Beyond Gonadectomy

Sterilization to Retain Normal Hormones

By Sara Fox Chapman, MS, DVM, MRCVS, VetMFHom

All veterinarians are concerned about dog overpopulation. Until relatively recently, I, like most vets, routinely recommended sterilization of pet dogs by gonadectomy (castration or ovariohysterectomy) to avoid unplanned litters.

I began doubting the wisdom of routine gonadectomy in the late 90s. Many neutered patients were obese, despite careful feeding practices. "Spay incontinence" was common in older spayed bitches. Several neutered athletes ruptured cruciate ligaments, including my own Utility competitor.

My family lived in the UK from 1998 through 2001. Most British male dogs are intact, yet there was no problem with roaming males or dog fights. Fewer female dogs in the UK are spayed, and there wasn't an epidemic of mammary tumours. When I returned to the US, I started researching the effect of gonadectomy on animal health.

There are many studies on this subject. A 2013 study at UC Davis examined the effect of neutering on joint disease and cancer incidence in Golden Retrievers:

http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0055937

This was of particular interest, as BMDs and Goldens share a higher than average incidence of joint problems and cancers.

Our Berners are prone to both joint problems and cancers, and it appears that the gonads have a lifelong beneficial effect on these health conditions.

Dr. Root Kustritz has published review articles summarizing studies of the effects of animal sterilization on animal health; most recently in 2012: http://www.tc.umn.edu/~rootk001/icar%202012.pdf

How is this information significant to the welfare of dogs in general, and our favourite breed in particular?

The literature reviews compile evidence across breed lines showing definite effects of removing the gonads, aside from the obvious one of population control. Changes in frequency of various conditions are in the papers cited above. For brevity, let's look at just the increase or decrease in incidence:

- Intermale aggression and roaming decreases with castration; owner directed aggression and reactivity increases with gonadectomy. Castration may increase the incidence of senility in males.
- Mammary tumours (half of which are malignant cancer) decrease in incidence in spayed bitches in some studies, but not in others.
- Prostatic tumours (almost always malignant cancer) increase in neutered dogs. Benign prostatic hypertrophy (enlarged prostate) is very common in intact older dogs (and men) and castration (in dogs) is curative.
- Bladder tumors, often malignant, are increased in gonadectomized dogs.
- Testicular cancer is common in aged male dogs; castration is curative.
- Hemangiosarcoma and osteosarcoma increase in gonadectomized dogs.
- Hip dysplasia and anterior cruciate ligament rupture increase in gonadectomized dogs.
- Urinary incontinence increases in ovariohysterectomized female dogs.
- Pyometra occurs in up to 25% of intact bitches over 10 years of age. Surgery is curative, but with a high incidence of complications.
- Hypothyroidism increases after gonadectomy in some studies, and is unaffected in others.
- Obesity occurs in about 3% of the total canine population; up to 50% of gonadectomized dogs are obese.
- Some studies show a higher lifespan for gonadectomized dogs, others for intact dogs.

The UC Davis study evaluated how age of spaying/neutering altered the effects of gonadectomy in Golden Retrievers. This study found that gonadectomized animals were more likely to have four cancers: osteosarcoma, hemagiosarcoma, lymphosarcoma, and mast cell tumours. Gonadectomized dogs were also at increased risk for development of hip dysplasia and anterior cruciate ligament

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Original publish date:
June 2014.

rupture; this was true even when obesity was taken into account.

The UC Davis study also indicated that the age of gonadectomy can affect the incidence of joint problems and cancer:

- Regarding joint problems, males castrated early (before one year of age) developed hip dysplasia at a younger age and more often, and dogs of either sex gonadectomized early developed anterior cruciate ligament tears at a younger age and more often. Intact animals had the lowest incidence of joint problems.
- Regarding cancers, lymphosarcoma was more common in males gonadectomized after one year of age. Hemangiosarcoma and mast cell tumours were diagnosed more often in females gonadectomized after one year of age, and they developed these cancers at a younger age. Intact animals had the lowest incidence of these cancers.

As dog lovers, we can see that gonadectomy is not a simple choice. We don't want animals to breed indiscriminately, and we want our friends to live long healthy lives. Our Berners are prone to both joint problems and cancers, and it appears that the gonads have a lifelong beneficial effect on these health conditions.

There are other options to gonadectomy for both male and female dogs. I have chosen these to sterilize two of my dogs, and while these procedures are more expensive, they are as safe and effective as the more traditional spay and neuter. Males can be vasectomized, and females can have a complete hysterectomy, which is also called an ovary sparing spay.

I chose vasectomy for a BMD pup whose hip and shoulder joints on one side were damaged by trauma in the nest. This fellow needed to retain his gonads for their beneficial effect on joint health, but he could not be placed in a home with the ability to sire pups. As a vasectomy is rather specialized, a reproductive specialist performed the procedure at eight months of age. This pup is now over two and a half years old; his loving owner has no trouble with problem male behaviours. He has a bit of a hitch to his gait, but no evidence of pain in any joints.

I chose hysterectomy, or ovary sparing spay, for my five-year-old BMD bitch, Rubiy. While we were celebrating her first UD "leg", she made a spectacular vertical leap with a full twist, and developed a traumatic gastric torsion. Emergency surgery was followed by a severe transfusion reaction, leading to chronic hepatitis. I wouldn't breed her again, though she looks and acts normal. I wanted her to keep her protective sex hormones, but I didn't want to run the risk of pyometra with compromised liver function.

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The answer for Rubiy was the ovary sparing spay, pioneered by Dr. Kutzler of Oregon State, and demonstrated on the Parsemus Foundation website: www.parsemusfoundation.org/

I am a holistic vet within a conventional practice, so it is fortunate that the practice owner, Dr. Susan Maturo, is a good friend, and she was willing to do the procedure. The ovary sparing spay is not much more difficult than a traditional spay, and any good surgeon with interest in the procedure could perform it. The ovaries are left in place in the body, and the entire uterus and cervix are removed. The incision extends a bit lower in the abdomen, because a BMD cervix is about an inch long. It is necessary to remove the entire cervix, as the ovaries will still be producing progesterone, which would cause hypertrophy (enlargement) of any bit of uterus that is left, potentially leading to a pyometra.

Rubiy recovered beautifully from the procedure, and has had a tidy heat cycle. There was no messy discharge. She did act more lovey, wanted to mount and mark more, and flagged for a short period. I now suggest this procedure for all non-breeding bitches.

It can be hard to find vets who are willing to perform these procedures. Many reproductive specialists perform vasectomies. I wasn't intending to impose upon my friend to perform Rubiy's ovary sparing spay, however, as there are local surgical specialists. These vets wouldn't even consider performing it. They would only do an ovariectomy, which removes the source of protective hormones! Their professed fear was that Rubiy could develop a pyometra if any uterus was left in. Most readers are not vets, but believe me, there is no way you can leave any uterus in if you remove the cervix and the Fallopian tubes. Any competent vet understands anatomy and can remove the tract in

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the proper place. It is more likely that the surgical specialists didn't want to be bothered to go outside their comfort zone and do something different.

There is only a short list of vets performing the ovary sparing spay on the Parsemus site. This is a situation where "Berner people" can encourage their vets to learn about the ovary sparing spay. Any good surgeon can learn to perform the ovary sparing spay, they just need to be open minded and careful. Our beloved dogs, and the canine population at large, will reap the benefit of retaining those important hormones!

Author's Note: Dr. Chris Zink and her collaborators published a study in the February 2014 JAVMA providing further evidence of the negative effects of gonadectomy. This study of the incidence of various cancers and behavioural disorders found an increased incidence of all problems in gonadectomized Vizslas as compared to intact Vizslas. The abstract can be viewed at: www.ncbi.nlm.nih.gov/pubmed/24432963

Sara Fox Chapman & Rubiy, BG# 61445.

About the Author

Dr. Chapman is a 1985 graduate of the Ohio State University College of Veterinary Medicine. She has studied and used complementary treatments, and incorporated them with conventional medicine, since the early 1990s. This gives patients more options, and decreases the incidence of drug side effects. Dr. Chapman uses homeopathy, herbal medicine, nutrition, acupuncture, Bach essences, Reiki, and conventional medicine in her Maryland practice. Dr. Chapman shares her home with her husband John, two Berner girls, Rubigen and Rheswyn, and a Rex boy, Jeeves. She has been a BMDCA member since 2008.

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