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IDENTIFICATION BY COMPUTED TOMOGRAPHY OF THE CEREBRAL VENTRICLES IN CLINICALLY NORMAL DOGS

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Summary

Computed tomography provides a detailed description and is considerate means for a better evaluation all the structures of the cavity of the head.

Structure on of the cerebral ventricles matched on the correspondent anatomic region based on CT scans and anatomical structures of this cavity was described.

Key words: computed tomography, cerebral ventricle, dog.

The clinical diagnostic through conventional methods of neurological disease in dogs is very difficult to be assessed.

Computed tomography represents the most important investigation method for establishing a proper diagnostic (2).

A good knowledge of the normal aspect and the size of cerebral ventricles in dog are required for a better interpretation and identification of the morphological features of the region (1, 3).

The aim of the study was to identify and describe the cerebral ventricles that are visible on the CT images of the clinically normal dogs.

Materials and methods

Two clinically normal German shepherd dogs were used for this experiment. After anaesthesia by using a combination between acepromazine 0,15 ml/ 10kg/mc (Aceprom®) and ketamine 10 mg/kg/mc (Ketamidol 10%, Intervet®), the dogs were placed in the ventral recumbency and transverse scans of the head were obtained.

The CT images were examined and interpretated by identifying the shape, size and the disposition of the cerebral ventricles, corresponding to the plans where the slides were done (1/4, 2/8, 3/28, 4/26).

Results and discussions

In the longitudinally plan of the cerebral hemispheres 20 slices were obtained and the slide 20/14 which passes median through the cerebral ventricles was chosen for description.

Each cerebral ventricles appears to be placed medially in the correspondent cerebral hemisphere, being divided by the septum of telencephalon and having the aspect of lighter colour band.

The cavity of the lateral ventricles is curved and its concavity is orientated laterally.

In the rostral extremity of the cerebral cavity the caudate nucleus protrudes and in the temporal part the hyppocampus is placed. The cavity of cerebral ventricles is represented in a darker mode.

In the longitudinally section the semi-oval centre can be identified being placed laterally to each ventricle and is delimitate by the lateral grooves and the convolutions of the cerebral hemispheres (Fig. 1).

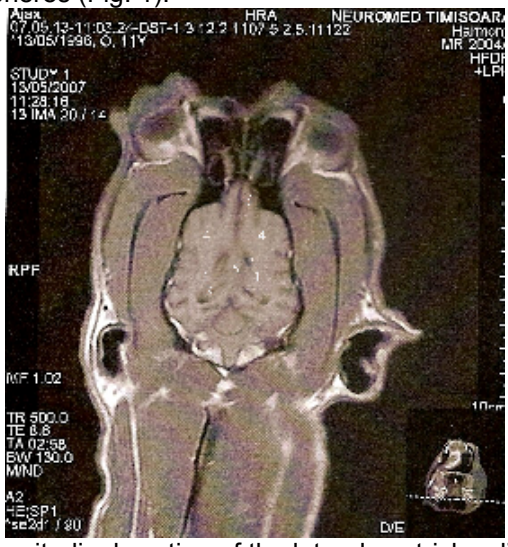

Fig. 1. Longitudinal section of the lateral ventricle, slide 20/14
1. Lateral ventricle; 2. Caudate nucleus; 3. Hippocampus; 4. Semioval centre; 5. Septum telencephalon; 6. Olfactory bulb.

In the transversally plan 34 slides were done and five slides were described as examples. In the slide 9/19 the section is made through the temporal horn of the lateral ventricle and through the aqueduct of mesencepahlon (Fig. 2).

Lateral ventricles look like an oblique slot and the aqueduct of mesencephalon has the aspect of a circular small hole placed in the dorsal middle of the mesencephalon.

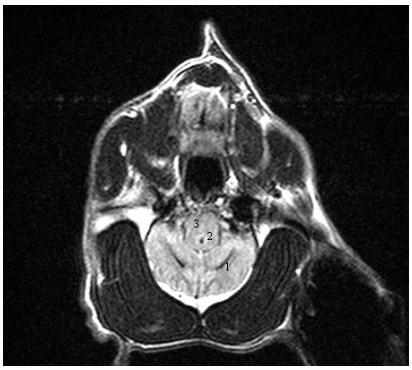

Fig. 2. Transversal section of the lateral ventricles, slide 9/19
1. Lateral ventricle; 2. Aqueduct of mesencepahlon; 3. Mesencepahlon.

The slide 11/19 a transversal section that passes through the lateral ventricles and the third ventricle is represented (Fig. 3).

The lateral ventricles have an oval shape and perforate the corresponding cerebral hemisphere. The third ventricle surrounds the intertalamic adhesion and has the shape of two dark points placed in the median axe of the encephalon.

Fig. 3. Transversal section through the third ventricle, slide 11/19
1. Lateral ventricles; 2. Third ventricle.

The aqueduct of mesencephalon is represented in the slide 9/15, having an oval shape in the centre of mesencepahlon and ventrally is remarked the rostral extremity of the cerebellum (Fig. 4).

Fig. 4.Transversal section of aqueductus mesencephalon, slide 9/15
1. Aqueductus of mesencephalon; 2. Mesencephalon; 3. Cerebral hemispheres; 4. Cerebellum.

The slide 7/15 passes through the fourth ventricle by sectioning the cerebellum and the medulla oblongata. The fourth ventricle is curved, having the concavity orientated ventrally, and dorsally the vermis is disposed surrounded by the cerebelli hemispheres and ventrally by medulla oblongata (Fig. 5).

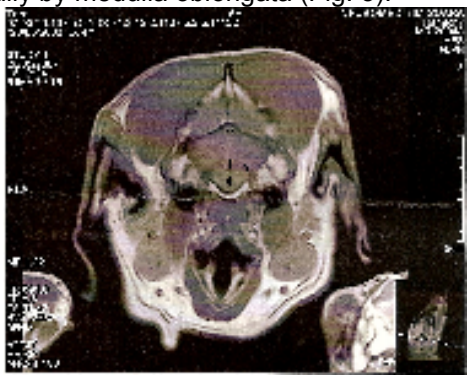

Fig. 5. Transversal section through the fourth ventricle, slide 7/15
1. Fourth ventricle; 2. Vermis; 3. Cerebelli hemispheres; 4. Medulla oblongata.

Conclusions

The shape and the dimension of the lateral ventricles depends the level of the section.

The third ventricle appears as two overlapped points.

The aqueduct of mesencephalon is oval and centers the mesencephalon.

The fourth ventricle is curved, with concavity orientated dorsally.

References

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