



Radiography

Radiography is generally understood as the use of ionizing radiation to evaluate the cause of a disease in human or veterinary medicine. The radiation is produced in an x-ray tube for a split second. The rays penetrate the body and expose a special film. After the process of development the radiographed body part is visible on the radiographic film.

In the AOI Center the radiographic images are processed and stored digitally, so the information is available immediately, at any time and without loss of quality. The image interpretation is performed on computer work stations equipped with medical-graded high-resolution monitors to provide ideal processing and visualization. Additionally, the radiographs and viewing software are burned on CD, so the referring veterinarian and the patient's owner can easily look at the images.

Two separate rooms for radiography are available: one for horses and one for small animals. The room for horses is easily accessible through a large gate and the horse trailer can be positioned in front of this door.

Procedure

The procedure of taking radiographs is essentially the same in horses and small animals. However, horses are radiographed in standing position while smaller animals like dogs, cats, guinea pigs or birds are lying down on a special table. In most patients the examinations are performed on the awake or mildly sedated animal. However, depending on the problem and the patient's temperament, a deep sedation or – in small animals – a short general anesthesia can be necessary. The reason is that, similar to photography, the object of interest (i.e. the patient) has to be absolutely motionless during the exposure. Otherwise, sharpness of the radiograph and therefore its diagnostic value are diminished. Additionally, special positions of the patient are necessary to get adequate representation of some body parts, which would not be tolerated without sedation or general anesthesia.

Indications

Indications for radiographic examinations are variable, so only some examples are highlighted below. The decision to obtain radiographs or to



perform another imaging examination depends on the individual case.

Chest: The main organs of interest in the chest are lung and heart. Normal lung tissue contains a lot of air, so the x-rays easily penetrate it. If the air content is reduced as in pneumonia, lung edema or lung tumors, an increase in opacity is visible on the radiographs. Heart problems can be difficult to diagnose on radiographs, but changes of the typical shape of the heart can give a hint of the definite diagnosis. On plain radiographs, the esophagus might not be visible adequately and a repetition of the radiographs may be necessary after administration of radio-opaque contrast medium.

Abdomen: The multitude of organs in the abdominal cavity can only be distinguished by fatty tissue between these organs. However, changes

in size, shape, opacity and position can be assessed, e.g. a rotation of the stomach around its axis, obstruction of the bowels, urinary bladder stones or bigger nodes of spleen or liver. Often-times, radiographs of the abdomen serve as survey to decide if further studies (e.g. ultrasonography or contrast studies of the urinary tract) are necessary.

Musculoskeletal system: Classical indications for radiography are bone fractures and degenerative or developmental abnormalities of joints. Usually, bone tumors are visible on radiographs as well. On the contrary, soft tissue structures like tendons and ligaments are not easily visible on radiographs and other diagnostic modalities like ultrasonography, computed tomography or magnetic resonance tomography are needed for their evaluation.