

Surgical management of ventral abdominal hernia in a royal palm turkey hen

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ABSTRACT

Abdominal hernias in birds are often not clearly defined but have been described as a separation of aponeurosis of the abdominal muscles of the ventral midline. This clinical case report describes the management of an acquired ventral abdominal hernia in a two-year-old Royal Palm Turkey (Hen) presented to the University of Maiduguri Veterinary Teaching Hospital with a month old fluctuant swelling at cloacal region. On examination, there was an oval, painless, reducible swelling about 10 cm ventrolateral to the cloaca behind the left thigh in the abdominal region. The turkey hen was apparently healthy on presentation. Following proper restraint on dorsal recumbence and local anaesthetic infiltration, the hernia was surgically reduced and the content returned to the abdominal cavity. A standard three-layer closure with a Ford interlocking suture pattern was applied to the abdominal muscles using DEXON® Polyglycolic acid (PGA) of size 2-0. A subcuticular suture pattern was applied beneath the skin using absorbable PGA of size 3-0 and the skin sutured with silk material of size 3-0 employing a simple interrupted suture pattern. The procedure was safe and uncomplicated and the approach can be recommended as a curative method for repair of abdominal hernias in birds. The Turkey was recovered uneventfully without any complication throughout the 3 weeks follow up period.

Keywords: Cloaca, Hernia, ventrolateral, Royal Palm Turkey, Surgical management.

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Introduction

Hernia is the protrusion of the contents of a body cavity through a congenital or acquired, normal or abnormal opening in the wall of that cavity either to lie beneath intact skin or to occupy another adjacent body cavity. Hernias may occur as isolated defects or could be associated with defects of other parts of the body (Dennis and Leipold, 1968). Hernias consist of: Ring (neonatal, congenital or acquired), Sac (skin, muscle fibres, fibrinous connective tissues or peritoneum) which may have a neck, body and fundus; and content intestine (enterocele), omentum (epiplocele) or peritoneal fluid. Hernias could also be classified according to its pathologic content: Reducible hernia (content can be returned completely and easily) and Irreducible hernia (contents cannot be

returned due to incarceration, strangulation or adhesions); location; functional alteration and cause.

Abdominal hernias in the aves could also be congenital or acquired (Bennet, 1994), but are not true hernias because there are no openings in the aponeurosis of the bird's abdominal musculature and inadvertently, there are no hernial rings that could result in entrapment and strangulation of the visceral organs. The aetiology of abdominal hernias in birds is unknown but are mostly associated with weakening of the abdominal musculature caused by egg-laying, egg binding and hyperestrogenism showing a higher frequency in the females. Trauma, weight of viscera, straining and abdominal masses could be factors applicable to both sexes but are rare. Avian surgery must be exact and precise to prevent instances, intra and post-operative hypothermia, excessive haemorrhage, algasia, sepsis and shock.

Case history

A two-year-old Turkey Hen was brought to the University of Maiduguri Veterinary Teaching

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Hospital, University of Maiduguri, Nigeria with a complain of a month old oval, painless, reducible swelling about 10 cm ventrolateral to the cloaca behind the left thigh in the abdominal region (Fig. 1a&b).

On restraint, the Turkey (hen) was stable and vital parameters were normal. The turkey hen was also alert, fleshed, good body condition having 5kg bw and healthy. Physical examination revealed tender stretched skin over the hernia, comprised of a hernia ring and a reducible content which appeared to be an enterocele and epiplocele. The above physical findings enabled the diagnosis of abdominal hernia.

Surgical management

The Turkey was physically restrained and placed in a dorsal recumbency and the feathers around the hernia were plucked and surgical site was cleaned and scrubbed with Savlon® (Chlorhexidine Gluconate 0.3% w/v). A circular local infiltration with 2 ml of Xylocaine HCl (Lidocaine® BP 2% w/v Kwality Pharmaceuticals Ltd, Nag kalan, Amritsar, India) administered subcutaneously (Fig. 2). Ventral paramedian celiotomy was performed and hernial contents were reduced into the abdominal cavity (Fig. 3a).

A second sac of protruding fat was also visible. After ligating major bleeders, branches of the coeliac artery also known as the coeliac trunk or coeliac axis, the protruding mass was resected and ring was closed (Fig. 3b). The abdominal muscles were sutured with Ford interlocking suture pattern using PGA size 2-0. A subcuticular suture was applied using PGA size 3-0 and the skin was closed using silk size 3-0 employing a simple interrupted suture pattern (Fig 4).

Post-operative management consisted of dietary modification, isolation and restricted activity for 2 weeks' post-surgery. Administration of Penstrepvet® 20/20 (Procaine Penicillin G and Dihydrostreptomycin Sulfate Vetop Pharma Co. Ltd, Nanjing, China) @ 1ml/20kg body weight intramuscularly for 5 days and Diclofenac® @ 3mg/kg intramuscular (Pauco Pharmaceutical Ind Ltd, Awka, Nigeria) was done. Topical application of Pantex Oxytetra Spray® 5g/200ml (Oxytetracycline Hydrochloride 5.0g and Gentian Violet 0.7g/200ml, Pantex Holland BV, The Netherlands) was done. Skin sutures were removed on 10th post-operative day and animal was observed with complete recovery.



Fig. 1a

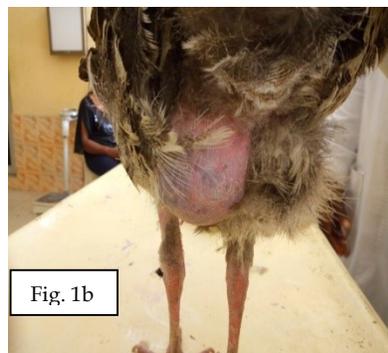


Fig. 1b



Fig. 2



Fig. 3a

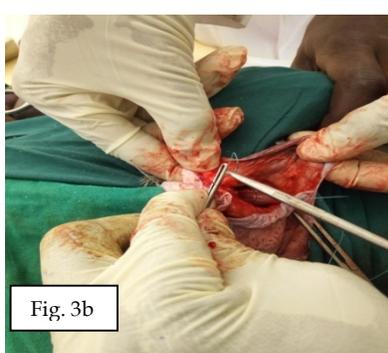


Fig. 3b

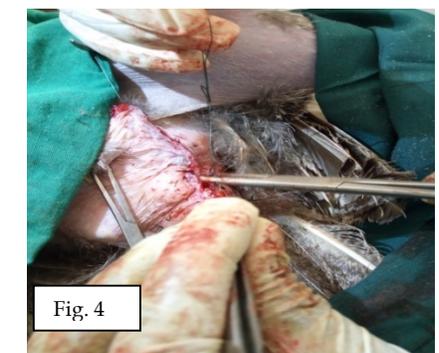


Fig. 4

Fig.1- Presentation of herniation in Turkey (a&b). Fig.2- Infiltration of local anaesthetic.

Fig. 3: Hernial sac, content and suturing of hernial ring (a&b). Fig.4: Skin apposition using simple interrupted suture pattern.

Discussion

Abdominal hernias in birds have been managed surgically and are gained horizons in Veterinary Medicine. It has been established that the hernias in Turkeys occur as a separation of the aponeurosis of the abdominal musculature on the ventral midline congenitally or acquired which are not true hernias and that early interventions result in good post-operative survival as reported by Stampley and Waldren (1979). Only the intestines and coeliac fat were found in the hernia sac when it was surgically opened and no incarcerations, strangulations or obstructions (complete/incomplete) were found that might lead intussusceptions. There were no fibrin depositions that may have led to adhesions and strictures of affected organs as reported by Noden and deLahunta (1985).

There were no signs of thinning or weakening of the abdominal muscles to have contributed to the hernial protrusion. Hernial procedures may be emergency or elective depending on the surrounding circumstances but prompt surgical repair is pertinent due to continuous trauma to abdomen by rubbing to surfaces, respiratory distress, having difficulty in passing urates and faeces from its cloaca or the entirety of the abdominal viscera is in the hernial sac (MacWhirter, 1994). Surgical correction was indicated because the bird was clinically stable. Avian surgery must be exact and precise to prevent instances of intra and post-operative hypothermia, pain, sepsis and shock. Affected birds are mostly young adults or older hens with variable abdominal swellings, skin ulcerations and haemorrhages (MacWhirter, 1994; Altmann, 1997). In present study, abdominal protrusion in a Royal Palm Turkey which was diagnosed as abdominal hernia and reported as a flock problem (umbilical and abdominal hernia) in Turkey poults (Carlson, 1962; Ranck, 1973; Ranck, 1974). The skin is so elastic that it can accommodate the hernias when they occur but the bird's skin while applying sutures, it should be avoided excessive tension to prevent post suture tension tearing. Suture materials of size 3-0, 4-0 and 5-0 down thinning should be applied as sizes 2-0 and below are thicker.

Surgeons must take into consideration the choice of suture patterns (tension holders) as well as the use of beads to reduce suture tension on the skin and prevent tear and dehiscence.

The use of injectable anaesthetic agents in birds is still wide spread but is usually done where a vaporizer is not available hence, use of local ring infiltration is justified. Major disadvantages of injectable agents in birds include; variable dose responses, non-reversibility of drugs, questionable safety and higher risks and difficult recovery.

Birds are very susceptible to anesthetic overdose due to their relatively higher metabolic rate with some injectable agents like Ketamine and Xylazine combination, a patient may have to be restrained for hours before it is able to perch and/or stand comfortably. Parasympatholytic agents are not used because they thicken secretions and risk tracheal obstruction so also premedicants are not usually used because they prolong recovery time and the effects are highly variable.

Conclusion

Herniorrhaphy in birds must be contended with care to avoid instances of intra and post-operative hypothermia, pain, sepsis and shock with anaesthetic agents. Hence, the use of local anaesthetic infiltrations at the surgical site was found effective for repair of abdominal hernia when presented at an early stage.

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