Bilateral separation of the olecranon and proximal epiphysis from the ulnar diaphysis in a snow leopard cub

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Three snow leopard cubs were born on June 2, 1985, at the Calgary Zoo (a female by natural birth and 2 males delivered by cesarean section). The 3 cubs were removed from the mother immediately after birth and were hand raised. The female cub died within 72 hours after birth due to a septicemia caused by Pasteurella multocida; the female cub also had bilateral subluxation of the carpi, which appeared to be congenital.

On June 26, at 3.5 weeks of age, one male cub had swollen elbows and a rectal temperature of 37.7°C; radiography indicated marked soft tissue swelling of the elbows. Obvious abnormalities were not detected in the cub's hindlimbs, and the cub moved using his elbows and hind feet. A tentative diagnosis of soft tissue injury was made. The cub was kept under observation without treatment to determine whether the swelling would decrease. Five days later, the swelling had not resolved, and the cub had a WBC count of 18,150 cells/μl and a rectal temperature of 37.5°C. Red blood cells, neutrophils, and lymphocytes were seen microscopically in an aspirate of joint fluid. Examination of a Gram's stain of the joint fluid aspirate indicated small numbers of gram-positive cocci. Septic arthritis was suspected. The cub was given cloxacillin (20 mg, IM, every 8 hours) and chloramphenicol (25 mg, IM, every 12 hours); the cub weighed 1.5 kg. The cub remained active and alert, had a good appetite, and had normal feces.

On July 3, bilateral lateral arthrotomies were performed. Joint fluid specimens were collected, and both elbow joints were flushed with copious amounts of sterile saline solution. Drains were placed in the joints and the incisions were closed. Recovery from halothane anesthesia was uneventful. The elbows were lightly bandaged. Escherichia coli was the only organism isolated from the joint fluid specimens and was sensitive to amoxicillin, gentamicin, and trimethoprim/sulfadiazine. On the basis of antibiotic sensitivity results, the antibiotic treatment was changed to gentamicin (8 mg, IM, every 24 hours); the cub weighed 2.0 kg.

Fig 1—Radiograph of the elbow of a snow leopard cub with bilateral swelling of the elbows. Notice the bilateral, triangular pieces of bone caudal to the distal portion of the humerus indicating separation of the olecranon and proximal portion of the epiphysis from the ulnar diaphysis.

The range of motion of both elbows was less than that of the unaffected male littermate's elbows. Therefore, the cub was exercised with range of motion exercises (ie, flexion and extension of all joints in the affected limbs and walking motions) at each feeding.

The incisions drained for the next 4 days. The drains were removed 5 days after surgery. At this time, the swelling had decreased. Radiography on July 9 indicated a small disk-shaped area of ossification caudal to the distal end of each humerus. This joint change was thought to be a reaction to chronic arthritis. Marked joint flexion had developed. Therefore, extension splints were applied to help prevent extension in the elbow joints. These splints were placed on the cub for approximately four minutes, 24 times daily, and removed. Afterward, range of motion exercises were done. The length of time that the splints remained on the cub was increased slowly as the cub learned to tolerate them.

Radiography on July 16 indicated further ossification.

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tion of the fragment, viewed as a triangular piece of bone caudal to the distal portion of the humerus (Fig 1). At this time, bilateral separation of the olecranon and proximal portion of the epiphysis from the ulnar diaphysis was tentatively diagnosed.

On July 20, surgical repair of both elbows was attempted, using a standard tension band wire procedure. The surgery proceeded uneventfully, until final closure began. At this time, the leopard developed cardiac arrest, was revived, rearrested within minutes, and died.

Examination at necropsy did not indicate orthopedic abnormalities, other than the previously diagnosed olecranon separation. The cause of death was interstitial pneumonia.

Possible causes for olecranon separation in the cub were trauma, septic arthritis, or a congenital defect such as patella cubiti. The cub did not have a history of or evidence of trauma. Because of the high WBC count 5 days after onset of disease, septic arthritis could not be ruled out. Unfortunately, hematologic evaluations or joint fluid aspiration were not done during the initial evaluation of the elbow swelling.

The appearance of the ossification center in the cub of the present report was consistent with that of the ossification center in domestic cats. The cub's olecranon first became evident radiographically at 4 weeks of age. The olecranon center initially was seen as a disk, but developed into a triangular form.

Surgical treatment of laryngeal ossification in a tiger

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An 18-month-old 100-kg female Bengal tiger (Panthera tigris) that had been raised in captivity and that had been vaccinated against feline viral rhinotracheitis virus, calicivirus, and panleukopenia virus began training at a wildlife theme park. Although the tiger did not have a history of respiratory tract infection or overt trauma, the tiger began developing progressive respiratory stridor and exercise intolerance during the first 2 weeks of training. Treatment was not given, but the tiger was removed from training.

Two months after onset of the disease, the tiger was referred to the Veterinary Medical Teaching Hospital of the University of California at Davis for further evaluation. The tiger was alert and normal in size for its age. At rest, the tiger had an audible, upper respiratory, expiratory rattle and a faint, coarse, inspiratory wheeze. The respiratory rate was 40 to 50 breaths/min, and the tiger had continuous open-mouth breathing. The tiger was sedated with xylazine (1.5 mg/kg of body weight, IM) and ketamine (7 mg/kg, IM) to allow for complete examination. The tiger's oral and nasal cavities were normal. Thoracic auscultation was normal, except for continuous referred upper respiratory noise. The laryngeal cartilages were symmetrical, palpably enlarged, and rigid. The tracheal rings were flexible and easily compressed. Endoscopically, a symmetrical stricture of the larynx was seen in the area of the cricoid cartilages, causing an estimated 75% reduction of the luminal diameter. The vocal folds were in a normal resting position. The stricture precluded passage of the endoscope into the trachea. Radiographically, extensive irregular opacification of the thyroid, cricoid, and arytenoid cartilages was seen (Fig 1). The caudal pharynx and trachea appeared normal.

During recovery from anesthesia, the tiger developed severe respiratory distress. A tracheostomy was performed between 2 tracheal rings in the cranial cervical trachea. The tiger was given methylprednisolone (100 mg, IV) and 3,000,000 units of benzathine penicillin G (30,000 U/kg, IM).

Two days after initial examination at the teaching hospital, the cartilage protruding into the laryngeal lumen was excised. The tiger was anesthetized with xylazine and ketamine and was positioned in dorsal recumbency. Anesthesia was maintained with isoflurane and 100% oxygen via a 10-mm cuffed endotracheal tube. The cranioventral region of the neck was prepared for aseptic surgery, and a laryngotomy was performed through the cricoid membrane. The incision was extended caudally through the cricoid cartilage and cranially through the body of the cricoid.

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References
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