

Neurologic Injury—But Good Quality of Life—After Dental Surgery

This report describes a Yorkshire terrier that suffered progressive neurologic signs 2 days after dental extractions. Signs included: circling to the left, occasionally falling to the right, right-sided blindness and hemiparesis, and proprioceptive ataxia. After clinical signs progressed, MRI revealed a small skull fracture in the frontal bone and a linear tract extending from the caudal oropharynx through the left retrobulbar space and frontal lobe into the left parietal lobe. This was consistent with the observed neurolocalization to the left forebrain. Although iatrogenic periorbital injury has been reported subsequent to tooth extraction,

TBI is rarely reported. In this case, the dental elevator slipped during extraction of tooth 210; the referring veterinarian thought the elevator had entered the left retrobulbar space.

Treatment included mannitol and clindamycin. After 1 month, MRI showed continued presence of the linear tract but significant decrease in cerebral edema. Neurologic examination results improved, but right-sided blindness and absent postural reactions persisted. At 4-month and 1-year rechecks, gait and vision were normal, but right-sided postural reactions were still delayed. The tract was present but smaller. The dog maintained a good quality of life.

Penetration of the orbital floor may occur as a result of regionally thin bony structures, periodontal pathology leading to weakening of the bone, and improper extraction techniques. Techniques to reduce risk for iatrogenic trauma include using dental radiographs to assess proximity of roots to the orbit; sectioning of multiple rooted teeth; gentle, slow

elevation; and use of a finger as a stop to prevent elevator slippage.

Commentary

During dental cleanings and extractions, it is possible for an instrument to slip accidentally and, rarely, cause ocular and neurologic injuries. In cases in which periorbital or skull injuries are suspected following a dental procedure, referral for brain/head CT or MRI should be offered, particularly if the patient is exhibiting neurologic signs. The dental elevator should always be held with a finger near the tip of the instrument to minimize deep-tissue penetration in the event of accidental slippage. With extraction, a twisting rather than a pushing motion may help minimize instrument slippage. Most important, this case demonstrates that recovery and good quality of life are possible after traumatic brain injury.

—Erin Y. Akin, DVM, DACVIM

Source

Troxel M. Iatrogenic brain injury during tooth extraction. *JAAHA*. 2015;51(2):114-118.

Tumor Formation at Fracture Sites?

It has been postulated that orthopedic implants might predispose dogs and humans to subsequent bone tumor formation. The mechanism is thought to be related to bone turnover, chronic inflammation, or presence of metallic implants. However, a direct causal relationship has not been established. This case control study reviewed 19040 cases of dogs that underwent open fracture repair, those that had surgical treatment of a joint luxation, and those that developed osteosarcoma (OSA). OSA cases were only included if they were diagnosed >1 year after fracture repair.

During the 30-year time period, 19 040 dogs underwent fracture repair. OSA was diagnosed in 6565 cases, 13 of which had a prior fracture at the site >1 year prior to the time of OSA diagnosis. The femur was affected in 12/13 cases, and the remaining case involved the carpus. The risk of OSA in dogs with fracture repair was no greater than those with a joint luxation reduction; in both cases, the relative risk was 1.0.

Commentary

Osteosarcomas at atypical locations have been reported at previously operated fracture sites in both humans and animals. Earlier studies suggested a possible association with corrosion from metal implants and/or bone turnover¹; however, subsequent reports have failed to support an association.² This study provides strong epidemiologic evidence that bone fracture or fracture repair are not risk factors for developing bone

tumors. Although these rare tumors did appear most often in the femur (a less common location for OSA), the dogs were larger and of breeds that have a higher propensity for developing OSA. These data suggest that OSA should not be a significant concern for treating fractures in dogs with bone plate fixation.—Jason Bleedorn, DVM, MS, DACVS

References

1. Boudrieau RJ, McCarthy RJ, Sisson RD. Sarcoma of the proximal portion of the tibia in a dog 5.5 years after tibial plateau leveling osteotomy. *JAVMA*. 2005;227(10):1613-1617.
2. Sartor AJ, Ryan SD, Sellmeyer T, Withrow SJ, Selmic LE. Bi-institutional retrospective cohort study evaluating the incidence of osteosarcoma following tibial plateau levelling osteotomy (2000-2009). *Vet Comp Orthop Traumatol*. 2014;27(5):339-345.

Source

Arthur EG, Arthur GL, Keeler MR, Bryan JN. Risk of osteosarcoma in dogs after open fracture fixation. *Vet Surg*. 2016;45(1):30-35.