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Surgical management of carpal hygroma in a goat by bursectomy

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Abstract

A 6-month-old male goat, weighing 17 kg, was presented to the Department of Veterinary Surgery and Radiology, Veterinary College, Hebbal, Bengaluru, with a chronic, fluctuant swelling over the dorsal aspect of the left carpus. The swelling, present for more than two months, had been aspirated twice but recurred within days. Clinical examination revealed a painless, soft, non-adherent mass measuring approximately 6 cm in diameter, with no signs of joint involvement or infection. Hematological and biochemical parameters were within normal limits. These findings were consistent with carpal hygroma. Surgical excision of the inflamed false bursa (bursectomy) was performed under sedation and regional anesthesia. Postoperative management included systemic antimicrobial and anti-inflammatory therapy, along with strict bandage care. The goat exhibited uneventful recovery. This report emphasizes the efficacy of bursectomy as a definitive treatment option for refractory carpal hygromas in goats, particularly when conservative management fails.

Keywords: Carpal hygroma, bursectomy, goat, chronic bursitis, carpal swelling

Introduction

Carpal hygroma is a non-septic, fluid-filled swelling that develops over the dorsal aspect of the carpal joint, most commonly in large animals subjected to repeated trauma or prolonged pressure on hard flooring (Radostits *et al.*, 2007; Reddy *et al.*, 2017) ^[4, 5]. The condition arises from chronic irritation of the subcutaneous bursa, leading to serous fluid accumulation and subsequent capsule formation (Scott, 2018) ^[6]. Although initially non-painful and primarily of cosmetic concern, untreated hygromas can predispose animals to secondary complications such as ulceration, infection, abscessation, and even lameness (Kilic *et al.*, 2009; Kumar *et al.*, 2020) ^[1, 2]. Conservative management strategies including soft bedding, drainage/aspiration of fluid, pressure bandaging, and local medication are usually recommended as the first line of treatment (Noordhuizen & Buurman, 1984; Kumar *et al.*, 2020) ^[3, 2]. However, these approaches often fail in chronic or recurrent cases, as repeated aspiration and compression may not prevent fluid re-accumulation and fibrous capsule formation (Scott, 2018) ^[6]. Surgical management, particularly bursectomy, has been described as an effective alternative in refractory cases, providing definitive resolution and preventing recurrence when performed under strict aseptic conditions and followed by diligent postoperative care (Kilic *et al.*, 2009; Reddy *et al.*, 2017) ^[1, 5]. Although carpal hygromas are well documented in cattle and horses, reports in small ruminants such as goats remain limited. Surgical outcomes in goats are of particular interest due to their relatively thin skin, higher activity levels, and frequent exposure to hard flooring in intensive housing systems, which predispose them to recurrence (Kumar *et al.*, 2020) ^[2].

Materials and Methods

A 6-month-old male goat, weighing 17 kg, was presented to the Department of Veterinary Surgery and Radiology, Veterinary College, Hebbal, Bengaluru, with a chronic, fluctuant

swelling over the dorsal aspect of the left carpus. The swelling, present for more than two months, had been aspirated twice but recurred within days. Clinical examination revealed a painless, soft, non-adherent mass measuring approximately 6 cm in diameter, with no signs of joint involvement or infection. Hematological and biochemical parameters were within normal limits. These findings were consistent with carpal hygroma. Surgical excision of the inflamed false bursa (bursectomy) was performed under sedation and regional anesthesia. Postoperative management included systemic antimicrobial and anti-inflammatory therapy, along with strict bandage care. The goat exhibited uneventful recovery. This report emphasizes the efficacy of bursectomy as a definitive treatment option for refractory carpal hygromas in goats, particularly when conservative management fails.

The goat was sedated with xylazine hydrochloride (0.05 mg/kg, IM) to ensure adequate restraint and analgesia. A ring block using 1% lignocaine hydrochloride was administered circumferentially around the carpus to achieve local anesthesia. The surgical site was prepared aseptically with alternating scrubs of chlorhexidine gluconate solution and 70% alcohol, 7.5% povidone iodine followed by sterile draping. A lateral longitudinal skin incision (~8 cm) was made directly over the swelling. The subcutaneous tissues were bluntly dissected to expose the thickened and fibrotic bursal capsule. The capsule was carefully dissected free from surrounding tissues (Fig. 2), bursa was exposed (Fig. 3) and excised (Fig. 4, Fig. 5), taking care to avoid damage to adjacent tendons and subcutaneous structures. The cavity was thoroughly lavaged with warm sterile saline, and a small amount of dicrysticin powder was instilled to reduce the risk of infection. Closure was achieved in two layers: the subcutaneous tissue was sutured with 2-0 Vicryl using a simple continuous pattern, and the skin was closed with 2-0 Nylon in a horizontal mattress pattern (Fig. 6) to ensure good apposition and facilitate postoperative wound care. The goat was administered antibiotic (Amoxicillin sodium + Cloxacillin sodium, IM), SID every 24 hours for a total of five days. Meloxicam (0.5 mg/kg, IM), SID for three days for analgesia and anti-inflammatory support. A sterile padded bandage (Fig. 7) was applied to the surgical site and changed every three days for 10 days. The goat was maintained on restricted activity with soft bedding for three weeks to minimize local trauma. Skin sutures were removed on day 12. The surgical wound healed uneventfully without seroma formation, swelling, or secondary infection. At the follow-up, the goat remained free of recurrence, and management modifications, including rubber mat flooring and provision of soft bedding, were instituted to prevent future trauma-induced bursitis.

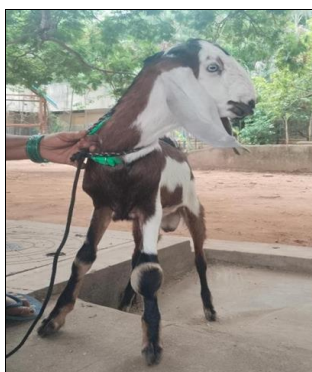


Fig 1: Preoperative image of carpal hygroma in goat



Fig 2: Surgical dissection of bursa from surrounding tissues



Fig 3: Exposed Bursa



Fig 4: Complete excision of Bursa during Bursectomy



Fig 5: Excised Bursa



Fig 6: Suturing of skin using Polyamide no.2-0 in horizontal mattress suture pattern



Fig 7: Goat after surgery with compression bandage

Discussion

Carpal hygroma is a relatively common condition in large animals, particularly in cattle, but it is infrequently reported in small ruminants such as goats. The pathogenesis is typically associated with repeated mechanical trauma over the carpal joint, especially in animals housed on hard concrete surfaces, leading to formation of a false bursa with serous fluid accumulation (Radostits *et al.*, 2007; Scott, 2018) [4, 6]. In the present case, the goat was maintained on a hard concrete floor, which likely contributed to the development and persistence of the hygroma. Conservative management strategies, including aspiration, compression bandaging, and environmental modification, are often attempted as initial therapy. However, recurrence after aspiration is very common due to incomplete resolution of the fibrotic bursal capsule and continued mechanical irritation (Noordhuizen & Buurman, 1984; Kumar *et al.*, 2020) [3, 2]. In this case, repeated aspirations by the referring veterinarian provided only temporary relief, with fluid re-accumulation within days, necessitating surgical intervention. Bursectomy has been reported as the most effective treatment modality in chronic or refractory cases, as it allows complete removal of the diseased bursa, eliminating the potential space for fluid re-accumulation (Kilic *et al.*, 2009; Reddy *et al.*, 2017) [1, 5]. In the present goat, surgical excision was curative, with uneventful healing and no recurrence observed during the 6-month follow-up. This outcome is consistent with earlier reports in cattle and small ruminants, where bursectomy demonstrated high success rates when performed under strict aseptic technique and coupled with meticulous postoperative care (Kumar *et al.*, 2020; Scott, 2018) [2, 6].

Postoperative management plays a critical role in ensuring surgical success. Antibiotic therapy, NSAIDs, and regular bandage changes have been emphasized as essential to minimize infection and promote healing (Reddy *et al.*, 2017) [5]. Furthermore, environmental modification is crucial to prevent recurrence. In this case, the replacement of hard concrete flooring with rubber matting and soft bedding was instrumental in maintaining long-term success. Previous studies have also highlighted that without correcting environmental factors, recurrence is highly probable, even after successful surgery (Radostits *et al.*, 2007; Kilic *et al.*, 2009) [4, 1].

Conclusion

Bursectomy proved to be an effective and curative procedure for the management of chronic carpal hygroma in this goat after the failure of conservative therapy. Complete excision of the bursal sac, along with strict aseptic technique and diligent postoperative care, ensured uneventful healing and prevented recurrence. Furthermore, correction of housing conditions, such as provision of soft bedding and rubber flooring, played a vital role in long-term success. This case emphasizes that early surgical intervention, combined with environmental modification, offers the best outcome for refractory carpal hygromas in goats

Conflict of Interest

Not available

Financial Support

Not available

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