

Dr. Federico Vilaplana Grosso

Whole-body computed tomographic findings in dogs with trauma

**BACKGROUND:**

Client owned dogs are commonly presented at the Small Animal Hospital of the University of Florida through the emergency and critical care service for trauma. Most common types of trauma affecting dogs are motor vehicle accidents, and bite wounds, which commonly lead to polytrauma. Polytrauma is defined as a patient with severe injuries in at least 2 or more areas of the body (Koupra J, 1990). Thoracic trauma is most prevalent in veterinary patients, with the incidence of pneumothorax ranging from 13% to 50% and lung contusions present in 43% of polytrauma patients (Sigrist NE, 2004; Kolata RJ, 1975; Lisciandro GR, 2008). Hemoperitoneum is reported as the most common abdominal injury in small animal trauma cases, documented in 23% of cases (Simpson SA, 2009). Injuries in polytrauma patients can be life-threatening, and therefore prompt recognition and treatment are paramount for a successful outcome. Whole-body computed tomography (CT) has been demonstrated to be successful imaging sedated small animal polytrauma patients (Dozeman ET, 2020). In between the different imaging modalities used to assess trauma in dogs, whole-body CT is being more utilized to assess the extension of the injuries and accurately evaluate internal lesions in dogs with polytrauma. CT provides a fast, accurate and noninvasive tool to confirm lesions in vital structures. Radiography is a very useful tool in trauma patients, however for polytrauma and trauma associated neurological patients, CT is preferred. Some of the advantages of CT compared to radiography are that it is a cross-sectional technique without superimposition of structures, is noninvasive, allows differentiation of tissues based on attenuation, allows many types of reconstructions (multiplanar, 3D...), can be performed without anesthesia, and allows administration of contrast. In addition, with CT there no need to reposition the patient to obtain the different radiographic projections and there is no need of manipulating the patient. The information obtained with CT can be used for diagnostic, therapeutic, or prognostic purposes and for surgical planning. In our institution, the results of the CT may be used to determine their candidacy for surgery, medical treatment or euthanasia.

**OBJECTIVES:** The goal of this study is first, to retrospectively determine the whole-body CT findings in dogs presented for trauma and second, to correlate those findings with the final outcomes by developing a prognostic CT-based scoring system.

**ROLE OF THE STUDENT:** 1) To perform a retrospective search in the medical records and RIS of the CVM of the University of Florida for dogs with trauma and collect all patients having a whole-body CT. Other information such as sex, breed, age, physical examination, days in hospital, clinicopathologic data, treatment modalities, final disposition and date of death will be also collected whenever available. 2) To collect and review all the CT reports of the included cases, create a list of injuries and develop of a prognostic computed tomography-based scoring system based on the type of injuries and the final outcome.

*I expect that the student will perform a thorough literature review over trauma in dogs and associated imaging. Under my guidance and mentorship, the student will be expected to become familiar with RIS, PACs and Cornerstone, as well as to perform the data collection. Statistical analysis will be performed by the student with supervision by the faculty. I expect the student to publish the data produced. rison.*