History: A 5-yr-old male greater bushbaby (*Otolemur garnettii*) was presented to the Veterinary Teaching Hospital, Kansas State University, for evaluation of unilateral proptosis of 5 days duration and moderate chronic weight loss. The owner initially noticed conjunctivitis 4 wk before and had attributed it to possible trauma from its two cagemates.

On presentation, the bushbaby was depressed and approximately 7% dehydrated. The right eye protruded 1 cm from the orbit; conjunctivitis, corneal perforation, and iris prolapse were evident (Fig. 1). Purulent discharge was noted from the right nostril. Intraoral examination was performed under ketamine/acepromazine/isoflurane anesthesia, revealing a pink/tan mass that displaced the right maxillary premolars and molars. Abdominal and lymph node palpation was unremarkable. Thoracic and abdominal radiographs and fundic examination were completed and showed no abnormalities. Survey radiographs of the skull (Figs. 2 and 3) were obtained. Pertinent hematologic and serum chemistry findings included WBC = 18,500/μl (reference range, 11,200 ± 700/μl); RBC = 5.51 × 10⁶/μl (9.3 ± 0.2/μl); Hgb = 10.4 g/dl (16 ± 0.3 g/dl); PCV = 29% (49.1 ± 0.8%); MCV = 53.1 fl (53.2 ± 0.7 fl); neutrophils = 14,985/μl (4,514 ± 325/μl); lymphocytes = 3,330/μl (5,981 ± 358/μl); total protein = 5.0 g/dl (7.2 ± 0.1 g/dl); and albumin = 2.1 g/dl (4.0 ± 0.1 g/dl).

Please make your diagnosis using Figures 2-4 before continuing.

Figure 1. Proptosis in an adult male greater bushbaby (*Otolemur garnettii*), postmortem.
Figure 1. Ventrodorsal skull radiograph of the greater bushbaby.

Figure 2. Ventrodorsal skull radiograph of the greater bushbaby.

Figure 3. Left 20° ventral right dorsal oblique skull radiograph of the greater bushbaby.

Figure 4. Microscopic appearance of the oral cavity of the greater bushbaby, postmortem. Notice haphazard arrangement of loosely spaced neoplastic cells within the submucosa (S). The overlying mucosa has focal vacuolar degeneration and erosion (arrows). H&E, bar = 50 μm.
Diagnosis: Right maxillary fibrosarcoma resulting in ocular disease.

Discussion. The hematologic abnormalities in this case were most likely attributable to chronic low-grade inflammation, with resultant normocytic anemia and mature neutrophilia. Radiographs revealed osteolysis of the right lateral maxilla, zygomatic process, and zygomatic bone, with no identifiable periosteal reaction; the teeth were displaced laterally and ventrally by a soft tissue mass filling the osteolytic area. Histologically, the mass was composed of large numbers of widely spaced spindle cells on a loose fibrous and slightly mucinous background; three to five mitotic figures were seen per 400× field (Fig. 4). Diagnosis of this mass as a fibrosarcoma relied heavily upon its histopathologic characteristics. Because of the poor prognosis for successful removal of this tumor, the owner elected euthanasia.

On postmortem examination, the oral mass was well circumscribed and soft, with a slightly mucinous appearance. The mass extended through the right nasal turbinates, although it did not cross the nasal septum or invade intraocular tissue. There was no evidence of metastasis of this fibrosarcoma. Corneal ulceration and perforation and iris prolapse in this bushbaby were secondary to exposure resulting from pressure from the growing maxillary fibrosarcoma.

Oral neoplasia has rarely been reported in primates, and has not been previously reported in prosimians.1-3,5-7 Comparative clinical diagnosis of maxillary masses in any species would include neoplasia (fibrosarcoma, malignant melanoma, and squamous cell carcinoma being most often reported across species), mycotic or bacterial abscess, or granulomatous disease. Diagnosis is best accomplished by histopathologic examination of a wedge or core biopsy. Although the cells present in many of these differential diagnoses may be collected by fine needle aspirate, sarcoma cells are typically difficult to collect by that method alone.8

The current treatment of choice for fibrosarcoma in domestic species involves surgical excision with margins of at least 2–3 cm; this approach was not possible for this 0.9-kg bushbaby. Even if radical surgical excision had been feasible, it would not guarantee a permanent cure. In domestic dogs and cats, 10–30% of fibrosarcoma sites show recurrence and/or metastasis after excision.9 Chemotherapeutic regimens such as doxorubicin/cyclophosphamide combinations (with or without radiotherapy and hyperthermia) do show some benefit in domestic species by retarding the recurrence of lesions4 and therefore should be considered as possible therapeutic options for animals in zoological collections.

This report was submitted by Lisa Harrenstein, D.V.M., and James W. Carpenter, M.S., D.V.M., Department of Clinical Sciences, and Sharon Gwaltney, D.V.M., Ph.D., Department of Veterinary Diagnostic Investigation, College of Veterinary Medicine, Kansas State University, Manhattan, Kansas 66506, USA. We thank Drs. Janette Ackermann, Alan H. Brightman, Harriet J. Davidson, and James J. Hoskinson for their diagnostic assistance.

LITERATURE CITED
6. Montali, R. J. 1980. An overview of tumors in...

Received for publication 25 August 1993.