Use of a Dental Composite to Correct Beak Deviation in Psittacine Species

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Abstract

Beak deviation and abnormal beak occlusion are common presentations of parrot species to veterinary hospitals. There have been many published descriptions of techniques that have been used to treat abnormal beak occlusion in parrot species. Many of these techniques are difficult to apply and often result in iatrogenic beak trauma. The technique described in this article uses state-of-the-art dental cold curing dental composite and the patient's beak for support to reduce the incidence of beak damage caused by the corrective device. There are many variables (e.g., patient age, owner compliance, patient's ability to be hand fed) that should be considered when correcting a beak malocclusion with the technique described in this article. This recommended technique should serve as a possible option, among the previously described techniques, when correcting a parrot beak with abnormal beak occlusion. © 2010 Published by Elsevier Inc.

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Lateral deviation of the maxilla (scissor beak) and mandibular prognathism are 2 of the most common beak deformity presentations of psittacine birds treated by veterinarians.[1,2] Scissor beak occurs when the rhinotheca (upper beak) grows to the side of the gnathotheca (lower beak). Mandibular prognathism is diagnosed when the gnathotheca is longer than the rhinotheca, which results in the tip of the upper beak being positioned inside the mandible. The etiology of these beak deviations is unknown and is most likely multifactorial. Suggested etiologies include trauma, improper hand-feeding, nutritional deficiencies, incubation factors, and congenital abnormalities.[2,3] In poultry, beak formation abnormalities are thought to be caused by inappropriate egg temperature, fungal toxicities, vitamin D_3 toxicosis, genetic etiologies, improper feeding, and teratogens.[1]

Although these 2 deformities have been diagnosed in different psittacine species, scissor beak is predominantly observed in macaws and mandibular

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Figure 1. Example of a K wire/pin technique in a young red-tailed black cockatoo (Courtesy of Dr. W. Michael Taylor).

prognathism in cockatoos.[2-4] Birds with beak abnormalities are costly to breeders because of their management problems and undesirable appearance, resulting in lower market value. The disease process of mandibular prognathism and scissor beak is often a progressive condition because of the abnormal position of the beak in which constant pressure of these misdirected forces, during normal beak usage and growth, leads to a more significant malalignment and beak malocclusion.[4] Severe cases of abnormal beak growth interfere with normal food prehension and beak kinesis, causing atypical beak wear and feeding difficulties. To treat beak deviations, veterinarians have used many corrective devices and techniques.[1,2]

Recommended methods to correct beak deviations in parrot species have included the use of light cured dental acrylic extensions that are placed directly over the rhamphotheca (i.e., the "Clipsham technique" uses a wire mesh that is incorporated in the acrylic). Alternatively, the Kirschner wire (K wire)/pin technique can be used, where K wires or small bone pins are placed through the prefrontal and/or frontal bone and are then connected to the premaxilla/rhinotheca with rubber tension bands or cerclage wires to pull the beak into normal anatomic position.[1,5-9] The K wire/pin technique is considered more effective in severe deformities and in adult birds (Fig 1).[7,8]

The techniques described in Figure 1 are problematic because of the tension of the corrective device on the focal area of young birds' developing

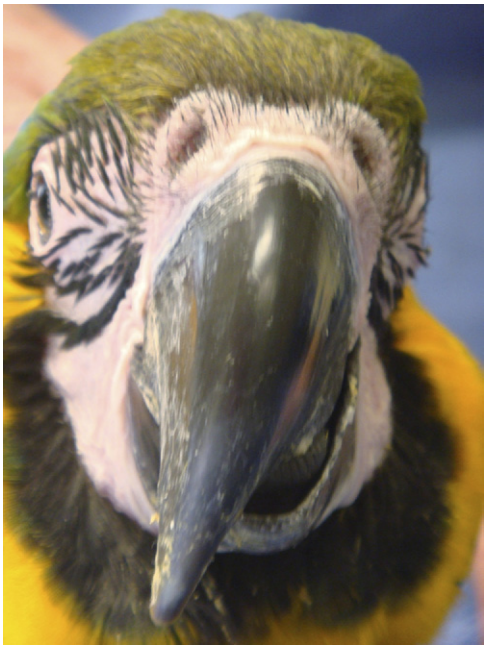

Figure 2. Moderate scissor beak deformity, frontal view.

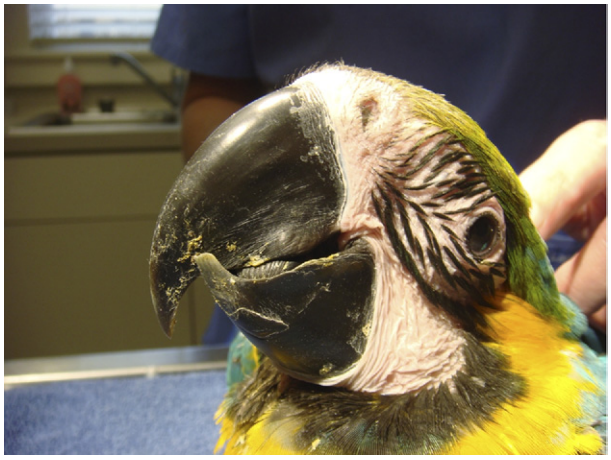

Figure 3. Moderate scissor beak deformity, lateral view.