

# **Surgical Correction of Periorbital Abscess in a Mynah: A Case Study**



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# **Surgical Correction of Periorbital Abscess in a Mynah:**

## **A Case Study**



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## Abstract

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Periorbital abscess is very common in mynah. Treatment consists of surgical drainage with the addition of antibiotics in selected cases. The purpose of the present case was to describe a surgical approach to remove the deposited pus from the abscessed area and had a complete healing of a mynah bird. A five years old maynah bird was presented to Sahedul Alam Quadery Teaching Veterinary Hospital (SAQTVH), Chittagong Veterinary and Animal Sciences University (CVASU) with a history of swollen eye from eight days. Problems on physical examination included periorbital abscess on the right upper eyelid. Based on the clinical examination, it was decided to perform surgery after stabilization of the patient. Incision was generally performed using general anesthesia, with intraoperative systemic analgesia. Care was taken to make a surgically appropriate incision that allows adequate drainage without injuring important structures of eye. Post-operative cares included gauze soaking in antiseptic solution, drains and close follow up with antibiotics to prevent the secondary bacterial infection. No complication was noted and the mynah had a complete after 15 days. Abscess at specific locations involve special consideration for diagnosis, surgery with treatment and special post-operative care.

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**Keywords:** Periorbital abscess, Mynah, General anesthesia, Incision and drainage, Recovery, Post-operative care

# CHAPTER-I

## Introduction

Nowadays pet birds are considered an important part of veterinary practice and the knowledge about bird's eye disorder is necessary to make a good approach. Like other animals pet and companion birds are also tend to systemic illness. As their physiology and anatomy are unique and their metabolic activity is quite different, so the feeding practice adopted by owner may have a large impact over their health status. However, this is rather complex in caged birds as many of the birds may not show any clinical manifestation as other animal do.

Many of caged or companion birds like mynah that live on seed diets often develop vitamin A deficiency. One of the more obvious signs of the disease is a swelling around the eye known as a periorbital abscess.

A periorbital abscess is a pocket of inflammation that typically has a wall of tissue surrounding it. The centre is filled with either thick liquid or solid material consisting of white blood cells, dead tissue and sometimes bacteria.

In most cases, vitamin A deficiency is the root of the problem and then foreign objects, trauma and bacterial infection may complicate the case gradually. Vitamin A deficiencies are typical of mynas fed upon a seed-only diet and also common in species that tend to feed upon 1-2 types of seed to the exclusion of all others. In this case, sunflower seed are the main reason and cause periorbital abscess.

Without a basic knowledge of anatomy and physiology, it becomes difficult to understand the pathophysiology of disease and how to treat the disease.

Birds possess great visual acuity. The globe is very asymmetrical, has 10-18 ossicles. Posterior segment is relatively larger than the anterior segment. The orbit is large, incomplete. The eyes are separated by a thin bony septum and anatomically related to sinuses. Birds have three eyelids. They are upper, lower and the nictitans membrane. Nictitans membrane is well developed, transparent, blinks from nasal to temporal direction and has voluntary movement. The main source of tears comes from herderian gland, located adjacent to the base of the nictitans membrane. Pupil is circular and a soft lens allows rapid accommodation. Retina is thick

and contains many cone cells allowing a notorious color vision. Eye movement is limited because extraocular muscles are poorly developed but their ability to move both eyes independently.

In periorbital abscess, infection may occur just in the upper eyelid and cause swollen of the eye. Gradually pus is formed and the abscess is developed above the eye. For this reason, the movements of the eye become almost difficult.

Periorbital abscess is very rare in Bangladesh. If it is in the early stages, it can be eliminated by adding vitamin A supplements in their diet. But if the case become complicated then surgery is required.

## **CHAPTER-II**

### **Case Presentation**

A black mynah of five years old weighing 178 gram was bought to the SAQTVH, CVASU with a history of swollen eye from eight days. Its feeding history also included seed based diet. The clinical examination of the mynah exhibited normal temperature, respiration and pulse rate. But the behavior of the bird was abnormal. It was dull and depressed and loss of appetite. The movements of the right eye are difficult and the eye is almost closed. So it was decided to perform some ophthalmic examination to identify the problem.

#### **2.1 Ophthalmic Examination**

Complete ophthalmic examination includes anamnesis function and morphologic examination. Several tests can be performed such as menace reflex, palpebral reflex, corneal reflex, Schirmer tear test, Fluorescein and Rose Bengal staining tests, tonometry, direct and indirect ophthalmoscopy, ultrasonography, electroretinography, cytology and cultures. The common tests were performed only that was available in SAQTVH, CVASU.

##### **2.1.1 Ocular Reflex**

Examination of the ocular reflex is one of the most important tests to examine the vision of the birds. Menace reflex was tested in that mynah by quick approach of an object towards eye and the positive response was recorded with normal eye blink in the left eye but difficult eye blink in the right eye, rapid withdrawal of the head and aggressive behavior with beaks.

The palpebral reflex was tested by touching the skin at the lateral and medial edge of the eyelid and the corneal reflex was tested by touching of the cornea with moist cotton symmetrically in both eyes. The positive response was recorded in the left eye but right eye cannot move easily due to swelling.

##### **2.1.2 Fine Needle Aspiration Biopsy**

Needle was punctured just above the right eye to see if any liquid fluid came from the swollen area. Nothing was come out from the area.



## **2.2 Pre-operative Care**

As eye surgery is a very sensitive issue for bird, it is better to try to cure the infection first with medicine. Before surgery an eye drop, antibiotic and electrolyte and mineral supplement with vitamin A were given for 7 days to reduce the infection. Antibiotics 0.3% Ciprofloxacin (eye drop Cipro-A) was administered in eye daily two times for 10 days and Amoxicillin (Drop Moxacil-2 drops) was administered orally daily three times for 7 days to stop the secondary bacterial infection. Electrolyte and mineral supplement with vitamin A (Electromin powder-half gm) with half liter water was administered orally daily for 7 days to maintain the fluid and electrolyte balance, acid-base balance in the body. Electromin also increase enzyme activity and promotes Feed Conversion Ratio. It ensures muscle function and nerve stability and increases blood hemoglobin level.

## **2.3 Surgery of Periorbital Abscess**

After seven days the mynah came with more critical condition. The eye is more swollen and pus is formed in the right upper eyelid (Figure 1.1). For the confirmatory diagnosis, pressure was applied in the upper eyelid. When pressure is applied to the swollen area, a pit or indentation was created. So, it was abscess and not confused with cyst. In the fine needle aspiration biopsy examination, pus was come out from the area. It was finally diagnosed as a periorbital abscess in the confirmatory diagnosis and decided to remove the abscess in the right upper eyelid by surgery.

### **2.3.1 Pre-operative Preparation**

An understanding of surgical principles is necessary before operating on a bird. The preoperative preparation involves procedures that are implemented based on the nature of the expected operation as well as the findings of the diagnostic workup and the preparation of surgeon and patient for the surgery. Fasting is very important before surgery. The mynah was fasted for 3-4 hours before surgery. The mynah's respiration is assessed by distant examination. The patient's crop and abdomen was palpated and checked.

### 2.3.2 Restraining and Anesthesia

Both physical and chemical methods were used to control the mynah. An accurate weight is obtained of the mynah. The mynah was restrained loosely in a towel to prevent wing flapping and excessive struggling. Then it was kept on the surgical table for surgery.

General anesthesia of the bird was done by combination of Xylazine @ 2mg/kg (inj. Xylaxin 20mg/ml) 0.01 ml and ketamine @ 25mg/kg (inj. Ketalar 50mg/ml) 0.089 ml was administered via intramuscular route at breast muscle.

### 2.3.3. Monitoring

Monitoring of anesthesia is very important in avian surgery. Manual assessment of the depth of anesthesia monitored the vital signs:

1. **Respiratory rate:** The bird was breathing at least once every 2-7 seconds. At a light plane of anesthesia the respiratory rate was rapid and deep. As the anesthetic plane became deep, the respiration became shallow and slow.
2. **Heart rate:** Decreases or changes in the heart rate were often monitored. Auscultation was performed frequently.
3. **Reflex:** The palpebral reflex was disappeared quickly as the anesthetic plane became deep. The pedal reflex and the corneal reflex became slow, but remained present even at surgical planes of anesthesia.

### 2.3.4 Surgical Technique

Prior to anesthetizing the surgeon checked all equipment and materials likely to be used in the procedure were accessible, fully functional and sterilized. All the instruments, techniques and suture materials were used that minimize tissue damage, blood loss and inflammatory responses. At first the animal was restrained properly. A well, sterilized drape allowed visualization the surgical site and had heat retaining characteristics. The abscessed area was then clipped and shaved and then washed with antiseptic solution like povidone-iodine (Figure 1.2). A very small longitudinal incision was made by surgical blade over abscess just above the right eye at lower portion for better drainage (Figure 1.3). Then pus was removed from the abscess pocket properly with digital pressure that was deposited in liquid form (Figure 1.4) and by curved artery forceps

with gauze that was deposited in solid form (Figure 1.5). Then all pus was removed by cotton bar (Figure 1.6) and the abscess pocket was washed with gauze soaked with tincture iodine (Figure 1.7). After washing, gauze soaked with tincture iodine was retained into the pocket and remain unclosed (Figure 1.8). Finally surrounding area was washed with povidone-iodine solution. Dressing with povidone-iodine like this was recommended for next five days until complete healing.

### **2.3.5 Recovery**

Depending on the type and duration of the anesthetic, recovery to standing and perching usually takes 5-10 minutes. After surgery full recovery took 30 minutes. Following anesthesia, the bird was wrapped in a towel to prevent injury from wing flapping or excessive movement or prevent heat loss during recovery. It was monitored closely until able to perch and head movements were noted. It was also monitored for bleeding, regurgitation, dyspnoea or any abnormality.

### **2.4 Post-operative Care**

After surgery, antibiotic, multivitamin and antiseptic cream were given to reduce the infection and early healing. Antibiotic gentamicin (Inj. Genta- 0.05 ml) was administered intramuscularly daily two times for 5 days to stop the secondary bacterial infection. Multivitamin (Syp. Pogo-5 drops) was administered orally daily two times for 10 days to help in development and proper functioning of their vital organs. It also help to prevent vitamin deficiency, increases immunity and restore the lack of appetite. As a antiseptic cream Viodin was applied in the abscessed area daily two times for 10 days for early healing and to prevent contamination in the surgical area. The patient was suggested to come after 15 days for check up.

Owner was advised to follow pellet-based diet instead of just a seed-based diet and add some vitamin A containing food like carrots, sweet potatoes, mango, papaya, dark green leafy vegetables etc.

After 15 days no complication was noticed and the bird had an uneventful recovery. It was checked that the abscess had healed completely.

## CHAPTER-III

### Discussion

The orbit or the bone structure that surrounds and contains the eye, including the eyeball and nerves, muscles and vessels can be susceptible damage and a number of other harmful conditions. Periorbital abscess is one of the major eye problems in pet birds. Swollen eyes (Periorbital Abscess) are a frequently reported affliction of budgerigars, African gray, various Amazon and nearly all other parrots, but are also seen in canaries and other finches, mynas, toucans, bulbul and a host of lesser-known pet species.

In the present case, the abscess was diagnosed by different ocular reflexes and needle biopsy as an ophthalmic examination. Many other procedures of diagnostic test are now available.

Swab sample may be collected and tested from various locations, including the trachea, cloaca, choanae, sinuses, or eyes. Various staining can often isolate infectious agents. Blood samples are collected and tested. A PCR test can detect organisms. A schirmer tear test can be performed to assess tear performance. Direct or indirect ophthalmoscopy can be performed to detect any injuries, often accompanied by staining techniques. Electroretinography is used to analyze the functionality of the retina and detect orbital diseases. Various imaging techniques can also be used to evaluate the structures in the eyes and head, which can help lead to a diagnosis. These can include X-rays, ultrasounds, CT scans, and MRIs. Fluorescein staining test is used to confirm the presence of ulcers, and is mandatory prior to the application of any topical agent to the eye (Abrams *et al.*, 2002).

In this case, the abscess responded to surgery and vitamin A supplementation. Of course vitamin A is not the only thing that can cause swelling around the eye. Less commonly, cysts, trapped foreign objects, trauma and bacterial infection may be implicated. Periorbital abscess is also caused by- foreign objects entering the eye, infection or trauma.

In periorbital abscess, infection can be spread in the orbital region from periorbital region if it becomes complicated.

Periorbital abscess seldom leads to serious complications; however orbital abscess has serious complications including vision loss and death. Hematogenous spread, local trauma, insect bites, foreign bodies can cause periorbital swelling but bacterial infection like *Staphylococcus aureus*, *Streptococcus pneumoniae* can cause orbital abscess.

In this surgery of periorbital abscess, combination of xylazine and ketamine were used as a general anesthesia. Intravenous or intramuscular agents can be used, but it must be recognized that induction and recovery are variable. Recovery is often prolonged, and there can be a significant 'hang-over' effect, with the bird not regaining its normal metabolic rate and appetite for several hours or longer (Doneley, 2018).

Local anesthesia can be used in this case. Local anesthetics interrupt the transmission of pain impulses and, when used preoperatively, they can be used to block the site of tissue manipulation, thus helping to reduce central sensitization (Doneley, 2018).

Although local anesthesia reduces pain perception but sometimes it cannot protect the patient from stress. It may be better to induce general anesthesia rather than stress the bird with restraint and local anesthesia. It is important to remember that eye surgery of pet bird is very sensitive and complications can be occurred during and after the surgery. As no complications were found in the present case so it was a preferable surgery for the periorbital abscess.

## **CHAPTER- IV**

### **Conclusion**

An abscess is a collection of pus that can make an animal feel unwell. Surgery can prevent the serious complications that an abscess can cause. Surgery in the avian patient is a stressful experience. Every aspect of the experience is critical to a positive outcome: the initial history, the physical exam, pre-operative workup, fasting, choice of anesthesia, and the last but not postoperative care. Depending on the bird and the surgery needed and abilities of the owner, every case should be looked at on an individual basis. Abscess drainage is a safe, minimally invasive procedure. There are many things to do both before surgery and after to maximize the post-operative success. Since it requires only one small incision, it causes less pain and a faster recovery in surgical drainage.

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## Figures



**Figure1.1.** Periorbital abscess in Mynah



**Figure1.2.** The bird had been clipped, washed the surgical area with antiseptic and placed a draper over surgical area





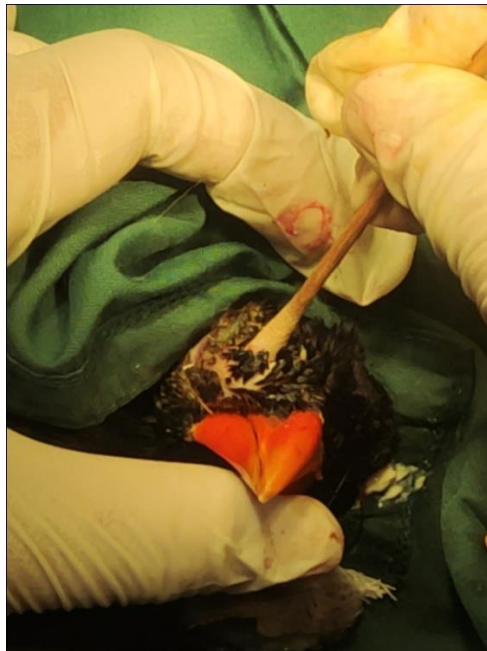
**Figure1.3.** An incision over the abscess area just above the right eye



**Figure1.4.** Pus (liquid) was removed from the abscess area with digital pressure



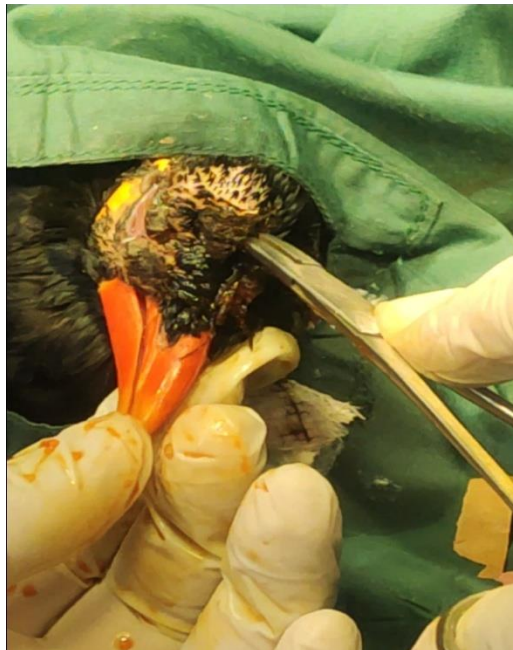
**Figure1.5.** Pus (solid) was removed from the abscess area by curved artery forceps



**Figure1.6.** All pus removed from the abscess pocket by cotton bar



**Figure1.7.** Abscess pocket was washed with gauze soaked with tincture iodine



**Figure1.8** Gauze was retained into the abscess pocket and remains unclosed

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## **Biography**

I am Arpita Das, DAUGHTER of Swapan Kumar Das and Manju Das. I passed Secondary School Certificate examination from Bakolia Govt. Laboratory High School, Chattogram in 2013 (G.P.A-5.00) followed by Higher Secondary Certificate examination from Govt. City College, Chattogram in 2015 (G.P.A-5.00). Now I am an intern veterinarian under the Faculty of Veterinary Medicine at Chattogram Veterinary and Animal Sciences University, Bangladesh.

Bangladesh is a developing country in South Asia where livestock plays a crucial role in our economy and the food chain. I expect to be a future researcher in life science to address the present challenges we have in this field.