

HORIZONTAL MATTRESS SUTURING FOR REPAIRING RUPTURED MUZZLE AND NASAL SEPTUM IN NILI-RAVI BUFFALO

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ABSTRACT

results

Muzzle and nasal septum mostly rupture in aggressive tempered animals as owners apply conventional halters combined with nose rings (crossed through the nasal septum) on permanent basis in such vicious animals for their secure handling particularly in the Punjab province of Pakistan. A case of 5 years old lactating Nili-Ravi buffalo weighing 280 kg was presented at the Teaching Hospital of College of Veterinary and Animal Sciences, Jhang. The animal was presented with severely lacerated muzzle and ruptured nasal septum. The condition was rectified surgically, applying simple interrupted sutures in combination with horizontal mattress suture pattern by using modified straight needle. Infraorbital nerve was blocked with 2% Lignocaine HCl. Medicinal therapy using Penicillin and Meloxicam (I/M) was under taken post-operatively. Povidone Iodine and Neem oil was smeared topically as antiseptic and fly repellent. Few complications were evident due to the negligence of owner in post-operative care of the surgical intervention, but the wound was completely healed in a month's period.

Keywords: *Bubalus bubalis*, buffaloes, muzzle and nasal septum rupture, horizontal mattress suture pattern, chemotherapy, surgical rectification,

INTRODUCTION

The rupture of muzzle and nasal septum is a condition caused by trauma due to nose ring or conventional Halter tied with small piece of rope crossing from nasal septum in bovines. It is most commonly observed in males as compared to females because bulls are more aggressive in their behavior. Primarily, it is a consequence of faulty insertion of nose ring or conventional halter with septal rope or both. Nose ring comprise a metallic rounded rod passed through the nasal septum for handling and controlling the large ruminants. It is inserted into the soft tissue of nasal septum just cranial to the cartilaginous septum (Gilbert, 2016). It is also used in calves to prevent them from opportunistic suckling of dams. Nose rings are occasionally installed in heifers observed to be suckling teats in group housing situation (Divers and Peek, 2008). It should not be used as a sole tool for restraining, because it may result in rupturing of muzzle and nasal septum. Ideally, a leading rope is attached to neck loop or halter which serves as a primary restraint, with the nose ring rope to get the animal's attention or to provide additional restraint, if necessary (Gilbert, 2016). Another method of

large animal restraining is a use of conventional halter with a rope crossing from the thin mucosa cranial to the cartilaginous septum. Rupturing of muzzle and nasal septum is sometimes associated with extensive force on head collar in aggressive animals or when an animal is in the state of fear and also during clinical examination when bull holder or nose tong is applied for restraining. Usually improper placement of nose ring or excessive tension on a ring can cause muzzle rupture (Divers and Peek, 2008). In foot and mouth disease (FMD), inflammation of muzzle due to vesicle formation results into ulceration then necrosis (Misk *et al.*, 2015). Consequently, muzzle becomes fragile in texture and even moderate force on nose ring or conventional halter results in muzzle and nasal septum rupture.

CLINICAL HISTORY

A 5 years old lactating Nili-Ravi buffalo of about 280 kg body weight and a body condition score (BCS) of 3 out of 5, was presented at the Teaching Hospital of College of Veterinary and Animal Sciences, Jhang with ruptured muzzle and nasal septum. The cause of laceration was excessive traction of conventional halter on soft and non-cartilaginous nasal septum due to aggressiveness of buffalo as narrated by the owner. Ruptured muzzle was also extensively contaminated with dirt and dust. The owner also mentioned that the halter and nose ring were prepared and applied by a quack in the area. Buffalo was suffering from severe pain and was in disquiet condition.

Clinical findings

Physical examination of the buffalo showed that the vital parameters were in normal range i.e. a

rectal temperature was 102°F, respiration rate was 20 breaths per minute and heart rate of 62 beats per minute. Close clinical examination revealed a 5 cm x 1.5 cm severely lacerated muzzle, protruding over the upper lip. A pinkish wound was evident at the rostral aspect which involved muzzle and nasal septum. Pain response exhibited by the animal was severe as indicated by extreme resentment and aggressiveness when gentle pressure was applied on muzzle during clinical evaluation. Animal was off feed for 24 h with continuous struggle of prehension but unsuccessful due to excessive pain.

TREATMENT

Different techniques are being used by the practitioners for the repair of ruptured muzzle. In the present case, horizontal mattress Sutures combined with simple interrupted suture were applied. After seeking the written consent of the owner on a predesigned proforma (ensuring the humane use and best procedures), the animal was restrained in a cattle crush using halter. The buffalo was also mildly sedated without recumbency using Xylaz injection (Prix Pharmaceuticals, Pvt. Ltd. Pakistan) 0.01 to 0.02 mg per kg BW by intramuscular route for the smooth conduct of the surgical intervention (Fubini and Ducharme, 2016). Infra-orbital nerve (continuation of maxillary branch) was blocked by administering 15 to 20 ml of 2% Lignocaine HCl deep into levator nasolabialis muscle with 4 cm long needle of 20 gauge on both infraorbital foramens to subside the local pain during surgery by stopping nerve sensation to the muzzle, nostrils, upper lip, gums, incisors and skin surface of the head of buffalo (Hackett *et al.*, 2017; Tyagi and Singh, 2017). After attaining desired desensitization of the animal (as indicated by no

change in animal behavior during manipulation of lacerated wound), surgical rectification was undertaken. Injured area was washed with normal saline and a gentle initial debridement was done to remove debris for freshening of the severely contaminated wound. After that, simple interrupted sutures were applied with curved needle and non-absorbable suture material starting from inner side of muzzle just cranial to cartilaginous septum from where rope of conventional halter was crossed and continued to the rostral end of the ruptured muzzle by the apposition of both lacerated ends. Then, two horizontal mattress sutures were applied using non-absorbable suture material with modified straight needle. For the application of horizontal sutures, first the needle was crossed from upper end of the muzzle and pulled from lower end and then consecutively crossed from lower end and pulled from upper end then loosely ligated above the upper end of ruptured muzzle. Horizontal mattress sutures were alike simple interrupted but in a 'U' shape manner (Kumar, 2001). Horizontal sutures have always been used where tension is higher, tissues are soft or fragile and extra strength to the suture line is required (Kumar, 2001). In this case, horizontal mattress sutures were used to save ruptured muzzle from tearing due to inflammatory response of healing and repeated licking of irritating muzzle by the animal. The local anesthetic agent was sprinkled 3 times during whole surgical procedure.

Post-operative care (POC)

The buffalo was administered 1000 ml Normal saline (0.9% NaCl) and 10 ml B12 injection (vitamin), intravenously. Penicillin powder and Povidone iodine (Povidine Solution 7.5%, Pharma Wise Labs, Pvt. Ltd. Pakistan) were applied topically along with the application of Neem oil

(Extract of *Azadirachta indica*) at the periphery of injured area to prevent maggot infestation and secondary bacterial infection. Penbiotic injection (Nawan Laboratories, Pvt. Ltd. Pakistan) 5 gram (Penicillin, 24000 IU per kg BW) cover was provided for 7 days supported by administration of non-steroidal anti-inflammatory preparation Diclostar® injection (Star Laboratories, Pvt. Ltd. Pakistan) 0.5 to 1 mg per kg BW as a pain killer for 3 days, intramuscularly (Plumb, 2015).

The owner was instructed to keep the muzzle clean from debris and to monitor the surgical wound during feeding and restrict the animal from licking to prevent excessive tearing of wound. Elapsing 20 days after surgery, all the interrupted and horizontal mattress sutures were removed. Suture site appeared clean without any complications.

DISCUSSION

Muzzle rupture cases are seen most commonly in male animals associated with aggressive temperament but have also been recorded in female animals. They are most commonly seen during handling when animal's head is restrained by using nose tong, nose ring and conventional halter with nose ring (Ballard and Rockett, 2009). In Foot and Mouth disease, excessive erosions may result in muzzle rupture even on applying a little force in forward direction. The repeated licking of ruptured muzzle and disturbance during feeding caused by fodder particles coming in contact with muzzle lead to contamination and may result in excessive loss of ruptured muzzle. Proper placement of nose ring can decrease the chance of muzzle and nasal laceration due to pulling out of nose ring (Divers and Peek, 2008).



A.

B.

C.

D.

Figure 1. Rupturing of muzzle and Nasal is treated by using horizontal Suture pattern combination of simple interrupted sutures after freshening of wound. Healing occur in a month.

A: Ruptured Muzzle

B: Suturing of Muzzle

C: Muzzle Condition after 5 days

D: Healing of Muzzle in a Month Time

Different people use different approaches for the rehabilitation of muzzle and nasal rupture. Some people use button sutures, fewer ones nasolabioplasty with the help of rubber pipe and very few use cutaneous pedicle graft technique (Koestlin *et al.*, 1988; Anderson and Jean, 1997). In this study, horizontal mattress suture pattern was primarily employed in addition to simple interrupted sutures which showed satisfactory results. The lacerated wound took nearly one month for the complete recovery. Sutures were removed after 20 days of surgery. Application of the halter was resumed after 3 months when animal was fully cured. Healing was slightly delayed due to the negligence of owner during post-operative period, reasons include repeated licking, use of wheat

straw (which got attached with muzzle and caused frequent irritation to animal) and following the instructions of a quack. The application of honey advised by the quack led to increased licking of muzzle by animal resulting in relatively delayed healing time.

It is concluded that the application of horizontal matters with simple interrupted suture pattern proved to be very efficient, economical and successful approach in rectifying the ruptured muzzle and nasal septum, supported by the owner's vigilance in the post-operative care.

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