Nerve blocks are commonly used in veterinary dentistry. Inadvertent penetration of the globe because of improper technique is an important complication. A 4-year-old Chihuahua experienced transient unilateral vision loss after injection of bupivacaine into the globe during a dental procedure. The operator had attempted bilateral caudal maxillary nerve blocks via an extraoral approach using a 0.2-mL mixture of bupivacaine hydrochloride (0.5%) and epinephrine (1:200 000). For a caudal maxillary nerve block, the needle is inserted along the rostroventral border of the zygomatic arch and directed rostrally toward the opposite nostril. However, in this case, the needle was directed dorsally and into the orbit. Subconjunctival hemorrhage was noted in the left eye immediately following the procedure. Two days later, the dog presented with acute vision loss. Menace response was absent, but direct and consensual pupillary light reflexes were intact. A pearlescent multilobulated vitreal opacity, presumed to be anesthetic precipitate, and diffuse hemorrhage were present. The optic nerve was mildly hyperemic. Intraocular pressures were in the high-normal range. The lens capsule and retina were intact. The dog was treated with amoxicillin-clavulanate and carprofen. At 1-week follow-up, vision was apparently normal, menace response was present, and intraocular pressure was in the mid-normal range. The vitreal opacity had resolved, the optic nerve was unchanged, and there were no retinal abnormalities. The authors attributed the temporary vision loss to vitreal opacity and hemorrhage. Extra care should be taken to avoid accidental intravitreal injection when attempting dental nerve blocks, particularly in cats and brachycephalic dogs.

Commentary

Local dental nerve blocks are becoming more popular to help decrease patient discomfort and, in many cases, the amount of general anesthesia required when painful stimulation occurs. It is important that the person delivering the anesthetic (preferably a veterinarian) is familiar with the anatomy that the tip of the needle may encounter. In this case, the anterior chamber of the eye was inadvertently penetrated.

To avoid such a complication, we do not perform the extraoral caudal maxillary nerve block. Instead, we use the intraoral technique, depositing 0.1-0.3 mL 0.5% bupivacaine hydrochloride with epinephrine (Marcaine, hospira.com) (1 mg/kg) and lidocaine 2% (1 mg/kg) in a 4:1 ratio. (Mixing 0.8 mL of bupivacaine with 0.2 mL of lidocaine in the same tuberculin syringe accomplishes the 4:1 ratio.)

With the dog or cat’s mouth opened, palpate the zygomatic arch where it meets the maxilla between the fourth premolar and molar. Direct the needle next to the bone, and advance dorsally 1-3 mm along the caudal aspect of the notch to a level just beyond the second molar distobuccal root tips in the dog and the last molar in the cat. Aspirate the needle, and slowly inject the anesthetic agent.—Jan Bellows, DVM, DAVDC, DABVP

Source

Alessio TL, Krieger EM. Transient unilateral vision loss in a dog following inadvertent intravitreal injection of bupivacaine during a dental procedure. JAVMA. 2015;246(9):990-993.