

3D CASE STUDIES USING 16 SLICE HELICAL CT SCANNER: PART 2

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This is the second in a series introducing you to ASEC's brand new 16 slice helical CT scanner. This machine has the ability to quickly and easily formulate three dimensional images, which is very useful in surgical planning as well as virtual endoscopy. The images can be rotated in all directions in real time. We are highlighting some cases that have been recently scanned in our clinic. Please contact Dr. Reichle, our board-certified radiologist, to discuss a potential case for referral.

Case 1

"Buddy" is a 2 year old castrated male Jack Russell terrier who presented for urethral obstruction to our emergency service. Urethral calculi were retro-pulsed into the urinary bladder and a cystotomy was performed to remove the stones. Analysis identified urate uroliths; predisposing factors include breed defects in purine metabolism (e.g., Dalmatians, English Bulldogs) and hepatic dysfunction (including portosystemic shunts). Although Buddy had no clinical signs to suggest a shunt, pre and post prandial bile acids were performed, and they were severely elevated. A CT with intravenous contrast medium was recommended to identify a shunt and characterize its location prior to surgical intervention. Buddy went home 2 days after surgery and is doing well!

Figure 1: This is a 3D image viewed from the ventral aspect of the abdominal cavity. The heart (H), left and right kidneys (LK and RK), aorta (AO), caudal vena cava (CVC), and main portal vein (P) are identifiable. The portal vein has an abnormal shunting branch at the level of the cranial pole of the right kidney that loops around the left cranial abdomen and then joins the caudal vena cava more cranially (S). The portal vein diameter after giving off this anomalous vessel and the portal vasculature within the liver are diminished.

Case 2

"Sathya" is a 40 year old yellow-naped parrot with a mass along the left side

of her neck. Aspiration of the mass yielded bloody fluid. The referring vet intubated the trachea and placed an IV catheter in the right wing. We performed a whole body CT scan before and after administration of intravenous contrast medium.

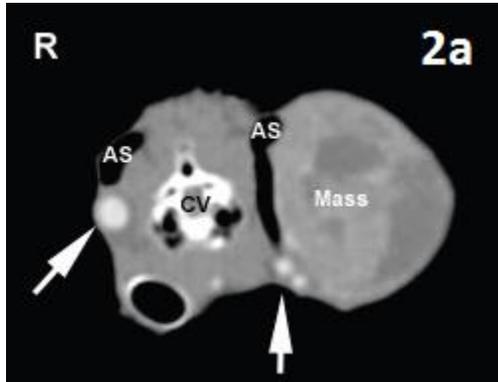


Figure 2a. This is an axial image through the cervical region (CV = cervical vertebra). The white arrows point to the left and right jugular veins; the right jugular vein is generally large in birds than the left. The mass is clearly labeled and while subcutaneous in location, it is directly adjacent to the left cervical air sac (AS) and jugular veins.

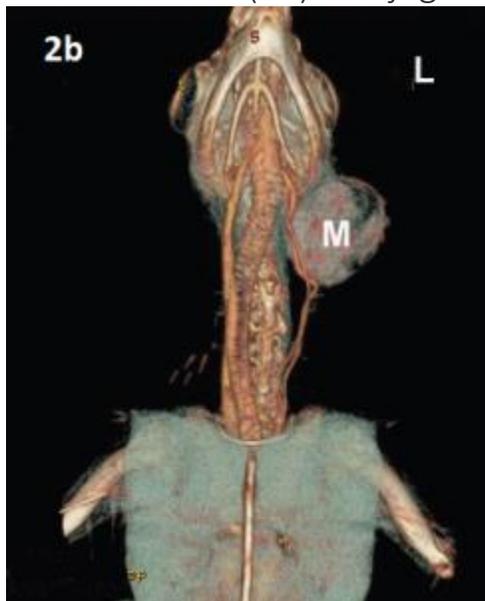


Figure 2b. This is the 3D image of the head, neck, and upper torso of the bird. This illustrates nicely the proximity of the mass to the jugular veins, cervical spine, and jaw.

Case 3

“Gonz” is an 11 year old spayed female Keeshond. She presented for a CT

scan of her skull after biopsy of a left mandibular lump yielded squamous cell carcinoma. The goal of the CT scan was to plan for mandibulectomy. Unfortunately, the patient had very limited ability to open the mouth once anesthetized, making intubation difficult. Extension of the tumor to the level of the temporomandibular joint was suspected and confirmed on this CT scan.

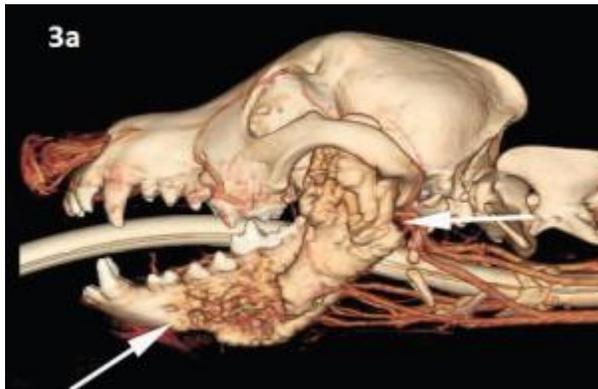


Figure 3a. This is a lateral view of the 3D image of the entire skull. The mass extends rostrally to the level of the second mandibular premolar tooth and caudally along the mandibular ramus (arrows).

Figure 3b. This is the VD view of the 3D image, showing the mass crossing midline (arrows) and extending laterally within the zygomatic arch (arrowhead).

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