

Congenital Hydrocephalus

Chelsie M. Estey, MSc, DVM

KEYWORDS

- Hydrocephalus • Brain • Cerebrospinal fluid • Ventricular system
- Ventriculoperitoneal shunt

KEY POINTS

- There are several types of hydrocephalus, which are characterized based on the location of the cerebrospinal fluid (CSF) accumulation.
- Physical features of animals with congenital hydrocephalus may include a dome-shaped skull, persistent fontanelle, and bilateral ventrolateral strabismus.
- Medical therapy involves decreasing the production of CSF.
- The most common surgical treatment is placement of a ventriculoperitoneal shunt.
- Postoperative complications may include infection, blockage, drainage abnormalities, and mechanical failure.

INTRODUCTION

A current definition of hydrocephalus is an active distension of the ventricular system of the brain that results from inadequate movement of cerebrospinal fluid (CSF) from the point of production within the ventricles to its point of absorption.¹ Congenital hydrocephalus typically occurs because of an interruption of CSF flow or defective CSF absorption; hydrocephalus is rarely caused by an increase in CSF production. CSF is formed primarily by the choroid plexus in the lateral, third, and fourth ventricles at a rate of 0.047 mL/min in dogs and 0.017 mL/min in cats.² Additional CSF is secreted by the ependymal lining, the external pial-glial membrane on the surface of the brain, and by the blood vessels in the pia-arachnoid.^{3,4} Production of CSF is independent of CSF hydrostatic pressure and occurs at a constant rate; however, it depends on osmotic pressure. Normal CSF flow begins in the lateral ventricles and travels through the interventricular foramen to the third ventricle, and from this point it enters the mesencephalic aqueduct to emerge in the fourth ventricle (Fig. 1). From the fourth ventricle, CSF exits via the lateral apertures to enter the subarachnoid space. Movement of CSF through the ventricular system is caused by pumping of blood in the choroid plexus. The bulk of CSF absorption takes place at the arachnoid villi and to a lesser degree via venous and lymphatic drainage around spinal and

The author has nothing to disclose.

Upstate Veterinary Specialties, 152 Sparrowbush Road, Latham, NY 12110, USA

E-mail address: cestey@uvsonline.com

Vet Clin Small Anim ■ (2015) ■–■

<http://dx.doi.org/10.1016/j.cvsm.2015.10.003>

vetsmall.theclinics.com

0195-5616/15/\$ – see front matter © 2015 Elsevier Inc. All rights reserved.

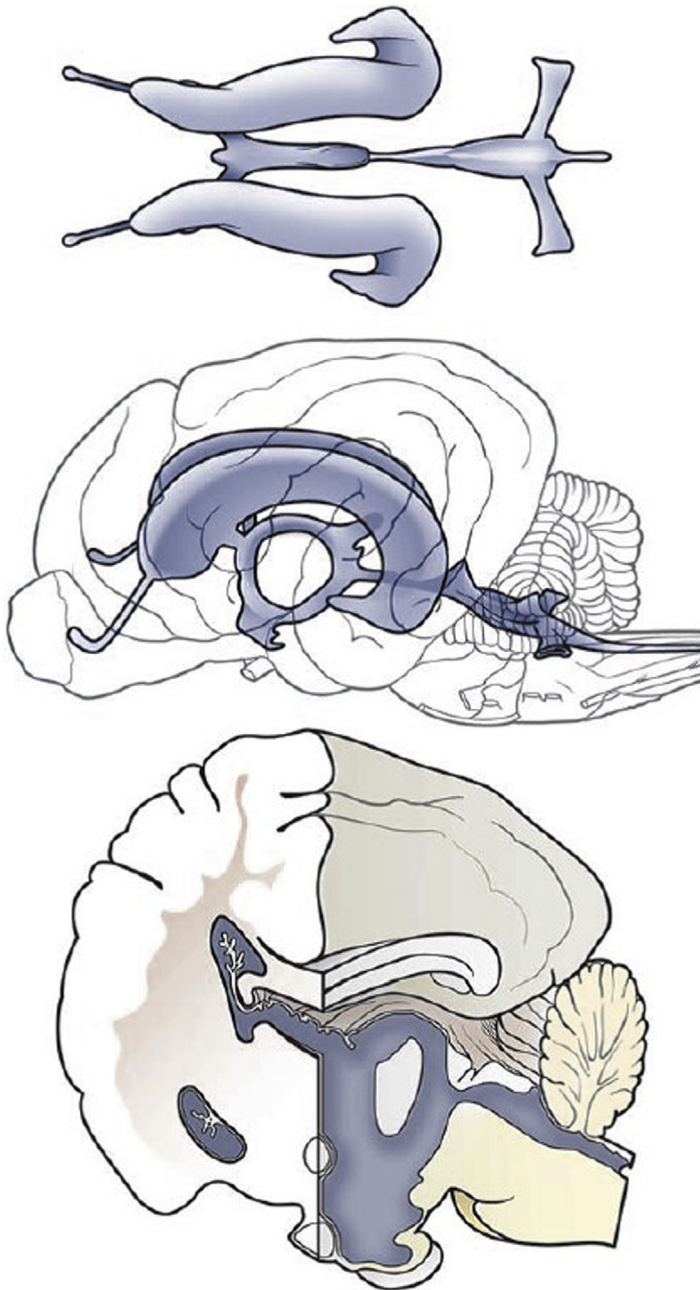


Fig. 1. The normal ventricular anatomy of the canine brain. (From Dewey CW, Marino DJ. Congenital brain malformations. In: Tobias KM, Johnston SA, editors. *Veterinary surgery, small animal*. Philadelphia: Elsevier; 2012. p. 518; with permission.)

Download English Version:

<https://daneshyari.com/en/article/2460120>

Download Persian Version:

<https://daneshyari.com/article/2460120>

[Daneshyari.com](https://daneshyari.com)