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CLINICAL MANAGEMENT AND EMERGENCY INTERVENTIONS IN THE TREATMENT OF EGG BINDING IN BIRDS

MANEJO CLÍNICO E INTERVENÇÕES EMERGENCIAIS NO TRATAMENTO DA RETENÇÃO DE OVO EM AVES

MANEJO CLÍNICO E INTERVENCIONES DE EMERGENCIA EN EL TRATAMIENTO DE LA RETENCIÓN DE HUEVO EN AVES

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Kauanny Carvalho Bezerra Costa[1], Carlos Roberto Cruz Ubirajara Filho[2], Luiza Vaucher Mendes Pereira[3]

ABSTRACT

Egg binding is classified as a potentially fatal avian reproductive emergency of multifactorial etiology, characterized by the physiological inability to expel the egg and frequently associated with dystocia and nutritional deficiencies such as hypocalcemia. Management of the condition requires immediate diagnosis, based on clinical evaluation and imaging exams, as well as a staged and integrated therapeutic intervention, resulting in an overall success rate of 72.7% in psittacines. Initial medical management, focused on patient stabilization and calcium supplementation, is essential but demonstrates low efficacy when used alone (33.1%). Mechanical assistance (86.1%) and ovocentesis (85.7%) are the most effective interventions for most non-obstructive cases, with ovocentesis offering lower anesthetic risk. Surgical management (60.6% success rate) is reserved only for critical patients and obstructive dystocia cases. A positive prognosis is associated with factors such as higher body weight and the absence of stuporous states upon admission. Effective control requires correction of chronic nutritional deficiencies and long-term strategies, such as deslorelin implants, to suppress the reproductive cycle and prevent recurrence.

Keywords: Egg Binding. Dystocia. Avian Medicine. Ovocentesis. Hypocalcemia. Deslorelin.

RESUMO

A retenção de ovo (egg binding) é classificada como uma emergência reprodutiva aviária, potencialmente letal e de etiologia multifatorial, caracterizada pela incapacidade fisiológica de expelir o ovo e frequentemente associada a distocias e deficiências nutricionais, como a hipocalcemia. O manejo da condição exige diagnóstico imediato, baseado na clínica e em exames de imagem, e uma intervenção terapêutica escalonada e integrada, resultando em uma taxa de sucesso global de 72,7% em psitacídeos. O manejo médico inicial, focado na estabilização do paciente e suplementação de cálcio, é fundamental, mas apresenta baixa eficácia isolada (33,1%). A assistência mecânica

[1] Undergraduate Student in Veterinary Medicine. Centro Universitário de João Pessoa (UNIPÊ.
[2] Professor of Veterinary Medicine. Universidade Federal do Agreste de Pernambuco (UFAPE).
[3] Postgraduate Student in Anesthesiology and Emergency. Universidade Estadual de Santa Catarina (UDESC). Universidade Federal de Mato Grosso (UFMT).

(86,1%) e a ovocentese (85,7%) são as intervenções mais eficazes para a maioria dos casos não obstrutivos, com a ovocentese oferecendo menor risco anestésico. O manejo cirúrgico (60,6% de sucesso) é reservado apenas para pacientes críticos e com distocias obstrutivas. O prognóstico positivo está associado a fatores como maior peso corporal e ausência de estados de estupor na admissão. O controle efetivo exige correção de deficiências nutricionais crônicas e estratégias de longo prazo, como implantes de deslorelina, para supressão do ciclo reprodutivo e prevenção de recorrências.

Palavras-chave: Retenção de Ovo. Egg Binding. Distocia. Medicina Aviária. Ovocentese. Hipocalcemia. Deslorelina.

RESUMEN
La retención de huevo (egg binding) se clasifica como una emergencia reproductiva aviaria potencialmente letal y de etiología multifactorial, caracterizada por la incapacidad fisiológica de expulsar el huevo y frecuentemente asociada con distocia y deficiencias nutricionales, como la hipocalcemia. El manejo de la condición requiere un diagnóstico inmediato, basado en la evaluación clínica y en estudios de imagen, así como una intervención terapéutica escalonada e integrada, lo que resulta en una tasa global de éxito del 72,7% en psitácidos. El manejo médico inicial, enfocado en la estabilización del paciente y la suplementación de calcio, es fundamental, aunque presenta baja eficacia cuando se utiliza de forma aislada (33,1%). La asistencia mecánica (86,1%) y la ovocentesis (85,7%) son las intervenciones más eficaces para la mayoría de los casos no obstructivos, siendo la ovocentesis la que ofrece menor riesgo anestésico. El manejo quirúrgico (60,6% de éxito) se reserva únicamente para pacientes críticos y casos de distocia obstructiva. El pronóstico favorable se asocia con factores como mayor peso corporal y ausencia de estados de estupor al ingreso. El control efectivo requiere la corrección de deficiencias nutricionales crónicas y estrategias a largo plazo, como implantes de deslorelina, para la supresión del ciclo reproductivo y la prevención de recurrencias.

Palabras clave: Retención de Huevo. Egg Binding. Distocia. Medicina Aviaria. Ovocentesis. Hipocalcemia. Deslorelina.

1 INTRODUCTION

Egg retention, medically known as *egg binding*, is characterized by the physiological inability of a bird to expel the egg through the oviduct at a normal rate (Vavlas et al., 2025). This condition represents one of the most frequent and potentially lethal reproductive emergencies in avian medicine, requiring immediate diagnosis and intervention (Vavlas et al., 2025; Golchin and Borhanikiya, 2024). A critical subset of this pathology is dystocia, which implies the presence of a mechanical obstruction or severe cloacal dysfunction (Vavlas et al., 2025). The etiology is considered multifactorial, involving nutritional deficiencies such as hypocalcemia, inadequate diets (low in minerals and rich in seeds), environmental stress, obesity, and anomalies in eggshell formation (Vavlas et al., 2025; Golchin and Borhanikiya, 2024).

Clinical manifestations vary according to severity and retention time, including lethargy, coelomic distension, dyspnea, and limb paresis (Vavlas et al., 2025; Golchin and Borhanikiya, 2024). In parrots, such as cockatiels and parakeets, the chronicity of non-obstructive dystocia may be associated with secondary neoplastic processes in the reproductive tract (Golchin and Borhanikiya, 2024). In addition, the imbalance of fat-soluble vitamins, such as Vitamin D3, exerts a direct influence on reproductive health and eggshell integrity (Jackson et al., 2024). The management of egg retention can represent a clinical challenge, especially in small birds, due to the higher anesthetic risk and the complexity of diagnostic and therapeutic procedures (Golchin et al., 2024). Success in managing these cases depends on the appropriate choice between conservative therapies, mechanical assist, or invasive surgical approaches (Vavlas et al., 2025).

2 METHODOLOGY

The present study is characterized as a narrative literature review, developed with the objective of synthesizing and analyzing the most recent scientific evidence related to clinical management and emergency interventions in the treatment of egg retention in birds. The search was carried out in the PubMed database, using the descriptors "Dystocia" and "Birds", combined using the Boolean operators AND and OR, according to the terminology of the Medical Subject Headings (MeSH). Articles published in the last five years, available in full and written in Portuguese or English, that directly addressed the topic, were included. Studies that did not have a direct relationship with the central theme, duplicate publications, narrative reviews with low methodological rigor, and

articles not indexed in the database used were excluded. The selection of studies was conducted in two stages: screening of titles and abstracts, followed by the evaluation of full texts to confirm relevance. The information extracted was organized in a descriptive way.

3 RESULTS AND DISCUSSION

3.1 TREATMENT STRATEGIES AND SUCCESS RATES

The diagnosis of egg retention is based on the association between clinical history, observation of clinical signs, palpation, and imaging tests. Radiography, fluoroscopy, CT scan, and ultrasound help identify the presence, position, and possible complications related to the retained egg (Vavlas et al., 2025).

Resolution of egg retention has a favorable prognosis when multiple therapeutic strategies are considered in an integrated manner. Studies in parrots demonstrate an overall success rate of approximately 72.7% in resolving the condition and patient survival within seven days (Vavlas et al., 2025). The median time to resolution after clinical presentation is about 36 hours (Vavlas et al., 2025).

Analysis of the modalities of intervention reveals significant variations in effectiveness:

- **Medical Management:** Initially employed in most cases, medical management aims at patient stabilization and includes fluid support (fluid therapy), multimodal analgesia, active warming, and parenteral calcium supplementation. Stabilization is crucial, and may involve oxygen support in cases of respiratory stress caused by compression of the egg in the coelomatic cavity and air sacs. Hypocalcemia is a common aggravating factor, and the administration of calcium not only benefits the body as a whole, but also helps in the uterine contraction of birds. However, clinical treatment alone has a low success rate (only 33.1%), indicating the frequent need for therapeutic escalation for severe cases. It is worth noting that the administration of oxytocin is ineffective for egg retention in poultry, because, as it is not an avian hormone, it does not induce relaxation of the uterus-vaginal sphincter (Vavlas et al., 2025).
- **Mechanical Assistance:** Procedures that use lubricants, dilation of the vaginal opening of the oviduct via cloacal speculum, and gentle massages have a high

success rate (86.1%), being essential to avoid more invasive surgeries (Vavlas et al., 2025).

- **Ovoentesis:** This technique consists of aspirating the contents of the egg to induce its implosion and facilitate removal, demonstrating a high efficacy rate in 85.7% of cases. The procedure, which can be performed on eggs located in the cloaca or salpinges through needles introduced through the cloacal orifice or percutaneously, has the main advantage of the shorter anesthetic time required compared to celio-salpingectomy (Vavlas et al., 2025).
- **Surgical Management:** Reserved for critical cases, obstructive dystocia or failure in conservative maneuvers, the surgery has a success rate of 60.6%, reflecting the previous severity of patients who need this route (Vavlas et al., 2025).

3.2 PROGNOSTIC FACTORS AND COMPLICATIONS

The positive outcome is strongly associated with the animal's body weight (larger birds tend to have a better prognosis), the absence of stupor or obtundation states on arrival, and the absence of immediate need for deep anesthesia (Vavlas et al., 2025). Chronic calcium deficiency not only predisposes to retention, but is also linked to decreased skeletal opacity and muscle weakness required for oviduct contractions (Golchin and Borhanikiya, 2024).

Severe complications include cloacal or oviduct prolapse, tissue rupture, and perioperative death (Vavlas et al., 2025). The use of gonadotropin-releasing hormone (GnRH) agonists, such as deslorelin implants, has been used to suppress the post-treatment reproductive cycle, although efficacy in preventing immediate recurrences may be influenced by environmental factors such as photoperiod and food availability (Vavlas et al., 2025). Monitoring nutritional status, especially for selenium and antioxidant levels, is vital to maintain tissue homeostasis and minimize reproductive complications in breeding colonies (Jackson et al., 2024).

4 CONCLUSION

Egg retention is confirmed as a reproductive emergency of multifactorial etiology that requires immediate diagnosis and integrated therapeutic intervention. The overall success rate of 72.7% in parrots underlines the importance of a stepped approach to managing the condition.

While medical management, which includes patient stabilization and calcium supplementation, is critical, its success alone is low (33.1%). The high efficacy of mechanical assistance (86.1%) and ovocentesis (85.7%) positions them as the interventions of choice for most non-obstructive cases, with ovoentesis offering the advantage of a shorter anesthetic time. Surgical management, with a 60.6% success rate, should be reserved for the most critical situations and obstructive dystocia.

Positive prognosis is intrinsically linked to factors such as higher body weight and absence of stupor states on admission. Therefore, effective control of the condition requires, in addition to immediate resolution, the correction of underlying nutritional deficiencies, such as chronic hypocalcemia. In the long term, consideration of strategies for reproductive cycle suppression, such as deslorelin implants, and nutritional monitoring are vital to prevent recurrences and improve the overall prognosis of the avian patient.

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