Oral Diseases in Captive Capuchin Monkeys

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Examination of the oral cavity for early detection and correction of diseases should be part of the general health care program for any institution or clinic that deals with nonhuman primates. Exotic animal veterinarians should adopt and follow a strict protocol for examination of the oral cavity whenever an animal is anesthetized. Furthermore, handlers/owners should be trained to recognize early signs suggestive of oral diseases.

The oral cavity of 74 tufted (brown) capuchin monkeys (Cebus apella) was examined. The group was comprised of monkeys originating from 6 institutions in the state of São Paulo, Brazil. Of the group, 20 (27%) were young animals and 54 (73%) were adults; 29 (39%) were males and 45 (61%) were females. All the lesions were recorded on a primate dental reporting form (Fig 1).

The study showed a high prevalence of oral lesions in these captive monkeys, where 72% of the animals presented with some type of lesion. Among the lesions, those related to periodontal disease and dental fractures were the most prevalent (Figs 2, 3). Table 1 illustrates the results of the examinations.
Fig 1. Primate Dental Reporting Form
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Treatment

Dental Radiography
Dental radiographs may aid in diagnosis and treatment planning, monitoring and postoperative treatment success in oral and dental disease. They are used to view the dental tissues, supporting structures, the crowns of the teeth and facial, nasal and jaw bones (Figs 5, 6). A portable radiography machine is a useful tool (Fig 7).

Periodontal Treatment
Periodontal treatment includes scaling, curettage, root planing, polishing, sulcus irrigation, fluoride treatment and some extractions. Periodontal treatment in nonhuman primates is performed only under general anesthesia. Chemical restraint for this group was achieved with tiletamine + zolazepam (Telazol, 5 mg/kg IM), induction with propofol (0.1-1.0 mg/kg IV) and maintenance with isoflurane via intubation.

Scaling (calculus removal) is performed with sonic or ultrasonic scalers (Fig 8) and hand scalers. Ultrasonic scalers with periodontal inserts and curettes are the instruments used for subgingival cleaning and root planing. After calculus removal and sub-gingival cleaning are complete, the sulcus is irrigated with a chlorhexidine solution (0.12%). Polishing is the final smoothing of the crown and any exposed root of the...
Exodontics may be a part of periodontal treatment if the teeth have lost most of their supporting tissues.

**Extraction Treatment**

Dental extraction should be considered an end-stage procedure. When teeth are salvageable, one can go to great lengths to avoid extraction. Unfortunately, in many cases extraction is advisable and necessary. Extraction is indicated for teeth with end-stage periodontal disease, fractured teeth with an exposed pulp when endodontic treatment is not possible (Figs 9, 10), retained deciduous teeth, teeth with resorptive lesions, caries, crowded or malpositioned teeth and other select cases.

A pretreatment radiograph alerts the clinician to unforeseen complications, such as root resorption, ankylosis or extra roots. The extraction treatment is basically performed in the following way:

- **Sindesmotomy** - incise the gingival attachment 360° around the tooth (Fig 11).
- **Dental luxation** - insert a dental elevator into the gingival sulcus to engage the tooth and to stretch
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the periodontal fibers to the point of fatigue, at which time the tooth will loosen.

- **Tooth extraction** - when the tooth is markedly loose, use an appropriately sized dental extraction forceps to grasp the crown near the gingival margin until it can be removed from the alveolus (Fig 12)
- **Alveolar curettage** - to remove any calculus or foreign debris using several sizes of curettes
- **Suture** - suturing can also ameliorate postoperative hemorrhage The authors use Vicryl Plus® antibacterial suture.

**Endodontic Treatment**
Endodontics is responsible for the diagnosis and treatment of the dental pulp lesion (internal portion) when its vitality is compromised or destroyed. The selection of the treatment protocol is influenced by the clinical/pathologic signs of the lesion by the practical factors that involve the treatment, of the species in question and of the surgeon’s ability.

Endodontic disease is occasionally seen as an abscess at the root tips that flares up and causes facial swelling below the eye (infraorbital fistula, Fig 13). The abscess may even drain through the skin or inside the mouth. This most commonly occurs with a fracture of the canine teeth. The endodontic treatment is basically performed in the following way:\[12]
- periapical radiograph
- access to the root canal with endodontic file
- instrumentation of the pulp cavity with endodontic file (Fig 14)
- irrigation of the pulp cavity
- drying of the pulp cavity
- obturation of the pulp cavity with cement and gutta percha latex
- restoration of the access point to the pulp cavity
- follow-up post-treatment radiograph (Fig 15).
Fig 13. Infraorbital fistula due to endodontic lesion of left superior canine tooth.

Fig 14. Instrumentation of the pulp cavity with endodontic file. The endodontic stop (arrow) measures the root canal length of the tooth.

Fig 15. Radiograph of endodontic treatment of canine tooth. Shown is the insertion of the endodontic file (arrow)

Conclusion

There are no routine veterinary dental procedures that are applicable to all exotic animals. Each case varies according to the species’ specific circumstances, including but not limited to, anatomy, habitat, diet, level of nutrition and prevailing management practices of the individual animal.

The current oral condition of captive capuchin monkeys in Brazil is unsatisfactory and indicates that professional intervention must be taken regarding prophylaxis, diagnosis and treatment of oral diseases. This action will reduce the negative impact of the local and systemic consequences originating from the oral problem. Preventing medical problems of the oral cavity preserves the efficiency of the digestive process, contributes to maintenance of health, improved reproductive ability, increased life expectation and a substantially improved quality of life for the patient.

References and Further Reading