



10-1-1993

Nuclear Scintigraphy Added at New Bolton

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New Bolton Center has added nuclear scintigraphy to its array of diagnostic tools. This nuclear medicine technique allows for early diagnosis of bone and tissue injuries. It involves the injection of radioactive material, or radioisotope, into the horse and measurement of the uptake of this material in various tissues.

In a regular X-ray, a beam, produced by the X-ray machine, is passed through the horse's leg and is taken up by X-ray film. The film is processed and an image produced. For scintigraphy the horse is injected into the jugular vein with a radioisotope which is bound to a marker specifically taken up by bone. The radioisotope circulates through the blood vessels of the limb, the soft tissues, and finally bone, where it localizes for hours.

The radioisotope emits a low-level gamma ray which is measured by a gamma ray camera, and the image or bone scan is captured on X-ray film. During scintigraphy the horse emits the beam and the camera detects it. Normal bone or tissue takes up low levels of the radioisotope, but injured bone or tissue with increased circulation shows intense



uptakes and results in "hot spots" or dark areas in the scan.

Using scintigraphy, veterinarians can diagnose problems quickly, within hours or days after injury, and can diagnose subtle injuries not detectable by conventional techniques. Healing of the bone can be carefully assessed using the technique, and veterinarians can judge when training or racing can be resumed safely. When this technique is used, the

horse has to be hospitalized for three days to meet radiation safety regulations.

While scintigraphy is now used most commonly for orthopedic problems, future use will include ventilation/perfusion studies and cardiac evaluation.

Nuclear scintigraphy is part of the Sports Medicine Program at New Bolton Center. The new equipment is housed in a separate building on the Widener Hospital premises.

Curricular Change

Veterinary curricula are constantly being evaluated, updated, and changed. No area has undergone more scrutiny than the teaching of surgery. Veterinarians must be competent in all areas immediately following graduation, as there are no requirements for internship or residency. In order to better educate our students in surgery, while recognizing changing societal attitudes regarding the use of animals in teaching, we have made several changes.

The core (required) surgery courses have been revised over the past academic year. Introductory Surgical Principles, previously only a lecture course, has had laboratories added. Using artificial models, students learn how to suture, tie

knots, prepare surgical sites, and handle instruments. They also first experience hard scrubbing, gowning, gloving, and surgical draping. None of these laboratories utilizes animals.

Clinical Orthopedics has also added laboratories to reduce animal use. These involve reading radiographic films for orthopedic disease and fracture case management; a splinting lab using plastic limbs; and, a pinning and wiring techniques lab using plastic bones.

Perhaps the most important revision is the elimination of purpose bred dogs from Clinical Exercises. The Pennsylvania S.P.C.A. is providing intact female dogs for this course. Each group of three students is responsible for three dogs.

Students alternate as the surgeon, assistant surgeon, and anesthesiologist. Following normal post operative care, the dogs are returned to the P.S.P.C.A. for adoption.

The P.S.P.C.A. has also agreed to provide intact male or female dogs or cats to give our fourth year students more opportunities to spay and neuter in a neuter clinic setting. These animals will also all be returned to the P.S.P.C.A. for adoption.

We feel that these changes will better prepare our students as surgeons, while acknowledging societal change and helping the P.S.P.C.A. deal with pet overpopulation. Residents of the Commonwealth benefit as better educated veterinarians graduate to serve their needs.