 2026-11-27 (version 1)
(YYYY-MM-DD)

SciELO Preprints - This document is a preprint and its current status is available at: https://doi.org/10.1590/0103-8478cr20260052

Ciência Rural, Santa Maria, v.57:1, e20260052, 2027 http://doi.org/10.1590/0103-8478cr20260052

ISSNe 1678-4596
CLINIC AND SURGERY

Traumatic otohematoma in a brazilian pony

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Otohematoma traumático em uma pônei

Received 02.03.26 Approved 08.20.26 Returned by the author xx.xx.xx
CR-2026-0052.R2
Editor: Rudi Weiblen

SciELO Preprints - This document is a preprint and its current status is available at: https://doi.org/10.1590/0103-8478cr20260052

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Traumatic otohematoma in a brazilian pony

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ABSTRACT: A case of a traumatic otohematoma is reported in a 15-year-old Brazilian Pony mare, presented to the Universidade Federal de Santa Maria (UFSM) University Veterinary Hospital with serous fluid accumulation in the right pinna. Initial treatment involved aspiration, local steroid application, and a pressure bandage. Following a recurrence within two days, surgical correction was performed alongside systemic antibiotics and anti-inflammatories. Two weeks later, a new fluid accumulation occurred with culture results of *Acinetobacter* sp., coagulase-positive *Staphylococcus*, and *Escherichia coli*, all sensitive to amikacin. A second surgical intervention was conducted, followed by local amikacin treatment for five days and topical antibiotic ointment for 17 days. This protocol resulted in complete healing with no further recurrences. Previous mycological examination was negative, excluding primary fungal skin disorder. The clinical resolution was successful after therapeutic adjustments based on the antibiogram results.
Key words: aural hematoma, equine medicine, surgical management, pinna diseases.

Otohematoma traumático em uma pônei

RESUMO: Este estudo relata um caso de otohematoma traumático em uma fêmea de Pônei Brasileiro, 15 anos, atendida no Hospital Veterinário Universitário da Universidade Federal de Santa Maria (UFSM), com acúmulo de fluido seroso no pavilhão auricular direito. Inicialmente, realizou-se aspiração, aplicação local de esteroide e bandagem compressiva. Além disso, devido à recidiva em dois dias, foi preferido por correção cirúrgica associada a antibioticoterapia e anti-inflamatório. No entanto, houve novo acúmulo de fluido aural após duas semanas, com a cultura revelando *Acinetobacter* sp., *Staphylococcus* coagulase positiva e *Escherichia coli*, todas sensíveis à amicacina. Ademais,uma nova intervenção cirúrgica foi realizada, seguida de aplicação local de amicacina por cinco dias e pomada cicatrizante com antibiótico por 17 dias. O tratamento resultou em completa cicatrização, sem novas recidivas. O exame micológico prévio foi negativo, descartando o envolvimento de dermatite fúngica primária. O tempo total para a resolução clínica final foi satisfatório após o ajuste terapêutico, baseado no antibiograma.
Palavras-chave: hematoma aural, medicina equina, abordagem cirúrgica, doenças do pavilhão auricular.

Otohematoma, or aural hematoma, is characterized by a fluctuating accumulation of hemorrhagic content or clots between the perichondrium and the conchal cartilage of the external ear. While common in humans and dogs, it is considered rare in equine species (MACPHAIL, 2016; IM et al., 2008; HNILICA, 2010). Although often idiopathic, the condition typically results from trauma that triggers vascular rupture and disrupts the natural adhesion between the tegument, perichondrium, and the complex cartilaginous structure of the pinna (BUDRAS et al., 2009; HENDERSON & HORNE, 2003). Pathophysiologically, the acute phase involves rupture of branches of the caudal auricular artery and fluid accumulation, whereas the chronic phase leads to fibrin deposition and seroma formation, posteriorly transforming into localized fibrosis and permanent auricular deformation (BOJRAB et al., 1993; MARIGNAC, 2005). Given the anatomical complexity of the equine ear and the high risk of sequelae, prompt intervention is required, with surgical correction being the most recommended approach to ensure tissue integrity and prevent recurrence (MCCARTHY & MCCARTHY, 1994).

A 15-year-old female Brazilian Pony was presented at the University Veterinary Hospital (HVU) of the Universidade Federal de Santa Maria

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A 15-year-old female Brazilian Pony was presented at the University Veterinary Hospital (HVU) of the Universidade Federal de Santa Maria (UFSM) with an accumulation of serous fluid in the external auditory meatus of the right ear. The animal had a history of bite injuries from other horses cohabiting in the same field.

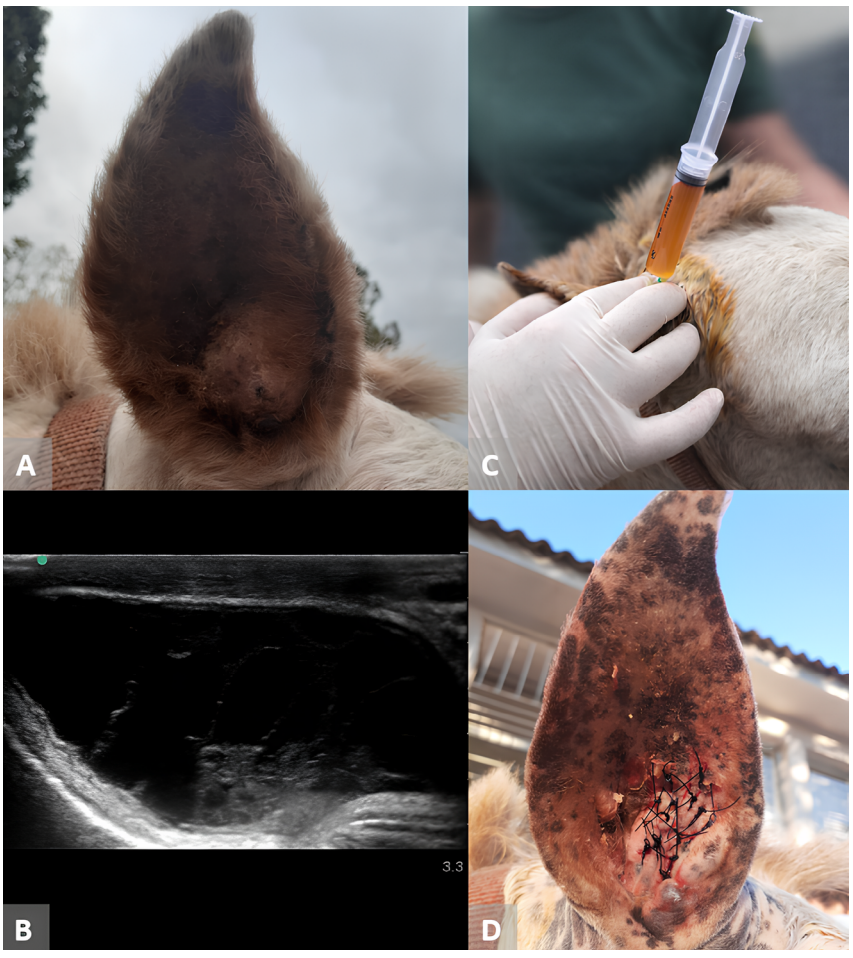


Figure 1 - (A) Swelling on the inner surface of the ear, a characteristic sign of otohematoma; (B) Ultrasound of the affected area, demonstrating an accumulation of fluid and fibrin; (C) Aspiration of serous fluid from the external auditory meatus; (D) Simple, interrupted, vertical suture pattern to preserve vascularization of the affected area.

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Clinical examination at HVU revealed swelling on the inner surface of the auricular pinna (Figure 1A), frequent head shaking, and pain upon palpation, highly suggestive of otohematoma. Ultrasound (Figure 1B) revealed a hypoechoic area with hyperechoic foci consistent with fibrin deposition, suggestive of hemorrhagic content in the aural region. There was no history of itching or signs of dermatitis, nevertheless, a scraping sample was taken from the external area and sent to a reference laboratory, for direct examination and culture, which returned negative for fungal agents or ectoparasites.

Following sedation with 10% xylazine (EQUISEDAN®, J.A. Saúde Animal, Patrocínio Paulista - SP, Brazil) at 0.5 mg/kg IV and aseptic preparation, the content was aspirated via the convex surface of the ear (Figure 1C). For local anti-inflammatory effect, 6mg of triamcinolone (ATRIBEN®, Holliday, Buenos Aires, Argentina) was injected intralesionally, followed by the application of a compressive bandage to prevent recurrence.

After 48 hours, bandage removal revealed fluid reaccumulation in the pinna. Therefore, the animal underwent immediate standing surgical correction under sedation with detomidine (Detomidin®, Syntec, Santana de Parnaíba - SP, Brazil) at 0.01 mg/kg IV according to the surgical technique described by ESTRELLA et al. (2017). The procedure involved a linear incision on the concave surface of the auricular pinna, exposing the content, removing clots, and curettage for fibrinous tissue debridement. The space was then flushed with 0.1% povidone-iodine in 0.9% saline solution and the site was closed with multiple vertical simple interrupted sutures of 2-0 mononylon (Figure 1D), leaving the incision partially open to facilitate fluid drainage. These sutures were placed to minimize dead space, prevent fluid reaccumulating, and preserve auricular vascularization, as they were positioned parallel to the vessels.

Sutures were inspected daily and removed after 15 days due to slow healing in the area. Supportive therapy included broad-spectrum intramuscular penicillin-streptomycin (Penfort PPU®, Ourofino Saúde Animal, Cravinhos - SP, Brazil) at 20,000 IU/kg BID and intravenous flunixin meglumine (Banamine®, MSD Saúde Animal, Cruzeiro - SP, Brazil) at 1.1 mg/kg SID for seven days. During the hospitalization, topical treatment involved a healing ointment containing gentamicin, sulfanilamide, sulfadiazine, and vitamin A (Vetaglós®, VETNIL, Louveira - SP, Brazil), once a day. Complete wound healing was achieved in 48 days, at which point the patient was discharged.

After 15 days, the animal presented with purulent discharge and ear scratching. A swab sample was immediately collected in Stuart transport medium for bacterial culture and antimicrobial susceptibility testing at a reference laboratory. Under hospital settings, a second surgical intervention was performed using the same technique for drainage, debridement, and lavage of the site. Adjunctive therapy included flunixin meglumine administration (1.1 mg/kg IV, SID) and topical treatment, which were maintained until culture results were obtained.

Microbiological culture under aerobic conditions identified *Acinetobacter* sp., coagulase-positive *Staphylococcus*, and *Escherichia coli*. Antimicrobial susceptibility testing of nine agents showed that only amikacin was effective against all isolates. Additionally, both *Acinetobacter* sp. and *Staphylococcus* demonstrated sensitivity to gentamicin.

Based on these results, local injection with 2 g of Amikacin (Sulfato de Amicacina®, Teuto, Anápolis - GO, Brazil) SID for five days was initiated. The antibiotic ointment treatment continued for 17 additional days, leading to proper wound healing, good cosmetic outcomes with mild cartilage thickening, and no recurrence. The patient was monitored for at least three months post-treatment and remained stable, with no fluid reaccumulation and good quality of life.

Clinical signs observed in this patient, including swelling, edema, pain, serosanguineous or purulent discharge and head or ear shaking, align with the description of otohematoma by MACPHAIL (2016). In agreement with ITOH et al. (2022), who noted that most canine aural hematomas present as seromas rather than hematomas, the fluid aspirated in this case exhibited similar characteristics. In contrast to systemic manifestations described by ESTRELLA et al. (2017), the animal did not present with malaise or fever.

Regarding etiology, there is no concrete knowledge about the triggering factors of aural hematoma. However, there is strong evidence suggesting that this pathology may occur due to the presence of ectoparasites, pruritus, vascular rupture, and secondary bacterial infections (ESTRELLA et al., 2017). Considering pruritus as a factor, dermatophytosis is one of the main dermatological lesions affecting horses and can cause irritation with pruritus (WHITE, 2005). In this case, skin scraping was performed to rule out this etiology, as the animal exhibited crusts throughout the auricular region without evidence of insect bites or ectoparasites, but no fungal elements were detected. Furthermore, the pony's history of bite wounds from other horses is consistent with compressive trauma, which likely

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caused the hemorrhagic lesion in the pinna.

Both clinical and surgical methods can be used to treat this condition (HEWITT et al., 2020). Medical treatment is the preferred approach for treating otohematomas in dogs and cats (HALL et al., 2016). One of the therapies used in this case was the drainage of the serous content, followed by the intralesional application of a steroid. This approach has been reported by KUWAHARA et al. (1986), showing good resolution in small animals. ARCHIBALD et al. (1974) mentioned this therapeutic option but emphasize that it should only be applied to small hematomas; otherwise, it does not yield satisfactory results. Recently, BOORMAN et al (2021) noted that, besides being efficient in certain cases, needle drainage allows for rapid diagnosis of aural hematomas in horses and suggested it as a sufficient first-line treatment when combined with intralesional corticosteroid injections. While conservative management is less invasive, it led to recurrence in this pony, underscoring that this approach may be insufficient in horses and suggesting the involvement of anatomical, individual, or chronological factors in treatment outcomes. Furthermore, pressure bandages on equine ears are logistically difficult to keep secure due to constant head movements and shaking, which may have predisposed the conservative therapy to failure. In retrospect, considering the recurrence after conservative treatment, choosing definitive surgery as the immediate first-line therapy could have shortened the disease course and mitigated the risk of subsequent contamination.

HALL et al. (2016), state that surgical treatment is commonly elected for recurrent cases in small animals. Similarly, in horses, ESTRELLA et al. (2017) observed that surgical intervention yields better results. Surgical options for resolving an aural hematoma include an S-shaped or linear incision, insertion of a cannula for drainage, placement of a drain, or multiple circular fenestrations (HEWITT et al., 2020). Considering animal behavior, species anatomy, and management logistics, the linear incision technique is believed to be the most appropriate surgical approach for otohematoma correction in horses. This technique was used in the present case and aligns with the results of the only published study on the technique in horses, conducted by ESTRELLA et al. (2017), which reported a rapid clinical evolution and favorable control of pain and edema.

Supportive therapy with systemic antibiotics and anti-inflammatory drugs is essential since secondary infection is quite common, especially in cases where fluid aspiration was initially performed (MCCARTHY & MCCARTHY, 1994). JOHNS et al. (2012) described that antimicrobial administration leads to antimicrobial-resistant Escherichia coli in horses. Additionally, studies conducted by MUÑOZ et al. (2007) in Venezuela found that Pasteurella aeruginosa and E. coli are the most resistant bacteria in horses. In this case, bacteriological examination was crucial for the evolution of otohematoma and the success of the treatment. Given that aural seroma fluid is typically sterile (NEMADE & NAIK, 2014), a broad-spectrum agent was initially selected to target gram-positive and gram-negative opportunistic bacteria. However, this treatment failed to eliminate the underlying infection. The initial needle aspiration or the first surgical intervention likely introduced the opportunistic pathogens isolated subsequently. Performing a microbial culture during the first intervention, rather than after purulent complications manifested, could have enabled earlier pathogen identification and targeted therapy, ultimately mitigating the need for subsequent procedures.

Although otohematoma is common in dogs, it is rarely reported in equines. However, its treatment is similar to that in other species. This case demonstrated that conservative management might fail in cases with early recurrence. Surgical intervention may improve clinical outcomes and reduce treatment duration, especially in recurrent fluid accumulations. Nevertheless, it carries a higher risk of secondary bacterial contamination, necessitating careful antimicrobial therapy and diligent wound management.

DATA AVAILABILITY STATEMENT

Additional information is available from the corresponding author upon reasonable request.

ACKNOWLEDGMENTS

The authors thank the Equipe de Medicina Esportiva de Equinos of the Universidade Federal de Santa Maria that were fundamental to resolving the case and ensuring successful treatment, as well as the Departamento de Clínica de Grandes Animais of the Universidade Federal de Santa Maria, which contributed with the necessary resources. Furthermore, it was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES), Brasil - Finance code 001.

DECLARATION OF CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHORS' CONTRIBUTION

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All authors contributed equally to the conception and writing of the manuscript. All authors critically revised the manuscript and approved of the last version.

BIOETHICS AND BIOSECURITY COMMITTEE APPROVAL

Ethical approval from the institutional committee was not required, as all procedures involving the animal were carried out as part of routine clinical care and were not conducted within the framework of an experimental study. All procedures were conducted by institutional protocols for ethical clinical care.

DECLARATION OF USE OF ARTIFICIAL INTELLIGENCE

The authors declare that no AI tools were used in the creation of this manuscript.

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