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Hydrocephalus in dogs: a review

Przyborowska P, Adamiak Z, Jaskolska M, Zhalniarovich Y:

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[fulltext]

Hydrocephalus is a multifactoral disorder that was rarely diagnosed in dogs until the availability of advanced imaging techniques in veterinary practice. This article reviews recent advances in the understanding of canine hydrocephalus including pathogenesis, clinical symptoms, diagnostic methods, and treatment solutions. The advantages and disadvantages of USG, RTG, CT and MRI as advanced diagnostic methods are discussed. For now Low-field Magnetic Resonance Imaging is the most useful tool in investigating hydrocephalus. The recommended sequences for MRI are T1-weighting images Spin echo, Field echo 3D with TR 380–750 ms, TE 12–25 ms,

interslice gap of 0–2 mm. The evaluation of cerebral ventricular system morphology in obtained MRI scans involves measuring the height, area and volume of the brain and lateral ventricles. The results are classified as normal state if the ratio of ventricular height to the brain height is above 14%, the ratio of ventricular area to the brain area amounts to above 7%, and the ventricular to brain volume ratio is above 5%. However, there are still problems relating to inter- and intrabreed comparison among examined dogs. Treatment solutions in hydrocephalus are also discussed in this review. The medical treatment of hydrocephalus aims to decrease CSF production and is based on using acetazolamide, furosemide and prednisone. Surgical management aims to place the ventriculoperitoneal shunt for CSF flow control. Postsurgical complications are also described in this review.

Keywords:

canine hydrocephalus; cerebrospinal

fluid; magnetic resonance imaging; ventriculomegaly; ventricular asymmetry; medical treatment; ventriculoperitoneal shunt

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