



## Ectopic Ureter

Ectopic ureter (EU) also sometimes known as wet-puppy syndrome is a congenital condition which means affected puppies are born with the condition, but this does not automatically mean that it is inherited. There is a suspicion that it may be inherited in the golden retriever. While a possible mode of inheritance is yet unknown, it is prudent to avoid repeating a breeding that has produced a puppy with EU.

If you are considering buying a golden retriever puppy or perhaps considering breeding from your own golden retriever, it is important to learn the basics of EU and the effects that it can have on them.

A lot of what we know about EU in the golden retriever has been established through tests and studies into this condition in the Entlebucher mountain dogs, a less popular and well-known dog breed that is also affected by EU. The way that the condition affects dogs of both breeds is now much better understood as a result. Read on to learn more about EU in the golden retriever.



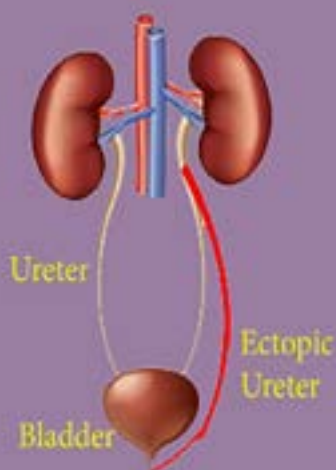
### Causes of EU

Some dog breeds appear to have a hereditary predisposition to developing ectopic ureters. A genetic link is suspected in the following breeds:

- > Labrador Retriever
- > Golden Retriever
- > Poodle
- > Siberian Husky
- > Terrier breeds
- > Newfoundland
- > Entlebucher Mountain Dog

## What are Ectopic Ureters?

To better understand this condition, an explanation of the urinary system is helpful. The parts of the urinary system include a pair of kidneys, ureters, urinary bladder, and urethra. Each ureter is connected to a kidney. The ureters are the passageway of urine from the kidneys to the urinary bladder where urine is stored. During urination, stored urine passes through the urethra to the outside of the body. Normally, each ureter is attached to a specific spot on the urinary bladder. If these ureters don't enter the bladder at the normal location, such as what happens with ectopic ureters, the urine may drain into the urethra or even the vagina of female dogs. This can significantly affect the ability of the urinary bladder to store urine.



## Symptoms of Ectopic Ureters

The term “wet puppy syndrome” is often used interchangeably with the medical name of EU because pups with the condition tend to drip urine continually, because the connection between the kidneys and the bladder is not properly formed. This means that the dog's fur is almost always wet with urine. EU can affect just one of the dog's two ureters, or both together.

The condition tends to present slightly differently in male dogs versus female dogs, and sometimes at different ages.

If you own a young golden retriever and they have urinary incontinence EU is one of the conditions your vet should consider. They will need to rule out other causes of the incontinence, which means running some examinations and tests that might include a contrast dye test with x-ray, an ultrasound, or a cystoscopy.



In female pups with ectopic ureter, the urinary incontinence that accompanies the condition usually becomes evident very early in the pup's life, although because dams clean their pups, this may not become obvious until the pups are a few weeks old



In male dogs, symptoms such as urinary incontinence don't always become evident until the pup is fully grown, and in some cases never which means that golden retriever puppy buyers might buy a male pup with the condition and not realise they have it.

# Diagnosis of Ectopic Ureters

Rarely, an ultrasound can diagnose the presence of EU in young puppies. Several tests will be performed by the vet in addition to a complete physical exam and medical history.

- **Urinalysis**

A urinalysis is always the first laboratory test to be performed on dogs with urinary issues. The test will assess the following important information about the dog's urine:

- > Chemical composition
- > Urine concentration
- > Acidity
- > Protein levels
- > Levels of various chemical substances

Microscopic examination of the urine sample can also reveal whether red blood cells, white blood cells, and/or urine crystals are present. When infection or inflammation is present, red, and white blood cells are usually detected in the urine.

- **Urine Culture and Sensitivity**

This can help identify the type of bacteria or other pathogens that are causing the infection and what antibiotics they're sensitive to.

- **Abdominal X-rays**

Radiographs can help rule out bladder stones as the potential cause of the dog's urinary problems.

- **Abdominal Ultrasound**

An ultrasound of the dog's abdomen can help check the bladder for any abnormalities, like bladder stones. It can also help evaluate for any abnormal flow of urine. The results of an abdominal ultrasound do not necessarily lead to a definitive diagnosis but may warrant the need for further tests.

- **Cystoscopy**

This is the most accurate procedure for diagnosing ectopic ureters in female dogs. The dog must be sedated or anesthetized before a probe with a small camera is inserted in the dog's urethra or bladder. With the images generated by the camera, the veterinarian can see where the ureter enters, whether it's in the urinary bladder or urethra.

- **Computed Tomography (CT scan)**

This is the most accurate diagnostic test for male dogs. The patient is placed under general anaesthesia so the veterinarian can trace where the ureters enter.

## Treatment Options for Ectopic Ureters

Ectopic ureters can be relocated from their abnormal location to where they should be located. This can be accomplished in two ways - open abdominal surgery or a laser procedure (which can be performed during cystoscopy if the veterinary practice has the equipment and expertise). Both procedures have been associated with a favourable prognosis. Laser ablation is a minimally invasive technique, that involves removing of the wall of the ectopic ureter under cystoscopy using a special laser. This technique works very well, and the recovery period is significantly shorter than the surgery. The studies so far show the laser procedure to be associated with fewer complications and incontinence recurrences than the surgery option. Contact your state breed club for advice on what veterinary surgeons perform Laser Ablation in Australia.

## Is There a Genetic Test for Ectopic Ureter?

Currently, no DNA test or pre-breeding screening protocol is in place to identify dogs with higher risk factors for EU prior to breeding. However, golden retriever breed clubs, along with The UK Kennel Club and the Animal Health Trust, are working to develop a definitive testing scheme for the condition, which involves ultrasound examination and scoring to return a result of a normal, ectopic, or intermediate ureter.

Currently, the exact gene or anomaly responsible for EU in golden retrievers isn't known, but because it is suspected that the condition is hereditary, any dog who has close relatives with the condition should be considered to have higher risk factors.



A dog that has EU, even if successfully corrected, should not be used for breeding. Puppy buyers are advised to ask breeders about the condition and any presentations of it within their breed lines before committing to a purchase.

