CASE REPORT

Management of Egg-Bound Syndrome in an Aseel Cross Hen by Digital Milking Method: A Case Report

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Egg is formed gradually in the different parts of hen's reproductive system taking about 24 h (Hasan and Khaliduzzaman, 2022). In egg bound syndrome a fully or partially formed egg is lodged in the shell gland (uterus) or vagina, but cannot be expelled by the bird at a normal rate (Srinivasan *et al.,* 2014; Muthulakshmi *et al.,* 2015). Chaurasia *et al.* (2024) reported egg binding is a condition characterized by the inability of an egg to pass through the cloaca within the normal timeframe, leading to difficulty in laying leading a condition known as dystocia in hens. Hosotani *et al.* (2023) stated fatigued muscular peristalsis in the oviducts owing to hypocalcemia, stress, aging, overweight, systemic illness and abnormalities in the oviductal ciliated epithelium are linked to internal laying and egg-bound syndrome in hens along with reduced quality of egg component also alters the oviductal transportation efficiency. Egg bound syndrome is commonly noticed in pet birds and broiler breeders (Eitan and Soller, 2009) resulting in life threatening symptoms and high mortality in the present report.

Case History and Observations

A 42-week-old Aseel cross laying hen weighing 2.8 kg was presented to the Obstetrics and Gynaecology Unit of Veterinary Clinical Complex, Veterinary College and Research Institute, Tirunelveli (India), with the chief complaint of anorexia, failure to lay eggs for the past 3 weeks and pellet egg laying. The bird was raised under free-range scavenging system and was not able to lay eggs since 3 weeks. The last laying was irregular with leathery eggs and voiding watery brownish diarrhoea.

Clinical examination revealed that the bird was active, alert, but with frequent cloacal straining and further egg-like soft fluctuating mass palpable on digital examination. Multiple egg-like hard masses in abdominal cavity were palpable on digital palpation. Cloacal examination revealed bleeding from cloaca and eggs bound inside the cloaca felt by digital examination (Fig. 1). Plain radiographic examination confirmed the presence of round radio-opaque structure not less than three (Fig. 2). Based on the above findings, the case was diagnosed as soft shelled egg bound syndrome.

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Treatment and Discussion

The Aseel cross bird was stabilized with injection Dexamethasone @ 6 mg i/m at breast muscle region. External portion of the cloacal vent was thoroughly cleaned with potassium permanganate solution to remove the secretion and debris around the cloaca. Cloacal mucosa was desensitized with 10% lignocaine hydrochloride spray. The bird was restrained upright with slight caudal tilt. Pressure applied on cloaca revealed that the vent has been invaginated into large intestine. 10 mL of liquid paraffin was infused into the cloaca between the egg and mucosa for smooth expulsion and eversion of the vaginal vent (Fig. 3). Gentle digital milking led to extraction of eggs, a broken, 3 intact and one yolk soft shelled egg (Fig. 4). Egg biochemical analysis of albumen revealed total proteins, albumin and globulin as 6.84 mg/dL, 0.79 g/dL and 6.1 g/dL, respectively. Further, calcium, phosphorus and magnesium were 11.29 mg/dl, 17.75 mg/dL and 0.99 mg/dL, respectively.

Post-operatively the bird was administered with Inj. Oxytocin @ 0.5 IU i/m, Inj. Meloxicam @ 1 mg/ kg body weight, Inj. Chlorpheniramine maleate @ 2 mg/ kg body weight i/m along with Enrofloxacin @ 15 mg/kg body weight and syrup astrocal 1 mL bid PO for 7 consecutive days. The owner was advised to provide calcium supplements in the form of shell grits to all the birds. Gross examination of the egg revealed

apparently normal yolk with soft shell and 2 eggs having yolk-albumen admixture with soft shell. Bird had an uneventful recovery without further complication.

According to Muthulakshmi *et al.* (2015) expulsion of the fully formed egg (oviposition) from the oviduct involves the muscular contraction of the uterus (shell gland), if there is any delay or defect in the mechanism leads to egg bound syndrome in poultry. Joy and Divya (2014) and Thangamani *et al.* (2017) reported that egg bound condition was common in young female birds at starting stage of laying period especially at one year of age. Hosotani *et al.* (2023) reported that pick-up failure of ovulated yolks due to defective ciliated epithelial cells of the infundibulum of oviducts, retrograde of eggs via abnormal muscular peristalsis in oviducts, oviductal inertia, or external compression of the oviducts constitutes a considerable etiology of the internal laying. Excessive abdominal fat in vent region will reduce the elasticity of the oviduct and predispose to egg boundness. Further, the presence of yolk-albumen admixture indicates disrupted oviductal function and improper egg component separation during formation. In this case, the dietary imbalance was assumed to be one of the causes since the owner was giving only grain.

Egg bound cases associated with hypocalcemia revealed partially or fully formed eggs in the uterus or sometimes only egg membranes. A calcium deficient bird may produce eggs whose shells are softer or more fragile than normal and it is very difficult for a bird to lay a soft-shelled egg, since the muscles that push the egg out tend to deform the egg rather than moving it. The egg may be stuck near the cloaca, or further inside (Muthulakshmi *et al*., 2015). The most common

Fig. 1: Inflamed cloaca with reddish mucus discharge

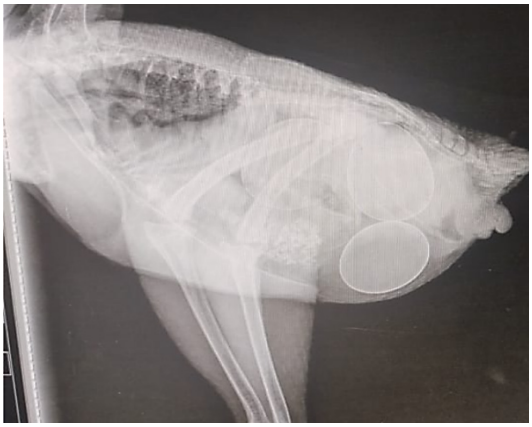

Fig. 2: Presence of not less than 2 radio-opaque eggs in the abdomen

Fig. 3: Presence of intact eggs in the vagina and intussusception of vaginal opening in vent

Fig. 4: Retrieved eggs with soft shell

complications of egg-bound syndrome are vent prolapse, long-term egg retention, granuloma formation, uterine impaction and subsequent rupture (Thangamani *et al.,* 2017).

Kaleri *et al*. (2024) observed that when Aseel chickens are crossed with other local breeds, their offspring are lighter in weight and produce smaller eggs and biochemical analysis of egg albumin revealed markedly decreased levels of albumin (0.79 g/dL) and calcium (11.29 mg/dL), whereas phosphorus (17.75 mg/dL) was elevated. These values deviate from the established normal ranges of 5.4-6.0 g/dL, 20-30 mg/dL and 5-10 mg/dL, respectively. In the present case, a similar calcium-phosphorus imbalance might have contributed to the condition.

As described by Joy and Divya (2014), gentle manipulation (milking) is generally sufficient to relieve the condition when the egg is positioned near the vent, whereas salpingo-hysterectomy is recommended in unresponsive cases. In the present case, conservative management was attempted following the protocol of Thangamani *et al*. (2017), wherein gentle digital manipulation performed after the application of lignocaine gel and liquid paraffin was successful.

In laying hens, salpingitis triggers prostaglandin production, inducing reverse muscular peristalsis (Hosotani *et al.,* 2023). Bacterial infections (e.g., *E. coli*, *Salmonella*), and infectious bronchitis virus in chick-hood, also lead to oviductal atrophy, reduced egg production and higher rates of internal laying. Thus, improved rearing conditions that minimize stress and infection risk may help reduce these reproductive disorders.

This case is concluded as successful management of Egg-Bound Syndrome in a crossbred Aseel by gentle milking manipulation of cloaca. Early diagnosis, prompt intervention, and correction of underlying nutritional imbalances, particularly calcium and phosphorus deficiencies, are essential for preventing recurrence and improving overall reproductive performance in backyard poultry. This case emphasizes the importance of balanced nutrition, including provision of shell grit, in maintaining optimal egg quality and reproductive health in free-range hens.

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