AGED-RELATED ACCUMULATION OF LIPOFUSCIN IN THE BRAIN OF DOGS

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Introduction: Lipofuscin is a pigment that accumulates in the process of ageing, mainly in post-mitotic long living cells (e.g. neurons and myocytes). The pigment consists of various intracellular substances and accumulates primarily in lysosomes.

Materials and Methods: Brain samples were collected from 59 dogs submitted for necropsy examination. Dogs were divided into four groups according to age: group A, up to 5 years; group B, 5−10 years; group C, 10−15 years; and group D, >15 years. Parts of the brain (frontal cortex, parietal cortex, hippocampus, cerebellum and medulla oblongata) were fixed in 10% neutral buffered formalin and processed routinely. Sections (5 μm) were stained with haematoxylin and eosin, periodic acid−Schiff and Ziehl−Neelsen techniques.

Results: Pigment was detected in 80% of the dogs in group D, while this percentage was 30% in group A. In groups A and B, lipofuscin accumulated only in neurons of the medulla oblongata. In groups C and D lipofuscin was detected in various percentages in neurons of all brain sections.

Conclusions: The presence of lipofuscin in neurons was shown in dogs of all ages. The number of positive animals increased proportionally with age. Lipofuscin most often accumulated in large neurons of the nuclei of the medulla oblongata. The accumulation of lipofuscin pigment in neurons increases with the age of the dog and becomes more widespread, involving neurons of different brain regions.

HIGH-FLOW PRIAPISM SUBSEQUENT TO LUMBAR SPINAL STENOSIS IN A DOG

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Introduction: Priapism, a persistent involuntary erection of the penis lasting for more than 4 h, is uncommon in dogs. Priapism may be classified as non-ischaemic or high flow and ischaemic or low flow. In the dog, the later is described more frequently. Ischaemic priapism is an emergency and often leads to amputation.

Materials and Methods: A 13-year-old male pointer was presented for persistent priapism, which followed intermittent episodes of priapism over the preceding 2 weeks. The change was attributed to inflammation and haematoma formation associated with a perianal bite. The owners became unable to retract the penis into the prepuce and requested that the dog be humanely destroyed.

Results: The dog was anorectic for 48 h and showed poor body condition and unsteady locomotion. Complete blood count and serum biochemistry were unremarkable. At necropsy examination, penile and prepucial evaluation showed vessel engorgement and blood accumulation within all of the cavernous spaces, accompanied by congestion and thrombosis within the corpus cavernosum. As no significant changes were observed in the pelvic organs, the lumbosacral spinal regions were inspected. Signs of L7−S1 stenosis due to spondylosis were observed.

Conclusions: This case represents rare high-flow priapism of neurogenic origin. Necropsy examination suggested that the priapism was subsequent to cauda equina compression due to lumbar spinal stenosis.

MORPHOLOGIC EVALUATION OF THE AGEING PROCESS IN BOVINE PERIPHERAL NERVES

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Introduction: During the ageing process multiple degenerative changes occur in nervous tissue involving axons, myelin sheaths and connective tissue. These processes have been investigated in man and other mammals, but not in cattle. We report the morphological changes in bovine peripheral nerves.

Materials and Methods: Samples of nerves (axial dorsal metacarpal) from 27 slaughtered aged cows (10−20 years) were submitted for morphological evaluation and biochemical analysis. Animals were grouped in three age groups and possible associations between the histological findings and age were investigated.

Results: Axonal degeneration, demyelination, thickness of perineurium and endoneurium were the most important detected features. Numerous perivascular mast cells were also observed. All lesions showed a significant (Kruskal Wallis with post hoc paired comparisons, $P < 0.05$) increase in severity between the age groups. Biochemical analysis revealed a significant increase (Kruskal Wallis with post hoc paired comparisons, $P < 0.05$) of glycosaminoglycan content between the oldest and the control group.

Conclusions: Most of the findings are similar to those described in aged people and in laboratory species. This is the first study of age-related changes of bovine peripheral nerves. Further investigations are needed to better understand the mechanism of these changes.

EFFECTS OF GLUCOSAMINE SULPHATE, CHONDROITIN SULPHATE AND HYALURONIC ACID ON ARTICULAR CARTILAGE

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Introduction: The aim of this study was to test the effectiveness of treatment with glucosamine sulphate (GS), chondroitin sulphate (CS) and hyaluronic acid (HA) in an experimental model of osteoarthrosis (OA) in rabbits.

Materials and Methods: Surgical OA was induced in one femorotibial joint of 24 rabbits divided into four groups: OA, treated with vehicle, GS, CS and HA. Treatment began 3 weeks after surgery and lasted for 8 weeks. Contralateral joints were used as controls (CTRL-OA, CTRL-GS, CTRL-CS and CTRL-HA). Samples were processed using the Donath technique for plastic and measured cartilage thickness (CgTh) and superficial fibrillation (FI). CgTh was measured independently for non-calcified cartilage (nCgTh) and calcified cartilage (cCgTh).

Results: OA led to a significant increase in all parameters relative to CTRL-OA. GS showed no effect against OA or CTRL-GS. CS showed no differences against OA and CTRL-CS for CgTh, but a difference in FI with CTRL-CS, which might suggest less effectiveness in preserving surface. HA had a small positive effect in cCgTh in OA.

Conclusions: The three treatments were able to partially reverse structural effects of OA, particularly swelling, restoring CgTh close to that of healthy joints. GS and HA, but not CS, could also prevent superficial fibrillation.