

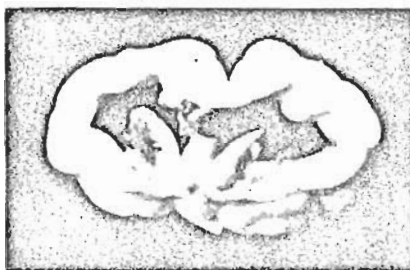
HYDROCEPHALUS IN MINK

by John R. Gorham

Hydrocephalus, also called water on the brain or big head, is a condition seen in mink soon after the kittens are born. It is characterized by a great distention of the part of the skull covering the brain. In recent years more cases have been brought to the attention of veterinarians, and the malady appears to be widely distributed. Dr. Austin Larsen¹ has recorded hydrocephalus in the Utah area, particularly in highly inbred dark herds.

There are many cases of hydrocephalus that never become apparent, as the affected kitten dies soon after birth and is eaten by the female. When the condition establishes itself in breeding stock, it can become very serious and difficult to eliminate.

noted that all hydrocephalic animals possess two of these genes, one hav-



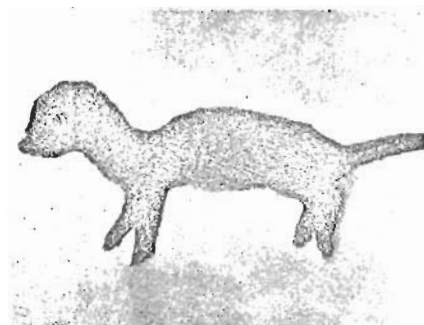
(Fig. 4) Cross section of brain revealing distended ventricles. The holes represent areas where fluid has accumulated.

ing come from each parent. Animals possessing one hydrocephalus gene and one normal gene are "carriers"; i.e., they are normal themselves, but pass a hydrocephalus gene to their offspring.

Symptoms and Lesions. The affected kitten is usually first seen when the litters are counted and examined after whelping. The greatly enlarged head (Fig. 1), dullness, lack of size, and muscular incoordination are the predominating signs. When the individual is picked up and the head is examined more carefully, the part of the skull which houses the brain is greatly distended and fluctuates to touch. The skull in this area is very soft; in some places the bone is absent altogether.

The underlying cause is an accumulation of fluid within the cavities (ventricles) of the brain. The resulting pressure forces the brain substance against the soft developing bones of the skull, arching them outward (Fig. 2). In this process the pressure on the brain and the retention of fluid causes the dullness and muscular incoordination so often seen. If the swelling is incised, much colorless fluid will escape and large cavities will be noted (Figs. 3 and 4).

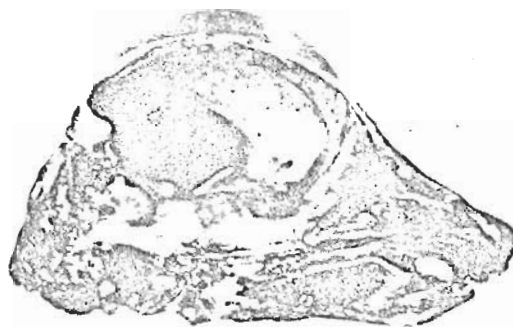
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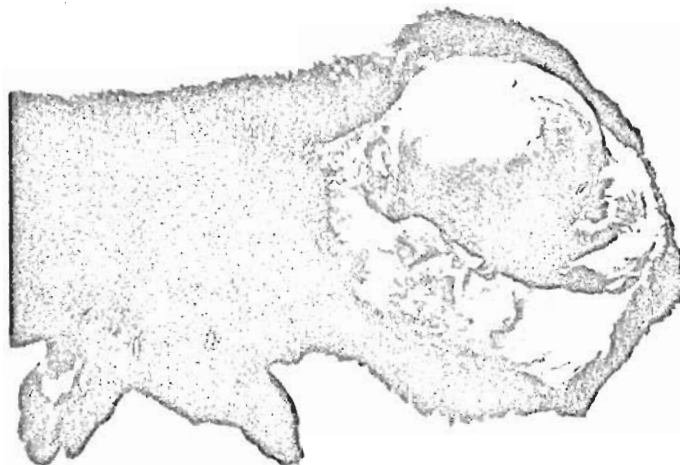
(Fig. 1) Hydrocephalus. Mink kit showing enlarged head. (Courtesy of Dr. O. H. Muth, Oregon State University.)

Cause. Hydrocephalus in mink is non-contagious and, so far as is known, not caused by any nutritional imbalances. In rare cases it may be caused by accidents in development during the gestation period, under which circumstances it is not heritable.

Experimental work done by Dr. R. M. Shackelford² indicates that in mink hydrocephalus is hereditary, and that it is recessive; since it usually causes death shortly after birth it is classed as a lethal character. It occurs equally in both males and females. Since the gene causing hydrocephalus is recessive, it should be especially



(Fig. 3) A longitudinal section of the head of a young hydrocephalic mink, showing the distended ventricles. (Courtesy of O. H. Muth, Oregon State Univ.)



(Fig. 2) A young hydrocephalic mink, with skin and subcutaneous tissue dissected away to reveal the much expanded cranium.

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Dr. M. P. Chapman¹ observed in one instance that a hydrocephalic kit was taken from the nest box by the female several times each day and was nursed separately from the other kittens.

Control Measures. Assuming that hydrocephalus in mink is in the greatest majority of cases a heritable lethal character produced by recessive genes, it may appear on your ranch as suddenly as a new color phase mutation. Just as a recessive may remain hidden for several generations, hydrocephalus may remain hidden, and only become apparent when both the male and female parents carry the hydrocephalic genes and transmit them to their offspring together.

If the malady appears, the affected kitten should be destroyed, for it will only take nourishment from the female and die in a short time. Next, the sire, the dam, and the litter mates to the hydrocephalic kitten should be pelted since both the sire and the dam will carry the gene, and all or most of the litter mates may carry it. The foregoing practical measures, if followed each year, should provide maximum control which is possible under practical conditions.

REFERENCES

1. Larsen, A.: Personal communication, 1963.
2. Shackelford, R. M.: Genetics of the Ranch Mink, Pilsbury Publishers, Inc., New York, 1950, page 74.
3. Chapman, M. P.: Personal communication, 1947.

Minkland Roundup

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much better and things are getting back to normal on the ranch. Dr. W. Wasson and his lovely wife saw to it that Hans was well taken care of. Thank you all very much.

Anne writes: It doesn't seem possible that it is time for breeding season again. The weather in this area has been so beautiful this past winter it is hard to realize that spring is almost upon us.

Ranchers and their wives from Utah have a great deal of interest in this mink business. This is most apparent from the number that attend the auctions both in New York and Seattle. Some of these ranchers that attended sales are: Mr. & Mrs. Rex Larsen, Mr. & Mrs. Gale Vernon, Mr. & Mrs. Ed Sommers, Mr. & Mrs. Ken Tucker, Mr. & Mrs. Russ Tucker, Mr. & Mrs. H. R. Woods, Mr. & Mrs. R. E. Westwood, Mr. & Mrs. Paul Williams. Some of the ranchers left their wives at home to attend sales in New York; Alma Erikson, John Adkins, Jim Russell, Glen Margetts, Roy Lapore and Jess Merrihew.

Seattle was the destination of the following: Mr. & Mrs. Charles Searle, Mr. & Mrs. Auer Johansen, Mr. & Mrs. Gwynne Page, Cliff Higgins, Dean Vernon, Joe Vernon, Verne Finlayson, and Claude Campbell. Mr. & Mrs. Ray Vernon also went to Seattle but not to attend the sale. They left early to see their pelts bundled and the workings of the auction company when a sale is not in progress.

Diapers, bottles and safety pins are the order of the day in the home of John and Darlene Merrihew. They became the proud parents of a baby boy in January.

Mr. & Mrs. William B. Erikson have returned to Salt Lake City after three years in Europe as President of the Swiss Mission of the Church of Jesus Christ of Latter Day Saints. Will has again taken up his duties on the mink ranch. After leaving the mission they toured Europe and the Holy Land for about 2 months. It is nice to have them home again.

Mr. & Mrs. Hart B. Crandall, Provo, Utah, spent a vacation in California recently. Hart said he was so glad to get home, there are too many people in that state. He likes the wide open spaces.

Mr. & Mrs. Alma Erikson, Mr. & Mrs. R. E. Westwood, Mr. & Mrs. Lew Palmer and Mr. & Mrs. Paul Williams were some of the local ranchers that attended the Gene Fuller-Dick Tiger fight in Las Vegas, Nevada, during February.

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