Congenital Hypothyroidism in Puppies

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The thyroid gland is butterfly-shaped and located near the larynx (Adam's apple) in the dog's neck. The thyroid gland combines the amino acid tyrosine with iodine in order to manufacture thyroid hormone. The pituitary gland near the brain exerts control over the thyroid gland. Thyroid stimulating hormone (TSH) produced by the pituitary gland stimulates the thyroid gland to produce thyroid hormone, often called thyroxine. Thyroxine is the hormone that controls metabolic and activity levels in the body. The thyroid gland also secretes another hormone, calcitonin, which is necessary for proper calcium metabolism.

Although hypothyroidism or an underactive thyroid gland is common in the dog, most cases develop during adulthood, usually in middle-aged dogs. Congenital (occurring at less than one year of age) hypothyroidism can occur in puppies but is much more rare than adult onset hypothyroidism. Most cases of hypothyroidism in the puppy are due to a lack of proper development of the thyroid gland rather than the failure of a normal thyroid gland, as is the case in adult onset hypothyroidism.

What are the symptoms?

A puppy with hypothyroidism will fail to grow at the normal rate. Many have shorter than normal legs (a type of dwarfism). Abnormal bone development is also common within the skull. The tongue and eyeballs generally protrude giving the puppy a 'bug-eyed' appearance. Affected puppies have an underdeveloped mental as well as physical state.

What are the risks?

Most affected puppies do not survive into adulthood.

What is the management?

Treatment involves the supplementation of the thyroid hormone, thyroxine. Treatment must begin early - as young as three weeks of age - if any success is to be expected. This becomes very difficult, as it is not easy to recognize the condition in a newborn. Although treatment is very successful in adulthood onset hypothyroidism, it is largely a failure in congenital cases of hypothyroidism.