



What's New at Imaging Center for Animals

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**ICA offers Imaging Services 5 days a week from
8:00AM to 5:00PM.**

The Team at **ICA** brings you information and updates about different imaging studies in veterinary medicine.

WHAT is : a multidetector CT ?

Computed Tomography (CT) allows us to acquire and reconstruct images of a thin section (slice) of a body part, eliminating the superimposition of structures that occur in conventional radiography. CT is also more sensitive to any subtle xray attenuation compared to radiology (approximately 10 times).

There have been many developments in CT technology, not only in the configuration and the software but also how the images are acquired. The basic principles remain the same where a xray tube turns around the patient, within a gantry. Opposed to the xray beam, there is a row of detectors (single or multiple). Images can be produced via axial or spiral acquisition. During axial acquisition, an image is acquired, then the table moves and a second image is acquired, and so on (Figure 1). Reconstruction of the images in a different plane shows a step-contour. Artifacts or mis-registration of a lesion can occur due to respiratory or involuntary movement between the slices.

Figure 1. Axial acquisition

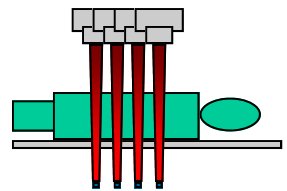
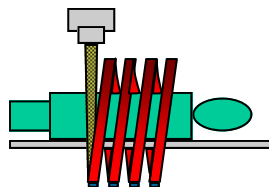


Figure 2. Spiral / Helical acquisition (single-detector)



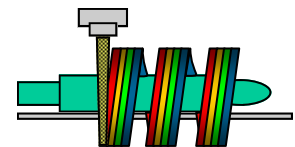
With spiral CT, also called helical CT, there is a continuous acquisition of the images as the patient moves through the gantry; the speed being constant throughout the scan (Figure 2). The acquisition is faster, however it requires more power from the xray tube. Mis-registration and artifacts due to motion are almost completely eliminated and it allows reconstruction in any plane and almost any thickness.

Recent developments in CT have brought about the technology called multidetector scanner. This generation allows the acquisition of 2, 4, 8, 16 etc slices simultaneously depending on how many rows of detectors (2, 4, 8, 16 etc..) the scanner has (Figure 3).

The higher definition, fast rotation time, and large volume coverage improve resolution, multiplanar reconstruction, 3D images and can provide virtual information. It allows imaging during periods of more intense enhancement after contrast administration.

It offers the alternative of creating thinner or thicker sections (slices) from the same raw data and consequently 3D rendering with minimal artifacts.

Figure 3. Spiral acquisition (multi detectors)



Since the **Imaging Center for Animals** has acquired a multidetector CT scanner, we have been able to provide high resolution images, much faster than previously, reducing tremendously the anesthesia time for the patients.

Following are a few examples of studies recently performed (Figure 4-9).



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Figure 4. 3D reconstruction of an elbow with DJD and osseous fragment.



Figure 5. 3D reconstruction of CT-IVP. Note the entrance of the ureters within the urinary bladder.

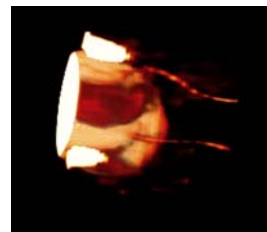


Figure 6. Reconstruction in different planes and 3D of a nasal tumor.

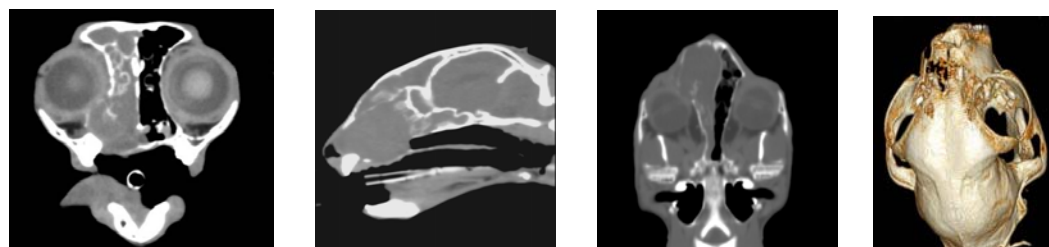


Figure 7. Note the high resolution of the inner ear ossicles, nasal turbinates, and tooth root.

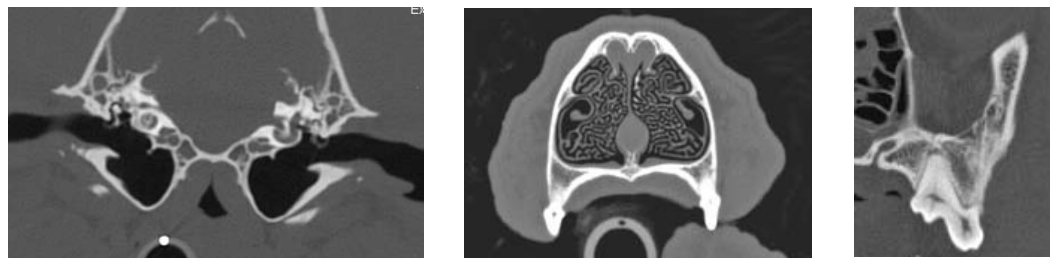


Figure 8. High resolution of the pulmonary vasculature.



Figure 9. 3D reconstruction of a zygomatic tumor.



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