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Nasal granuloma in Mehsana buffalo and Kankrej bullock

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Abstract

A Mehsana buffalo and Kankrej bullock were presented with the history of unilateral nasal swelling and difficulty in respiration since 2-3 months. On clinical examination it revealed ulcerated, cylindrical, pedunculated, pinkish, mucus coated growth occluding the left nasal cavity. Rhinotomy were done for removal of growth from nasal cavity under sedation and local analgesia. Post operatively antibiotic and analgesic were given. Histopathological examination of tissue showed nasal granuloma. The animal started normal respiration after surgery and showed uneventful recovery without any complications in both animals.

Keywords: Buffalo, bullock, Kankrej, Mehsana, nasal granuloma, rhinotomy

Introduction

Nasal granulomas arise due to a chronic inflammatory process associated with chronic irritation due to infectious diseases (nasal schistosomiasis, rhinosporidiosis, tuberculosis, actinomycosis and actinobacillosis) or a non-living foreign body (Krishnamurthy, 1993) [5]. Millet like eruption and congestion of nasal mucosa in buffalo shows a more definite host than cattle (Rajamohan and Peter, 1975) [11]. Chronic infections show proliferation of nasal epithelium as granuloma (Wilson and Dungworth, 2002) [13]. These granuloma are cylindrical, ulcerated, pedunculated growth occlude the unilateral anterior passage of nasal cavity (Kumar *et al.*, 2016) [7]. Its diagnosis can be challenging (Newton and Ah-See, 2008) [9]. The clinical and radiographical detection can be helpful, but histopathology of granuloma is the confirmative tool for diagnosis (Watt and Beck, 1997) [12]. The present study covers the diagnosis of nasal granuloma by clinical findings, radiography, histopathology and surgical management with rhinotomy.

Case History

A 5 years old non pregnant Mehsana buffalo and 6 years old Kankrej bullock were presented with history of unilateral nasal swelling and difficulty in respiration since two and three months, respectively. Animal were partially off feed and off water. The protruded growth from left nostril in buffalo was tried to remove surgically by local veterinarian but there was recurrence of growth after one month. Previously these animals were also treated by Inj. Anthiomaline @ 20ml deep intramuscular followed by two dose of 15ml at alternate interval, but no any improvement was noticed. When severe difficulty in respiration were noticed, the owners brought their animals to clinics for treatment.

Clinical observations and treatment

The rectal temperature and heart rates were within normal physiological limits, while respiration rate was slightly elevated (22-28 breaths/minutes). The conjunctival mucous membrane was pink colour and capillary refill time was less than 2 seconds in both cases. Both animals showed signs like dyspnoea, rhinitis, mucus discharge and snoring. Physical examination revealed ulcerated, cylindrical, pinkish, mucus coated growth occluding the left nasal cavity (Fig. 1) which lead to pressure on nasal bones in both animals.

Radiographic Examination with digital radiography in lateral view of skull revealed soft tissue opacities in nasal cavity (Fig. 2). Based on history and clinical observations, rhinotomy were planned to remove growth as deep as possible from the base.

The animal were kept off-feed and off-water for 24 hours and 12 hours, respectively prior to operation. Both animals were sedated with inj. Xylazine @ 0.1 mg/kg, I/M and restrained in right lateral recumbency. In addition, local infiltration were performed in the line of incision using 2% lignocaine hydrochloride. The site was prepared for aseptic surgery at swollen nasal region. A longitudinal incision 5 cm lateral to the midline of nasal bone along with two transversely connected incisions to lift the rectangular skin flap was made. The nasal bone was opened with the help of chisel and hammer. On exploration of nasal cavity, entire cylindrical and pedunculated growth was pulled with allies tissue forcep and resected by mild continuous traction and rotatory movement from the base (Fig. 3). The base of growth were cauterized with potassium permanganate crystals. The tissues were sent for histopathological examination. The nasal bone was repositioned and suturing of subcutaneous tissue were done by absorbable chromic catgut#1 in simple interrupted pattern. The skin suture were taken by non-absorbable silk#2 using simple interrupted pattern. The tincture benzoin seal were applied over the sutured incisions (Fig. 4). The animals regain its normal respiration after surgery. The resected growths were cylindrical in shape with 29 cm length in buffalo and 32 cm length in bullock. Post operatively, the animal were given inj. Dicrysticin @ 5 gm, inj. Meloxicam @ 20 ml and inj. Pheniramine maleate @ 10 ml intramuscularly for 3 days. Antiseptic dressing using 5% povidone iodine solution was carried out till complete healing. Histopathological section of nasal growths showed newly formed connective tissue with thin walled capillaries. Infiltration of fibroblast and eosinophil cells with epithelium hyperplasia (x40 magnification) (Fig. 5). The suture were removed on 12th post operative day and both animals made an uneventful recovery (Fig. 6).

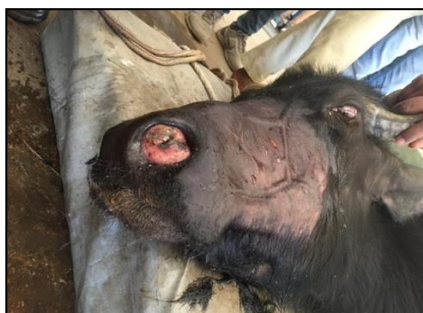


Fig 1: Ulcerated, cylindrical, pedunculated, pinkish, mucus coated growth occluding the left nasal cavity



Fig 2: Lateral view of skull revealed soft tissue radio opacities in nasal cavity



Fig 3: Removal of growth through rhinotomy



Fig 4: Immediately after surgery

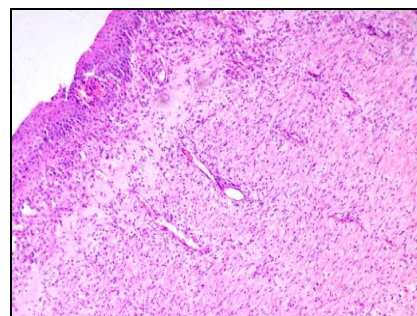


Fig 5: Histopathologic section of nasal growth showing newly formed connective tissue with thin walled capillaries. Infiltration of fibroblast and eosinophil cells with epithelium hyperplasia (x40 magnification)



Fig 6: Recovered buffalo

Results and Discussion

Nasal granuloma (NG) is tumor like ulcerated mass or granulation tissue actively growing on nasal and turbinate mucosa. The growth was commonly attached to the lateral wall and rarely to the nasal septum. The nasal growth was causing partial or complete unilateral obstruction of the nasal passage (Krishnamurthy, 1993) [5]. Chronic proliferation of nasal epithelium leads to growth formation or granuloma in nasal cavity associated with snoring sound and profuse mucopurulent discharges (Wilson and Dungworth, 2002) [13]. Similarly, in the present study, characteristic clinical signs

were dyspnoea, rhinitis, mucus discharge and snoring in both the animals. These clinical signs were well correlated with others (Latchumikanthan *et al.*, 2014, Duarte *et al.*, 2015, Kumar *et al.*, 2016, Didugu and Reddy, 2017, Kumar and Kumari, 2017) [8, 4, 7, 3, 6]. Macroscopically, growth was ulcerated, cylindrical, pinkish and mucus coated which is in agreement with findings of earlier reports (Latchumikanthan *et al.*, 2014; Duarte *et al.*, 2015) [8, 4]. Diagnosis of nasal granuloma is mainly based on clinical signs. However, radiographic examination of nasal passage and histopathological examination of nasal growth can ascertain the nature of inflammation and growth (Watt and Beck, 1997) [12]. In present case, increased radioopacity of anterior nasal passage was evident in radiographic views of skull, this findings correlated with earlier report (Kumar *et al.*, 2016) [7]. Haematoxylin and eosin stained histopathologic section of nasal growths revealed growth were composed of newly formed connective tissue that have ample amount of thin walled capillaries that arranged perpendicular to the epidermis. Fibroblast were arranged parallel to the epidermis and perpendicular to the thin walled capillaries. There were diffuse mild infiltration of eosinophil in granulation tissue. Overlying epithelium showed mild hyperplasia and rarely vesicles formation (Fig.5). These findings suggest that the development of nasal granuloma is a continuous and progressive chronic response to repeated acute episodes of hypersensitivity. Histopathological findings of this study were in agreement with previous report (Pemberton and White, 1974; Watt and Beck, 1997; Bhatia and Pathak 2006; Castillo *et al.*, 2009,) [10, 12, 1, 2]. The clinical signs, radiographic and histopathologic findings were consistent with the diagnosis of nasal granuloma in Mehsana buffalo and Kankrej bullock. The rhinotomy proved better to remove the growth from its deep attachment in the present study.

Conclusion

The nasal granuloma in buffalo and bullock can be successfully managed by surgical removal from its base via rhinotomy.

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