

ECTOPIC URETER IN GOLDEN RETRIEVERS

This article was written by Dr. Karen Hedburg in 1985 for Golden Retriever Breeders

ECTOPIC is a genetic condition in the Golden Retriever. It has occurred in other breeds, including the Labrador Retriever, but with an exceedingly low incidence. Breeding experiments carried out by Boyd Jones (Massey University, NZ) in Golden Retrievers have indicated that it is an inherited condition in the breed.

Ectopic Ureter is a condition wherein one or both ureters, coming from the kidneys, by-pass their normal insertion into the bladder, and instead terminate in the genital tract - in the female on the roof of the vagina near the proper opening of the urethra. The result is a continuous flow of urine from the kidney on the side that is ectopic.

DIAGNOSIS

Affected animals usually show up before one year of age, the majority by 6-8 weeks of age. The affected female puppies do not grow as rapidly nor are as active as other litter members, as they are very prone to bacterial infections. It is 8-9 times more common in females than in males since the prostate gland in males acts as a muscle sphincter, and therefore the dog may not have any dribbling of urine, but may show up at a later age, eg 5-6 years. Almost all females affected by ectopic ureter will show up at an early age although there have been a few cases without urinary incontinence (Osborne & Oliver, 1977; Jones 1980).

ASSOCIATED CONDITIONS

The problem with ectopic ureters is that there are often other congenital anomalies of the urinary/genital systems, and with diseases that develop as a sequel to these. Associated with ectopic ureters can be mega-ureter - where the ureter is grossly dilated. I have seen a number of cases with kidney abnormalities from hydro-nephritis to small, under developed, lobular kidneys (usually associated with bilateral mega- and ectopic ureter). Persistent hymens are sometimes observed, with associated infertilities. Theoretically, there can be associated kidney problems in older males and females if there is hypoplasia (underdevelopment) of one or both kidneys; this could be a problem in later old age.

GENETIC ASPECTS

It appears that the inheritance pattern for ectopic ureters is polygenetic more than two genes are involved, probably 4 or 5. This inheritance pattern is somewhat similar to that of hip dysplasia; if it was a simple recessive condition it would be relatively simple to control.

There are obviously different genes affecting the condition. One gene, whether there are one or both ectopic ureters; another causing a mega-ureter; yet another hypoplasia of the kidneys; again another affecting fertility in females and occasionally (close) female relatives.

To get an affected female puppy - one obviously leaking urine - probably at least 3 or 4 of the genes in question would have to be present.

Whilst cases have been recorded elsewhere in the world - in the UK, NZ and the USA - we (this clinic and the University of Sydney) have to date recorded 18 cases in New South Wales. The incidence of affected offspring arising from a heavy carrier-to-carrier mating has been found to approximate between 1:6 and 1:8, that is, about one puppy per litter.

Because the condition is polygenetic it is going to be extremely difficult to control. Genetic analysis shows that most of the major bloodlines have carriers present in them and it would be ridiculous to suggest that all relatives of affected puppies - parents, litter mates etc - ought to be removed from breeding programmes. It is as hard as trying to remove hip dysplasia, with even less hard evidence to support decision making such as X-Rays.

SUGGESTED WAYS OF REDUCING THE PROBLEM

Despite the difficulties noted, I feel that there are a number of ways in which the problem can be minimised:

1. Affected puppies should be put down. They show up as early as 3-4 weeks and mostly by 8 weeks of age. The treatment to surgically correct the problem is both difficult and costly and not very successful. A lot of heartache to the breeder and/or the new owner can be spared this way.
2. A heavy carrier dog or bitch is necessary to produce an affected pup heavy meaning one carrying 3 or more of the questionable genes.
 - a. The dog - If he produces affected puppies with 3 or more different bitches of varying bloodlines, I would suggest that he be withdrawn from public use. If he is producing the condition regardless of bloodlines he is obviously going to produce heavy carriers.
 - b. The bitch - If she produces this condition with more than one stud dog I would personally discontinue breeding her.
3. Litter Mates to affected puppies: It is very hard to determine whether there are any abnormalities of the ureters or kidneys, especially at an early age. Special radiographic techniques are available if you really wish to check the puppies but it is difficult to get good, reliable results. I would suggest breeding with care from these puppies -- obviously they are going to be carriers but the degree of genetic abnormality will range from minor to heavy, with the only proof lying with the eventual progeny. If there is infertility the problem will be self-limiting but if the bitches produce affected puppies in their first litters one should think very carefully of including them in breeding programme. If the dogs produce affected puppies with more than one bitch, again one should give careful consideration to a withdrawal of that dog from breeding.

Probably, where there is an affected puppy in a litter, you ought to select a puppy you might wish to keep, then sell the rest as pets which will then limit the problem.