

Eight patients were subsequently shown to have central tumours, four bacterial pneumonia and one pressure collapse. Arterial waveforms were seen 11/13, i.e. high resistance pulsatile with little variation. Venous waveforms in 11/13, i.e. pulsatile variable mirroring the left atrial (LA) contractions. One patient showed a marked reduction in systolic peak velocity suggesting post stenotic damping in what was subsequently shown to be a central tumour compressing vessels. One patient had no detectable arterial flow and was subsequently shown to have virtual occlusion of his right main pulmonary artery. Two patients showed a rumbling low velocity venous waveform, one possibly representing flow within tumour. The other, within normal lung is thought to be due to loss of left atrial activity suggesting subsequently confirmed upstream occlusion by invasive tumour.

Involvement of the medial pterygoid muscle in masticatory muscle myositis

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Masticatory muscle myositis (MMM) has been reported in dogs frequently but involvement of the orbital components of this muscle group has not been demonstrated although clinical reports have suggested it.

A prospective study was performed on dogs diagnosed as suffering from MMM. The diagnosis was based on clinical findings, electromyography (EMG) and histopathology/cytology.

B-mode ultrasonography was used to examine the medial pterygoid muscle of ten dogs. All patients had EMG findings of fibrillation potentials and positive sharp waves in the temporal muscle and in the medial pterygoid muscle. Six dogs had ultrasonographic evidence of swelling of the medial pterygoid muscle; this was a consistent feature in dogs with exophthalmos and/or temporal muscle swelling at the time of examination. Fine needle aspiration biopsy demonstrated mixed inflammatory cell infiltrates in all the muscles biopsied.

Ultrasonographic assessment of the dimensions of the mandibular salivary gland in the dog

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Ultrasonographic assessment and measurements were performed on the mandibular salivary glands of dogs with no clinical signs of salivary gland disease. The normal sonographic appearance and the anatomic relationships of the gland were identified in all dogs.

Two imaging planes were used to measure length, height and width. The salivary gland volume was estimated using a prolate ellipsoid model. These results were compared with body weight using a Pearson correlation coefficient and a significant correlation was identified. The dimensions of the glands were also compared with the length of the second lumbar vertebra in a smaller sample of dogs; a significant correlation was noted. Volume and height of the glands had the best correlative values.

These results suggest that ultrasound examination is a useful tool for the assessment of mandibular gland dimensions in dogs and may be of clinical value in the assessment of disease where the dimensions are afflicted.

The role of ultrasound in the investigation of renal failure in a cheetah

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A 5-year-old male cheetah presented with a history of vomiting and polydipsia. Blood tests showed slightly increased levels of urea and creatinine and a reduction in the urine specific gravity. A provisional diagnosis of renal failure was made. Proposed investigations included repeat blood and urine samples, X-rays, renal biopsy and a thorough clinical examination performed under general anaesthetic. The animal was darted and intubated due to the length of time required to complete the tests. A wide area of the cheetah's abdomen was shaved to allow adequate contacts for the 12 cm linear array transducer.

The left kidney in a cheetah is more caudal than the right (the opposite to humans). RIGHT KIDNEY = T13 – L2 level. LEFT KIDNEY = L2 – L4 level.

The major organs including spleen, liver, gall bladder, both kidneys and particularly the aorta and IVC were located. These were surprisingly superficial and mobile. The ultrasound appearances of the kidney in the cheetah are different to those in the human. DIAGRAM

The left kidney was palpated with the cheetah in the right decubitus position and the biopsy needle inserted. This was positioned with the aid of ultrasound well away from the aorta, hilar vessels and renal medulla with clearance to allow the needle to be fired safely. Two renal biopsy specimens were obtained.

An attempt to obtain a urine specimen by urethral catheterisation failed. Ultrasound was then used successfully to locate the bladder and obtain a sample of urine percutaneously.

This case shows that ultrasound can be used in the cheetah to obtain biopsy specimens and samples from internal organs. Ultrasound improves the safety and accuracy of such procedures, thus preventing inadvertent damage to surrounding structures and reducing potential complications.

We recommend more widespread use of the technique.

Evaluating ultrasonographic imaging of the canine prostate

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Ultrasonography is becoming a more commonly used diagnostic tool in the investigation of prostatic disorders in dogs. The anatomical position of the prostate can vary considerably depending on its size and tissue characteristics and so a number of choices of acoustic windows and transducer format have been proposed for the investigative technique. The purpose of this presentation is to evaluate these variations for the different types of pathology encountered in canine prostatic disease. Both sector and linear format scanners were used to

examine a series of 25 ($n = 25$) dogs with a range of transducers including mechanical sector, microconvex linear and a dedicated human endorectal probe. Frequencies ranged from 3.75 to 7.5 MHz. The series included prostatic cyst and abscess, paraprostatic cyst, benign hyperplasia and neoplasia. The ultrasonographic appearance of the various pathological changes of the prostate was classified and the preferred imaging was in cross-section at the widest point with the urethra located centrally. This could usually be obtained from a prepubic window but the endorectal probe was of use where the diseased prostate was retained intrapelvically. The 7.5 MHz proved the transducer of choice for all but the largest dogs being of a microconvex format. Ultrasonographic imaging of the canine prostate proved to be a reliable diagnostic tool in the further investigation of canine prostate disease.

Gray-scale analysis of the uterus during delayed implantation in roe deer

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The roe deer (*Capreolus capreolus*) has developed a special mechanism of embryo conservation, the delayed implantation (DI), in order to adapt to seasonal changes in vegetation. During DI embryos show a retarded growth phase (August–December). The implantation of the conceptus occurs at the end of 5 months long DI in late December. Throughout DI, conception in roe deer cannot be distinguished endocrinologically as roe deer elaborate equal progesterone levels until long after implantation. This study quantifies sonographical changes in the endometrium occurring in pregnant roe deer within the last month of DI using grey-level analysis. The genital tract of eight roe deer were monthly, transrectally examined throughout DI and gestation. Per animal and examination three echo frames of the uterus were digitised in a TIF-format (Intel Smart Video, Intel Inc., Soft-Imaging Software, GmbH). For analysing the endometrial grey-level distribution a standard sized frame was placed at three different sites of the endometrium. The ultrasonographic texture of the endometrium in pregnant and non-pregnant roe deer showed no differences during the first 4 months of DI. In the last month of DI in late November the four dam showed changes in the sonographic texture of the endometrium. Grey-level histograms of the endometrium of pregnant dam had significant lower medians than of non-pregnant dam. The analysis of gray-level distribution proved to be adequate to describe the endometrial changes at the end of DI. All four roe deer exhibiting changes of endometrial echotexture proved to be pregnant by the detection of embryos in early January.

Grey-level analysis is, therefore, a potential procedure for pregnancy diagnosis in roe deer 1 month before implantation occurs in late December as progesterone-/oestrogen-levels rise in January.

Ultrasound structure and function of abnormal follicles in cattle

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Background: The practising veterinary surgeon has to predict the endocrine status of abnormal ovaries at a single examination. In experimental animals, the development of ovarian follicles > 5 mm diameter was monitored by daily examination per rectum. The production of oestradiol by large, persistent follicles (cysts) was closely correlated with the simultaneous absence of other follicles > 5 mm diameter. This study assessed the use of on-farm ultrasound in the evaluation of the endocrine status of clinical cases with ovarian abnormalities.

Methods: In a commercial cattle practice, 43 lactating dairy cows with large ovarian cysts were identified on palpation per rectum by one veterinary surgeon. Both ovaries were examined using an Aloka 210 DX with 7.5 MHz rectal transducer, and a blood sample taken. The thickness of the cyst wall, the diameter of the fluid antrum and the concurrent presence of follicles > 5 mm diameter were recorded.

Results: Twenty animals had a thick-walled cyst (5.0 ± 0.4 mm), and this was associated with high plasma progesterone values (3.24 ± 0.28 ng/ml). The remaining 23 animals had a thin-walled cyst (2.5 ± 0.2 mm), and this was associated with low plasma progesterone (0.28 ± 0.05 ng/ml, $P < 0.05$).

Plasma oestradiol was measured in 18/20 animals with thin-walled cysts. The oestradiol concentration was higher in those animals that did not have any other follicles > 5 mm ($n = 12$) compared with those animals that did have other follicles > 5 mm ($n = 6$, 19.5 ± 3.3 vs. 7.9 ± 1.8 pg/ml, respectively; $P < 0.03$).

Conclusions: Cysts with thick walls are associated with high plasma progesterone concentrations. For cysts with thin walls, the simultaneous absence of medium-sized follicles indicates an oestradiol producing cyst.

Sterilisation during breast biopsy procedures: assessment of practice in NHS breast screening units

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This study assesses the sterility of breast biopsies under US. All breast screening units received a questionnaire of which 73 replied. An average 300 biopsies/year were performed (range 0–3100). Nine centres performed < 50/year and 4 centres > 900/year. The mean number of US biopsies performed was 80/year. (range 0–400). Seventeen centres performed > 100 biopsies/year and 18 centres < 10 biopsies/year. Written consent was obtained for FNA in 3/73 centres. Forty-one centres perform Tru-cut biopsies, seven obtain written consent prior to this procedure, only one centre gets written consent for both. Twenty-seven out of 73 use sterile packs for FNA's. Twenty-nine out of 41 centres performing Tru-cuts use sterile packs. The majority of centres (55) sterilise the skin with a 'Steriswab' only, 29 centres use an alcohol solution and a minority (13) of centres use both. Twenty-four units sterilise the transducer with an alcohol wipe prior to biopsy, 46 centres do not. One unit only immerses the transducer in sterilising fluid. Two units cover the transducer with a sterile condom.