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Successful surgical management of aural haematoma in a large white Yorkshire pig

Rukmani Dewangan, Raju Sharda, Devendra Yadav, Nutan Panchkhande, Shiv Kumar Sidar and Dhaleshwari Sahu

Abstract
One years old Large White Yorkshire pig was brought to the Department of Veterinary Surgery and Radiology with complaint of swelling and drooping of right ear flap. On physical examination soft fluctuating swelling was noticed on medial side of ear. It was diagnosed as aural haematoma and decided for surgical drainage. Pig was anaesthetized by using combination of xylazine @ 2 mg/kg i/m and propofol @ 6 mg/kg intravenously and surgical incision of 3 cm long over haematoma was given. After draining the serosanguineous fluid, deposits and clots were curetted and cavity was thoroughly irrigated with betadine solution. Series of through and through horizontal interrupted mattress suture were placed parallel to the line of incision. The pinna was dressed with betadine along with protective pressure bandage and ear was placed in dorsum of neck. Postoperatively, a course of antibiotic (Inj. Intacef 1 gm) and Tribivet 3 ml intramuscularly for 5 days and Inj. Meloxicam @ 3 ml intramuscularly for 3 days were administered. Sutures were removed after 15 days. The animal showed uneventful recovery with no recurrence.

Keywords: Aural haematoma, pig, ear flap, othaematoma

Introduction
Aural hematomas are the most common physical injury of the pinna, and they are most apparent on the ear flap/pinna's concave surface. It is characterized by soft swelling on medial aspect of ear flap due to collection of blood between aural concha and skin. Aural haematoma in pigs are typically due to physical trauma from violent shaking of ear in response to sarcoptic mange or pediculosis, bites on the ears from other pigs, necrotic ear syndrome, from handling the pig by ears or injuries on barn equipment (Torres, 2005) [9]. When animals vigorously shake their heads or scratch their ears, trauma to the ears causes the blood vessels and capillaries in the pinna to rupture (Henderson and Horne, 2003) [6]. When these vessels and capillaries break, blood escapes in the space between the skin and cartilage, creating a haematoma. This condition is usually unilateral, but it can be bilateral. Haematomas should be drained as soon as possible. If they are left untreated, fibrin formation can occur, leading to fibrosis, contraction and thickening, potentially leaving the ear with a deformed cauliflower-like appearance (Medleau and Hnilica, 2006) [7]. Depending upon the size of haematoma, various techniques have been reported in literature for management of aural haematoma. The preferred method of treatment involves surgical correction of the haematoma. The main aim of surgical management is to establish drainage for removal of haematoma fluid, remove fibrin debris, press the layers of the auricle together eliminate dead space, prevent recurrence of haematoma and to retain the ear flap/ pinna in normal appearance by minimizing scar formation (Fossum *et al.*, 2007) [5]. Aural haematoma was commonly reported in dogs (Slatter, 2003) [6], sheep (Bates, 1996) [1], buffalo calves and goats (Tyagi and Singh, 2006; Dewangan *et al*., 2016) [10, 3]. The present paper reports successful surgical management of aural haematoma in a large White Yorkshire pig.

Case History and observation
A 1 years old Large White Yorkshire pig was brought to the Department of Veterinary Surgery and Radiology with complaint of swelling and drooping of right ear flap (Figure 1). History revealed that pig had developed swelling of earflap with subsequent rubbing and shaking of head and within 2 days swelling gradually increased in size. Clinical examination revealed apparently health pig with normal rectal temperature, heart rate and respiration rate. On physical examination soft fluctuating swelling was noticed on medial side of right ear flap

having doughy consistency. Fine needle aspiration of affect ear flap confirmed as aural haematoma and decided for surgical drainage by incisional technique.

Treatment and Discussion

The right ear flap of pig was prepared for aseptic surgery by clipping and shaving hair of both sides (convex and concave). Preoperatively, Intacef 1 gm was administered IM half an hour before surgery. Pig was anaesthetized with combination of xylazine @ 2 mg/kg i/m and propofol @ 6 mg/kg intravenously. Then animal was placed in lateral recumbency with affected ear upper side. External auditory meatus was packed with sterile cotton swab to prevent overflow of haematoma content in the ear canal and then betadine solution was applied on both sides of ear flap. The aural haematoma was opened by incisional technique on the concave side with a stab incision on the most distal aspect of the haematoma through both skin and cartilage using a Bard-Parker scalpel handle with No. 11 blade which was later on extended to full length linear incision (Fig. 2). Then about 1-2 mm thick skin flap was removed from the edges of the incision to create a gap between the edges of skin and finally incision is converted into elliptical incision Aural haematoma was evacuated until the serosanguineous fluid was drained completely (fig. 3) and gently curette for fibroangioblastic tissue from the inner surface of the cartilage without causing additional bleeding. The blood clots and fibrin deposits on the cartilage were curetted with the help of curette (Fig. 3). After removal of all the fibrinous material, the two layers of cartilage ear flap are visualized (fig. 4) and the cavity was thoroughly irrigated with 5% Povidine iodine solution. Then suturing of 2 layers of cartilage ear flap was performed (Fig 5). Series of through and through horizontal interrupted mattress sutures were applied through entire thickness of ear flap parallel to the incision with knots on the convex surface of the ear using silk no.2 to obliterate dead space of the cavity (fig. 6). The incised cutaneous edges were left unopposed for continuous drainage. The sutures were placed over the entire surface of the haematoma and at least 5-7 mm wide, to avoid excessive tension on the underlying tissue, and not more than 5-7 mm apart. The sutures were tied on the convex side (Fig 7), where the skin and subcutis are thicker and thus more resistant to the pressure of the knots. Then ear flap was totally dressed with 5% Povidine iodine ointment. A tight protective pressure of card board pieces wrapped with absorbent bandage was applied over the ear with adhesive tape (fig.8) and the ear was placed in dorsum of neck to prevent slipping of the bandage. Dextrose saline 5% (500 ml) was administered continuously via ear vein throughout operation. Postoperatively, a course of antibiotic (Inj. Intacef 1 mg), inj. Tribivet 3 ml for 5 days and Inj. Meloxicam @ 0.5 mg/kg body weight for 3 days were administered intramuscularly. Bandage was changed every three days after antiseptic wound dressing of the operative site with 5% Povidone iodine solution and ointment. It was advised to keep the animal in a clean house and not allowed to rub its head. Sutures were removed after 15 days. The animal showed uneventful recovery and no recurrence was reported by owner after 3 months post surgery period.

Aural haematoma is a common problem particularly in dogs and this condition mostly reported in pendulous ear breed of dog (Dewangan *et al*., 2017) [4] but in the present case, it was found in a large White Yorkshire pig. The etiological factors for aural haematoma include trauma to the ear flap caused by pig handler as being handled by the ear, ear infections, injuries on barn equipment such as broken feeder, violent shaking of head due to fighting or ear biting. Ear biting in pigs is typically a response to environmental stressors such as poor ventilation, overcrowding, mixing and moving pigs, insufficient access or intermittent lack of access to feed or water (Bush *et al*., 2003) [2]. When animal shake their head in response to mange, ear mites, lice bite or dermatological infections or ear bite results into aural haematoma. In addition, a foreign body parasites and neoplastic growth may became a source of irritant which causes ear scratching and make the animal shake it's head vigorously to get rid of itch. Thus, blood vessels in earflap may rupture and bleed in to the tissue of the pinna forming a pocket, but continuous head shaking will cause the pocket to enlarge until it became very noticeable. Unnoticed contusion which might be caused by ear biting or barn injury or pig handler could be the etiological factor which subsequently results into aural haematoma formation in the present case. Further additional vigorous head shaking resulted in rupture of blood vessels with pocket formation and separation of cartilage leads to extensive haemorrahage. Incisional technique was reported by Dewangan *et al*. (2016) [4] for management of extensive aural haematoma in Jamunapari goat. Similar technique was adopted in the present case for surgical management of aural haematoma as series of through and through horizontal interrupted mattress sutures were applied parallel to the incision line with knots on the convex surface of the ear to obliterate dead space and prevent reaccumulation of haematoma fluid in pocket. These sutures produce pressure on area helped in reducing haematoma formation as well wrinkling of skin. Sutures were applied to avoid pocket formation in which fluids can accumulate (Dewangan *et al*., 2017) [4]. Pressure bandage was applied alongwith card board pieces which could prevent reaccumulation of serum and blood. These also acted as a guard to protect the ear from injury which may cause further damage, adhesive tape could help in keeping ear erected and earflap was placed on dorsum of neck to prevent slipping of the bandage proved beneficial for treatment. This facilitates proper drainage and to prevent head shaking which may disrupt suture line, therefore uncomplicated healing takes place. The animal showed uneventful recovery and no recurrence was reported by owner after 3 months post surgery period.

Fig 1: Aural haematoma Seen in right ear flap

Fig 2: Opening of aural haematoma by incisional technique

Fig 3: Drainage of serosanguineous fluid and curetteage for blood clots and fibrinous material.

Fig 4: Visualization of two layers of cartilage of affected ear flap

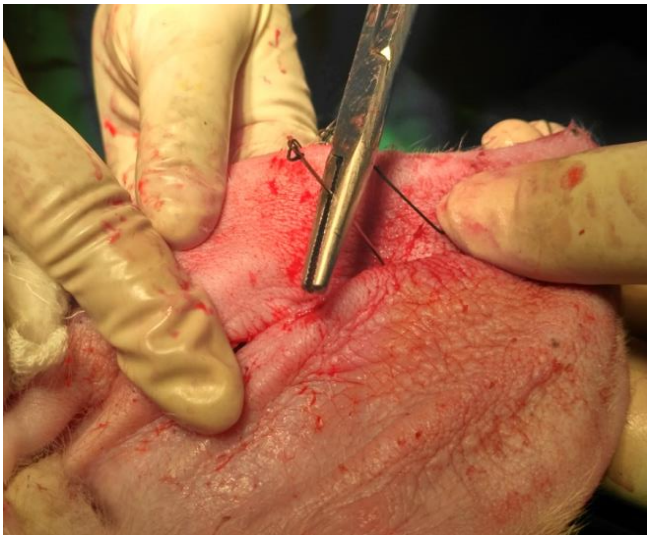

Fig 5: Performing suturing of two layers of cartilage of affected ear flap

Fig 6: Post-operative Interrupted horizontal mattress sutures pattern applied to affected ear flap (concave side)

Fig 7: Post-operative through and through suture, knots seen on convex side

Fig 8: Pressure bandage of the ear flap with card board and adhesive tape

Conclusion

Successful surgical management of aural haematoma in a large White Yorkshire pig was reported.

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