

Synopsis of Dr Stanley Snyder's talk on Occipital Condylar Dysplasia - by Ingrid Painter

October 5th 2002 - Dr Snyder, Oregon State University and Dr Sally Cole DVM, Scio Animal Hospital, Scio, Oregon

Dr Snyder, a Veterinary Pathologist recently retired from his position as Director of the Diagnostic Laboratory at Oregon State University, spoke at a gathering of Navajo Churro and Jacob breeders at Puddleduck Farm, Brownsville, Oregon.

Over the past few years he has been gathering lambs from these two breeds from Oregon as well as Washington. All the lambs were suspected of being afflicted with OCD (Occipital Condylar Dysplasia). He explained that these lambs had abnormally formed condyles (the rounded bones at the base of the skull) which articulate with the first bones in the spinal column called the atlas bone. The abnormality is in fact only one part of a larger picture. Not only can one or other of the two condyles be malformed but they can deviate from the midline. This then causes pressure on the spinal cord as well as forcing the medulla oblongata to be misshapen.

The medulla oblongata is at the top of the spinal column inside the base of the skull making up part of the brainstem. When the condyles are displaced to one side or deformed the medulla becomes distorted. A lamb skull was shown where the right condyle was distorted towards the right. Seven of the ten skulls that had been examined were distorted in the same direction. In many of the lambs the foramen magnum was constricted or deformed. This is the hole in the base of the skull which carries the spinal cord to the medulla.

Photo micrographs were shown of the cross section of the medulla where necrotic areas had already formed in the lamb as well as nerves surrounded by abnormally swollen sheaths. The micrographs were likened to those seen in diseases like Alzheimer's. Dr Snyder emphasized that this condition seen in these lambs cannot be reversed so sheep showing signs of the disease should not be used for breeding.

The atlas bone is the 1st bone of the spinal column and articulates with the occipital bone. It has a "pin", called a dens or the odontoid process. In the more severe cases of OCD, X-ray showed this to be almost nonexistent. When this is deformed or missing the bones will press on the spinal cord making the sheep walk abnormally (wobble) or it will be unable to stand up. Some lambs show OCD symptoms at birth, others show the symptoms gradually as its bones mature and grow. The oldest animal that was examined was a two year old ram. Those lambs that are able to get up have an awkward gait. Often the back end of the lamb appears to want to run faster than the front end resulting in stumbling and seizure-like motions. Mildly afflicted sheep may only show a slightly abnormal walk but this gets more noticeable when it tries to run.

A second skull was shown where all the bones were ankylosed (fused) affecting several vertebrae. Sheep like this can only move their head by moving the whole neck. There was no ability to rotate the head.

At this time there is no way to diagnose OCD in order to rid the breed of the condition. X-rays of multiple sheep would be prohibitively expensive. In over 2000 lambs born on this farm from 1974 to 2002, there have been seven sheep with OCD. Three of these were from one ewe. Five were Navajo-Churro and two from Jacob, both male and female. Navajo-Churro lambs afflicted with OCD have traced their ancestry from all areas of the US. It has occurred in Jacob sheep lines

imported from Britain in the 1980's indicating that it probably occurs there also. Dr Snyder said it has been seen in certain breeds of dogs as well as in horses where it is known as "wobbler disease". It is also known in people.

This information is passed on here in order that every breeder of any animal is made aware of the condition and will be diligent in their breeding programs. It is important to keep genetic bases as broad as possible to minimize the inheritance of this lethal gene. Lambs born in the field in large flocks are usually found dead. The death is attributed to dystocia, bad weather or some other undefined reason. It is only lambs born in small flocks where almost every lamb birth is observed that the condition has come to the surface making it likely that it occurs in all breeds.

The photos below are the skulls prepared by Dr Snyder, showing the foramen magnum and the condyles. Notice the slight twist to the right in the left picture and to the left in the right picture.

