



**Case Report**

**Surgical management of unilateral auricular hematoma in goat: A case study**

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**ABSTRACT**

In this case report, Auricular Hematoma was diagnosed in a one-year-old female goat. The animal was presented with a complaint of sudden-onset of inflammation and pain in the right ear, after 3-days it became worst. History revealed the introduction of the affected-goat into a new herd, display of aggressive behavior, and head butting with other goats, suggesting trauma as a potential cause for the auricular hematoma. Distant and physical examination was performed to differentiate other conditions (cellulitis, auricular abscess, sunburn, and skin cancer etc.) and included a detailed visual inspection, palpation, and assessment of pain and inflammation. Upon performing fine-needle aspiration, the presence of blood in the aspirate confirmed the presence of hematoma in the auricle. The surgical operation was performed on the goat which involved the removal of the blood clots and other aspirates. Drainage was created to allow blood or other inflammatory fluid ooze out. Post-operative care was performed after washing the wound with antiseptics, applying Polyfax ointment locally, and parenteral administration of non-steroidal anti-inflammatory drug (Flunixin meglumine) and antibiotic (Oxytetracycline). The owner was strictly advised to provide the clean environment, improve the housing-management, and to ensure wound-care by the application of the fly-repellents. The animal exhibited good recovery 2-week post-surgery and the sutures were removed. The study highlights the significance of the diagnostic approaches in the selection of the appropriate line-of-treatment. Moreover, it emphasizes the importance of early intervention and comprehensive management strategies to prevent the disease complications.

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**Introduction**

Auricular hematoma in goat refers to the accumulation of blood within the pinna, the outer part of the goat's ear. This condition is

characterized by the inflammation, discomfort, and the formation of a fluid-filled pocket beneath the skin of the ear (Aarnes et al. 2014; Irhas 2019; Valle et al. 2020). The pinna of goat ear consists of a thin

cutaneous layer covering a cartilage framework containing the blood vessels responsible for supplying nutrients and oxygen to the ear. Traumatic incidents are the primary cause of auricular hematoma in goats, which can occur due to head butting or fighting with other goats, entanglement in fences or forceful impacts to the ear. These incidents result in ruptured blood vessels and subsequent bleeding within the ear tissues (Brown 2010; Dalal et al. 2020).

There are several other factors that can contribute to the development of auricular hematoma in goats. Tick infestations, particularly by species such as *Rhipicephalus appendiculatus*, can lead to ear-biting and subsequent bleeding. Breeds with pendulous ears are more prone to aural hematoma (Dewangan et al. 2016; MacPhail 2016; Uddin et al. 2017). Hematological disorders like hemophilia or thrombocytopenia, affect blood clotting ability, increase hematoma formation even with minor trauma. Allergic reactions, ear infections, and the presence of foreign bodies in the ear can also damage blood vessels and trigger the development of hematoma. Identifying these factors and addressing them appropriately is difficult for managing and preventing auricular hematoma in goats (Greywoode et al. 2010; Evangelista et al. 2012; Eyarefe et al. 2013).

Clinical signs of auricular hematoma in goats include inflammation, abnormal consistency, touch sensitivity, painful and animal's discomfort. If left untreated, the hematoma-size can increase, leading to increased restlessness and potential complications such as infection or necrosis of the ear tissues. Timely veterinary intervention is essential for the diagnosis and treatment of auricular hematoma (Beteg et al. 2011; Thamizharasan and Murugan 2016; Hall et al. 2016).

#### **Ethical Approval**

The study followed all the institutional guidelines suggested by College of Veterinary and Animal Sciences (CVAS), Jhang. The animal restraining, health examination, and sample collection were performed in accordance with the current legislation Cruelty to Animals Act, Government of the Pakistan.

#### **Case Presentation**

A one-year-old Beetle goat was presented at the outdoor clinic of College of Veterinary and Animal Sciences (CVAS), Jhang, Pakistan. The major complaint was the presence of the inflammation to the left ear flap. There was a history of direct trauma caused by head-butting during a goat fight. On palpation, ear consistency was found to be soft. The aspiration test was performed by using a 10ml disposable syringe which confirmed the diagnosis of hematoma, as the blood was present in the aspirate.

#### **Treatment**

The goat was prepared for the surgery and anesthetized by intramuscularly administering Xylazine Hydrochloride and Ketamine Hydrochloride at a dose rate of 0.05mg/kg and 5mg/kg body weight, respectively. The goat was set into lateral recumbency to perform the surgery of the hematoma. A stab incision was given using a No.11 blade to drain the blood. Then, the incision was extended to 5cm and the clotted blood was removed with the help of gauze. Irrigation was performed with povidone-iodine and gauze was applied again to remove all the fibers and clots. Through-and-through interrupted sutures were applied in horizontal lines around the entire flap of the ear using non-absorbable 2/0 suture material. Buttons were used in these sutures to equally distribute the tension and prevent over inflammation. The sutures were applied in such a way that no empty space was left to form a pocket. The incision site was left open for the drainage of blood and other inflammatory fluids, if it was produced in the ear. Fluid therapy was done with an intravenous infusion of 1000 ml of 5% Dextrose, to compensate the fluid loss and to provide energy. In postoperative care, the goat-owner was advised to wash the ear with povidone-iodine and then apply Polyfax ointment twice a day. Injection of Loxin (flunixin meglumine) at 1.2 mg/kg body weight for 3 days and injection of Oxytetracycline 5 mg/kg for 4 days were given intramuscularly. It was strictly advised to provide clean environment to the goat, and prevent wound contamination by using neem oil as a fly repellent. The animal showed good recovery during two weeks and the sutures were removed.

#### **Results**

After the 2 weeks of post-operative care, the animal was presented again at the CVAS-outdoor clinic for the removal of the sutures. The size and consistency of the effected-ear were normal. Wound healing process was successful. No any wound complications (Wound dehiscence or infection) were found. The affected animal's physiological parameters were normal. The goat was eating and behaving normally.

#### **Discussion**

Auricular hematoma is mostly observed in the goat-breeds with pendulous ears. The major clinical signs and findings of this care are similar to those described in the study conducted by Katsoulos and Dedousi (2021). There are different causes of auricular hematoma such as trauma, history of ticks, allergic reactions, presence of any foreign object, and sharp horns. The severe irritation caused by the flies and mites also lead to this condition (Parampal et al. 2015;



**A.** Inflammation at the concave surface of the left ear pinna of one-year old goat indicating auricular hematoma.



**B.** View of the left ear, pinna of the goat 2 weeks-post surgery.



**C.** Lateral view of ear post-surgery.

Hedlund 2016; Maruthi et al. 2016; Sadan 2019). It is advised to keep the suture knot loose because there are chances of inflammation which will break the sutures. The other technique of applying sutures in aural hematoma is cord technique. It includes the placement of an x-ray card inside the incision line and through and through sutures are applied. This card distributes the tension equally and thus, the whole epidermis remains in same position (Srivastava 2007; Singh et al. 2014; Kumaresan et al. 2017; Pund and Chattar 2019). There are different complications of aural hematoma after surgery like re-accumulation of the fluid and it is prevented by pressure bandage if appears. The cauliflower appearance of the ear is formed if hematoma left untreated. There are chances of maggots if wound left untreated and not properly managed. This will make the case worse and complicated. Auricular hematoma can be prevented by providing proper space to animals, regular tick control and proper handling of animals during transportation or medical procedures. Our results were in line with the study of Vishwakarma who reported the similar outcomes including successful healing and no wound complication, when noted 2 weeks post-surgery. With timely and appropriate treatment, the prognosis for auricular hematoma in goats is generally favorable. Early intervention can prevent complications such as infection, necrosis, and disfigurement, improving the chances of a successful outcome (Tsioli et al. 2013; Cechner 2014; Lamani et al. 2019; Dewangan et al. 2023).

### Conclusion

Auricular hematoma in goats is due to various factors such as trauma, tick bites, hematological disorders, ear infections, and genetic predisposition. Prompt diagnosis and treatment are

crucial to alleviate discomfort and prevent complications. Treatment options include blood aspiration and pressure bandages, as well as suturing techniques to promote healing. Preventive measures like providing shelter, tick control, and proper handling techniques can minimize the risk of hematoma formation. Timely intervention improves prognosis and prevents complications. Goat owners must be aware of causes, take preventive measures, and seek veterinary care for accurate diagnosis and ongoing management. By prioritizing care, intervention, and prevention, we can ensure the well-being of goats affected by auricular hematoma and promote their overall health and productivity.

### Conflict of Interest

There is no conflict of interest to accomplish this study.

### Author's contribution:

Asima Yasin performed the case study on the affected goat while medication was given by Muhammad Arslan Aslam. Saba Mehnaz, Shahbaz Ul Haq and Jawad Ahmad helped in writing the manuscript. Waleed Akram and Azhar Shabbir Ather helped in proof reading the text while Muhammad Salman added pictures in this case study. Abdul Saboor edited the language. All authors read and approved the final version for publication.

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