

## Syringomyelia

### What is it?

Syringomyelia is a progressive neurological disease. Symptoms may be mild at first, but most (not all) continue to worsen throughout the life of the affected dog. Early signs are pain around the head, neck and shoulders which may be expressed by excessive scratching at the area. As the disease progresses, the dog may experience so much pain in the head and neck that it may carry the head high, even when eating and sleeping. There may also be progressive weakness in the hind legs, which can progress to paralysis.

### Is there a treatment?

In the early stages, the symptoms, but not the progression of the disease, can be treated medically with antiinflammatory drugs, diuretics and corticosteroids. Surgery with placement of shunts is also an option, and may halt progression, but is very expensive and is not without complications.

### What causes it?

There is much scientific debate on the specific anatomic cause of the disease; a mismatch in the size of the rear skull and the brain may prevent normal circulation of cerebrospinal fluid. When the fluid pressure builds up it tears through spine tissue and creates fluid filled pockets called syrinxes. These space occupying lesions destroy nervous tissue by creating pressure. There is consensus however, that the more brachycephalic the shape of the skull, the more likely that syringomyelia may result. There are a number of caudal fossa and cervical spine abnormalities that may be associated with syringomyelia.

### Is it genetic?

The inheritance of the condition is not known. Because a number of different anatomic abnormalities may be seen, it is believed that the inheritance is multifactorial with variable expression. What this means is that while many dogs with malformations will develop syringomyelia, not all of them will have the disease.

The breed with the highest reported incidence is the Cavalier King Charles Spaniel. A study of 555 CKCS that were symptom free found that 25% of 1-year olds and 70% of dogs over 6 years had lesions of syringomyelia. Another report of a study of 804 CKCS estimated the lifetime risk in the breed for developing syringomyelia was 55%. Other brachycephalic breeds in which cases have been recorded include the Affenpinscher, Brussels Griffon, Boston Terrier, Bull Terrier, Chihuahua, French Bulldog, Havanese, English Toy Spaniel, Maltese, Miniature and Toy Poodle, Papillon, Pomeranian, Pug, Shih Tzu, Staffordshire Bull Terrier, and Yorkshire Terrier.

### What can we tell breeders?

Syringomyelia is a particularly difficult condition to evaluate. The symptoms are not expressed in young puppies, but may develop years later. There is currently no way to know whether an apparently normal dog is in fact normal, or is a carrier, or will develop symptoms later in life. Being a brachycephalic dog is a documented risk factor.

Various anatomic abnormalities of the skull and cervical spine have been associated with developing syringomyelia, but many dogs with these abnormalities are normal and do not develop disease. The number of dogs with anatomic lesions but without disease is likely much higher than we know; in the absence of any health problems, they are not likely to have been screened. In addition symptoms and lesions of syringomyelia may also be caused by brain tumors, cysts, or brain trauma.

### How is it diagnosed?

The only definitive diagnosis of syringomyelia is by MRI. The Cavalier Health Committee([www.cavalierhealth.org](http://www.cavalierhealth.org)) has compiled the list of MRI centers which follows (used with permission of the editor – note that the reduced prices have been negotiated by the Cavalier club, and if you elect to go to one of these centers, you should discuss the breed and costs up front):

## **Reduced Rate MRI Clinics in United States and Canada**

<http://cavalierhealth.org/syringomyelia.htm> (14 of 55) [3/19/2012 2:57:26 PM]  
Syringomyelia (SM) and the Cavalier King Charles Spaniel

The names and locations of veterinary neurologists who are board certified by the American College of Veterinary Internal Medicine (ACVIM) are on our **Neurologists** webpage. Some MRI clinics which are offering reduced rates for partial scans of cavaliers are listed below. Be aware that prices for MRI scans at these clinics are subject to change and may not include other services which are necessary for a complete analysis of the dog's condition. Veterinarians who perform MRIs are advised to follow the **MRI Screening Protocol**.

**LOS ANGELES, CA:** Through January 2012, **Dr. Sheila Carrera-Justiz**, board certified veterinary neurologist, offers mini-scans for \$750.00, which include the consultation, anesthesia, a copy of the MRI on CD and interpretation. The scan is from the interthalamic adhesion to C5 or lower. It also covers axials of the tympanic bullae to evaluate for PSOM. Blood work no older than one month is required and can be performed at the clinic. Contact Dr. Carrera-Justiz at VCA-West Los Angeles, at 1818 S. Sepulveda Blvd., Los Angeles, CA, 90025, Tel: 310-473-2951, Email: [sheila.carrera-justiz@vcahospitals.com](mailto:sheila.carrera-justiz@vcahospitals.com), website: [www.vcawla.com](http://www.vcawla.com)

**LOS ANGELES, CA:** Beginning in February 2012, **Dr. Veronique Sammut**, board certified veterinary neurologist, offers mini-scans for \$750.00, which include the anesthesia, a copy of the MRI on CD and interpretation. The scan is from the interthalamic adhesion to C5 or lower. It also covers axials of the tympanic bullae to evaluate for PSOM ("glue ear"). Recent blood work (no older than one month) is required or can be performed at the hospital. Contact Dr. Sammut at VCA-West Los Angeles, at 1818 S. Sepulveda Blvd., Los Angeles, CA, 90025, Tel: 310-473-2951, Email: [veronique.sammut@vcahospitals.com](mailto:veronique.sammut@vcahospitals.com), website: [www.vcawla.com](http://www.vcawla.com)

**REDWOOD CITY, CA:** AnimalScan at 410 Brewster Avenue, Redwood City, CA 94063, telephone 650-480-2001, email [info@animalscan.org](mailto:info@animalscan.org) See Easton, PA entry for details.

**GAINESVILLE, FL:** **Dr. Thomas A. Schubert**, board certified veterinary neurologist and Chief of Neurology Service at the University of Florida's College of Veterinary Medicine, offers cavaliers an MRI Package for \$650 to \$750 per dog. This includes a full physical and neurological exam, general anesthesia and recovery, the MRI, consultation about the findings from the MRI, and a copy of the MRI to take home. Owners that would like to bring more than 3 dogs may be eligible for a discount on the exam fee. However, this must be discussed before you come for your appointment or you will not be given a discount. If your CKCS, has a history consistent with possible PSOM and the MRI confirms this diagnosis, then treatment can be performed during anesthesia for this MRI with the school's Dermatology Service for the additional cost of \$350 to \$500. This option must be discussed and arranged prior to appointment day. The conditions for this low fee are: (a) the owner brings a current blood test report (no more than two weeks old); and (b) there are no complicating health issues, such as heart problems. Contact Dr. Schubert's technician, Amy Reynolds, email [Reynoldsa@ufl.edu](mailto:Reynoldsa@ufl.edu)

**NAPLES, FL:** **Dr. Michelle Carnes**, board certified veterinary neurologist at Animal Specialty Hospital of Florida, offers an MRI package for asymptomatic (non-clinical) patients at \$900.00 (for three or more dogs), \$1,000.00 (for two dogs), and \$1,100.00 for one dog. The MRI scan is a mini-scan from interthalamic adhesion to C5. The price includes a neurologic exam/physical prior to the scan and a consultation following the scan for review of study, anesthesia, a written interpretation of the scan, and a copy of the MRI on a CD. Bloodwork is required and is not included in the price. Bloodwork should be no older than two weeks. A report from a board certified veterinary radiologist can be obtained for an additional fee. For more information, contact Eric Carnes, telephone 239-263-0480, email [ecarnes@ashfl.com](mailto:ecarnes@ashfl.com). Animal Specialty Hospital of Florida is located at 10130 Market Street, Suite 1, Naples, Florida 34112, telephone: 239-263-0480, fax: 239-263-0488, website: [www.ashfl.com](http://www.ashfl.com)

**FORT WAYNE, IN:** Advanced Animal Imaging offers Cavalier breeders a \$495.00 mini-scan MRI per dog, which includes a consultation, reading of the scan, and anesthesia. Pre-screening bloodwork is required prior to anesthesia and is available for \$75.00 at the Indian Creek Veterinary Hospital in the same building. The clinic follows Dr. Rusbridge's [SM MRI screening protocol](#). Contact the clinic at telephone 260-434-1555 to make appointments. Advanced Animal Imaging is located at 5902 Homestead Road, Fort Wayne, IN 46814, and its website is [www.advancedanimalimaging.com](http://www.advancedanimalimaging.com)

**AMES, IA:** The Lloyd Veterinary Medical Center at the University of Iowa offers a mini-scan MRI package at approximately \$800.00, consisting of an examination, MRI scan, and anesthesia. To schedule an appointment, call the neurology service at 515-294-4900. It is located at 1600 S. 16th Street, Ames IA 50011, and its website is [vetmed.iastate.edu/vmc](http://vetmed.iastate.edu/vmc)

**OVERLAND PARK, KS: Dr. Brian C. Cello**, board certified veterinary neurologist at Veterinary Specialty and Emergency Center in Overland Park, Kansas (near Kansas City) offers Cavalier breeders a \$900.00 mini-scan MRI per dog for a minimum of five dogs up to ten dogs per day. Contact Dr. Cello's technician, Mandi, telephone 913-642-9563 or 800-413-6851 to make appointments. The clinic is located at 11950 West 110th Street, Suite B, Overland Park, KS 66210, and its website is [www.vseck.com](http://www.vseck.com)

**COMMERCE, MI: Drs. Michael Wolf, Jared B. Galle, and Andrew Isaacs**, board certified veterinary neurologists at Animal Neurology & MRI Center in Commerce, Michigan, offer Cavalier breeders reduced rates as low as \$975.00 for an MRI scan. Rate includes a neurological examination, anesthesia, MRI scan and consultation/review of the MRI study with the neurologists, for a minimum of three dogs. Review and MRI imaging report from their board certified radiologist can be requested for an additional fee. Contact Dr. Wolf at the Animal Neurology & MRI Center, 1120 Welch Road., Commerce, MI 48390, Tel: 248-960-7200, email [DrWolf@animalneurology.com](mailto:DrWolf@animalneurology.com), website [www.animalneurology.com](http://www.animalneurology.com)  
<http://cavalierhealth.org/syringomyelia.htm> (15 of 55) [3/19/2012 2:57:26 PM]  
Syringomyelia (SM) and the Cavalier King Charles Spaniel

**COLUMBIA, MO:** University of Missouri's College of Veterinary Medicine (**Drs. Joan R. Coats, Dennis P. O'Brien, and Fred A. Winger**) offers CM/SM scans for \$500.00, which includes "iso" anaesthesia. Blood work is additional and may be obtained ahead of time at your veterinarian's office. Contact Stephanie Gilliam, Neurology/Neurosurgery Technician, University of Missouri Veterinary Medical Teaching Hospital, 900 E. Campus Drive, Columbia, MO 65211, telephone 573-882-7821.

**ITHACA, NY:** Cornell University's College of Veterinary Medicine's Department of Clinical Sciences, in Ithaca New York, is offering low cost MRIs (as low as \$650.00 each). Contact **Dr. Curtis W. Dewey**, board certified veterinary neurologist and board certified veterinary surgeon, telephone 607-253-4445, email [cwd27@cornell.edu](mailto:cwd27@cornell.edu) See more about Dr. Dewey under [Current Research](#) below.

**PLAINVIEW, NY:** Long Island Veterinary Specialists (LIVS) in Plainview, New York offers low cost MRIs and other procedures, including BAER, thermography evaluation, and a neurology consultation. LIVS has plans to add spiral CT to the evaluation soon. The program is open to all dogs, but the lowest rates -- as low as \$500.00 -- are for dogs in groups of three or more. Contact **Dr. Dominic J. Marino**, board certified veterinary surgeon and chief of staff, telephone 516-501-1700 (ask for Alexis or Lexi), email [Bongomo@aol.com](mailto:Bongomo@aol.com), webpage [www.livs.org](http://www.livs.org). Dr. Marino advises that LIVS averages 20 MRIs per week and has operated on an average of one dog diagnosed with COMS per week for the past several years. See more about Dr. Marino under [Current Research](#) below.

**RALEIGH, NC:** AnimalScan, at North Carolina State University's College of Veterinary Medicine's Department of Clinical Sciences, 4700 Hillsborough Street, Building 3, Raleigh, NC 27606, telephone 919-838-5209, email [raleigh@animalscan.org](mailto:raleigh@animalscan.org) See Easton, PA entry below for details.

**AKRON, OH:** Pets Dx Veterinary Imaging, Inc. in Akron, Ohio and Pittsburgh, Pennsylvania, offers a partial MRI, at reduced group rates for Cavaliers, focusing on the head and neck, and includes a compact disc with an imaging program. Their MRIs may be reviewed, for an additional fee, by **Dr. Patrick R. Gavin**, Diplomate ACVR, Professor of Radiology, Washington State University College of Veterinary Medicine, in consultation with the dog's veterinarian. Pets Dx Veterinary Imaging, Inc. is located at 1321 Centerview Circle, Akron, Ohio 44321, telephone 330-576-6275, and at 807 Camp Horne Road, Pittsburgh, PA 15237, telephone 412-486-4800 and 412-348- 2577. Its website is [www.petsdx.com](http://www.petsdx.com)

**MISSISSAUGA, ON:** Matheson Boulevard Veterinary Services in Mississauga, Ontario offers reduced cost MRIs for Cavalier breeders, through the efforts of the [CKCS Club of Canada](#). See details and current prices on the club's website [CavalierCanada.com](http://CavalierCanada.com) Participants will receive a full neurological exam by a Veterinarian. They will also receive a full MRI that meets all current scanning protocols, a CD copy of their MRI screening, and a grading certificate issued by Dr. Clare Rusbridge. See the clinic's website [mbvs.ca](http://mbvs.ca) for information about required border-crossing documentation.

**EASTON, PA:** AnimalScan offers mini-MRI scans for \$500.00, following the [proposed new SM MRI-scanning protocol](#). This offer is to Cavalier breeders for screening purposes. AnimalScan has a board certified radiologist, **Dr. Alexia McKnight**, but does not have a neurologist on staff and does not provide medical care. If a dog is symptomatic, the fee for a full diagnostic scan to determine the extent of disease would be from \$1425 to \$1950. AnimalScan is located at 2026 Lehigh Street, Easton, PA 18042. Contact: Medical Director **Dr. Meg Alonso**, telephone 877-838-6747, email [DrAlonso@AnimalScan.org](mailto:DrAlonso@AnimalScan.org), website [www.AnimalScan.org](http://www.AnimalScan.org)

**PITTSBURGH, PA:** Pets Dx Veterinary Imaging, Inc., 807 Camp Horne Road, Pittsburgh, PA 15237, telephone 412-486-

4800 and 412-348-2577. See Akron, Ohio entry above for details.

**MT PLEASANT, SC:** **Dr. Peter J. Brofman**, (ACVIM Neurology & Internal Medicine) and Veterinary Specialty Care offer a reduced rate for MRIs for breeding screening protocols only. The fee of \$1000 includes the MRI and anesthesia but pre-anesthetic blood work is not included. The MRI unit is a 1.5T magnet and is available for screenings Monday through Friday. Veterinary Specialty Care is located at 930 Pine Hollow Rd, Mt. Pleasant, SC 29464. You may contact Dr. Brofman at 843-884-2441, [peterbrofman@gmail.com](mailto:peterbrofman@gmail.com), or [www.facebook.com/drpeterbrofman](http://www.facebook.com/drpeterbrofman)

**LEESBURG, VA:** Bush Advanced Veterinary Imaging, 165 Fort Evans Road, Leesburg, VA 20176, telephone 703-669-5544, website [www.bvns.net](http://www.bvns.net). Bush Veterinary Neurology Service (BVNS) has provided this additional information: "We offer Cavalier breeders

MRI screening studies at a discounted rate for non-clinical patients. Clinical patients must be evaluated by a boarded neurologist first and would then receive a full study rather than the discounted screening study. Owners can contact Bush Veterinary Neurology Service to schedule appointments for clinically affected patients at 703-669-2829. For multiple non-clinical patients, we perform studies on Sundays once a month. The cost for the first patient is \$595.00 and subsequent patients are \$575.00. We can accommodate 5 non-clinical patients on a Sunday. For single patients, we perform the screening studies on weekdays at 8 am at a cost of \$695.00. Owners will receive a copy of the images on CD, an interpretation of the results from one of our boarded neurologists, as well as instructions on how to contact Dr. Rusbridge for additional information.

"Your pet will need to have minimum blood work performed by your veterinarian within 7 days of the MRI screening at Bush Advanced Veterinary Imaging. Please bring a copy of the blood work with you at the time of your MRI screening appointment. The blood work should have, at minimum, a pack cell volume (PCV), total protein (TP), blood urea nitrogen (BUN/Azostick), and a blood glucose (BG) level." Additional information can be obtained [here](#). Board certified neurologists on staff are **Drs. William**

**Bush, Joll Jarboe, and** <http://cavalierhealth.org/syringomyelia.htm> (16 of 55) [3/19/2012 2:57:26 PM]

Syringomyelia (SM) and the Cavalier King Charles Spaniel

**Deena Tiches.**

**VIENNA, VA:** AnimalScan at 328 Maple Avenue East, Vienna, VA 22180, telephone 703-281-9440, email [vienna@animalscan.org](mailto:vienna@animalscan.org) See Easton, PA entry for details.

**UNITED KINGDOM:** See the list of MRI clinics on the website of The Cavalier King Charles Spaniel Club at [www.thecavalierclub.co.uk/health/syringo/mriscan.html](http://www.thecavalierclub.co.uk/health/syringo/mriscan.html)

### Where can I learn more?

There are a number of websites that deal with syringomyelia. If you want to see the references and get started on the literature, I recommend [www.cavalierhealth.org](http://www.cavalierhealth.org). There is a 55 page review which is very thorough and is updated regularly. References to all publications cited are included.