Diagnosis and Therapeutic Management of a Blue-Gold Macaw Suspected for Borna Virus Infection

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Abstract
Proventricular dilatation disease (PDD) is an upcoming exotic diseases common in the west but is not well understood in Indian sub-continent. There are very few cases that are being effectively diagnosed due to limited knowledge of the etiological agent. The case study throws light on the upcoming disease. Careful veterinary checks will ensure that these exotic birds do not carry this potentially deadly virus preventing its affecting to our native populations.

Keywords: Avian; borna virus; macaw wasting disease; proventricular dilatation disease

History
A Blue gold macaw was presented for incomplete crop emptying and decreased stool production. It had a history of regurgitation and inadequate crop emptying two years ago and was successfully treated with a combination of Metronidazole, anti-inflammatories, immunity enhancers and fluid therapy and had recovered. It had a history of being housed with birds of other species in an outdoor aviary and was primarily a pelleted diet, fresh fruits and vegetables. However fresh fruits and vegetables continued twice a day.

Clinical Examinations and Treatment
The bird was presented with an over distended crop and on palpation was doughy. Although his weight was 850 gms, the sternal muscles had wasted. To avoid the risk of aspiration pneumonia during a crop wash, it was decided to medically manage the condition for two days with conservative medication and aggressive fluid therapy (Ringer Lactate-20 ml and Normal Saline 30 ml). The bird was dehydrated, 2 on the scale of 1-4 where 4 is severely dehydrated. Since gastric stasis in macaws is noted frequently and responds to anti-inflammatories, Melonex® (Meloxicam) was administered at 0.5 mg/kg once a day. Metoclopramide was also administered at 0.5 mg/kg as an injection for 5 days orally. Bird responded for 3 days and then symptoms relapsed.

Choanal swab revealed gram negative pleomorphic rods, Enrofloxacin @15mg/kg bid was added to the treatment. The bird was non-responsive to treatment. Since the bird was passing stools and not vomiting obstruction was ruled out. However, one of the top differentials with the following symptoms among macaws is proventricular dilatation disease (PDD). On radiographs, there seemed to be an opaque, unidentified density at level of distal esophagus and the proventriculus looked enlarged (Fig. 1). Crop stasis was still present and therefore an exploratory endoscopy was conducted. To provide unobstructed access for probe, injectible anesthesia was preferred. The bird was sedated using Midazolam and Butorphanol at 1mg/kg each as induction. Intra-osseus access was gained through the distal end of left ulna with a 2G needle. The dose of Ketamine for a bird with 800 gms body weight was calculated at 25-50mg/kg and administered to effect. Use of 2.7mm telescope, 14.5-Fr operating sheath, 5- Fr instruments, light guide cable, camera, monitor and digital recording system (Karl Storz endoscopy, Goleta, CA, USA) was used for exploratory endoscopy.

Since there was no obstruction noted in oesophagus and endoscope was too short to reach ventriculus, an ingluviotomy approach was
Fig. 1: Enlargement of proventriculus (marked by yellow border).

Fig. 2: Endoscopy being performed to check for foreign body.

utilized to advance the scope for better visualization. The proventriculus showed streaks of fibrin synonymous with PDD. On further advancement there was no foreign body into the ventriculus. Since the stools sample showed no incidence of frank blood and no gas pockets on radiographs, foreign body descending into intestines was ruled out. Both proventriculus and ventriculus were thoroughly washed and rinsed with Normal saline. The bird recovered uneventfully from anesthesia and post-operative treatments were carried out (maintained on RL and NS, Enrofloxacin - 15mg/kg, Metoclopramide-0.5mg/kg bid, Digene -0.5 ml tid, Sucralfate- 0.5 ml bid and Celecoxib - 20 mg/kg old). Reports of treating this infection using Celecoxib presented the first real hope for treating PDD affected birds. (Dalhausen et al., 2002). Harrisons recovery formula for birds was started after 6 hours of surgery along with probiotics. The bird also passed a normal stool in large volumes the next day. After 48 hours the crop swelling returned and bird was started on Amantadine. Since the protein level was very low raw, egg white was administered in small quantities. However the bird succumbed in 6 days after surgery.

Discussion
Proventricular dilatation diseases (PDD) is also termed as Macaw wasting syndrome was first recognized in the late 1970’s in macaws imported into United States and Germany (Bouette and Taylor, 2004). It is caused by Avian Borna virus. PDD can be hard to diagnose, can take many forms and may have a very long incubation period (Clubb, 2006). Crop biopsy is the only effective diagnostic tool but has a high false negative rate. This disease causes progressive destruction of nerves supplying gastro-intestinal tract (proventriculus, ventriculus and portions of small intestine) and central and peripheral nervous system. This results in inability empty to their digestive tract leading to crop stasis, weight loss, proventricular, ventricular or intestinal maldigestion and causing secondary infections (Bouette and Taylor, 2004). A suspicious crop biopsy shows lymphoplasmacytic inflammation surrounding the ganglia but not within the ganglia. Treatment includes management of symptoms by administering supportive care and easily digestible food with non-steroidal anti-inflammatory agents like Meloxicam and Celecoxib. (Clubb 2006).

References

