

A Cat With an "Upside-Down Stomach"

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On January 9, 1937, an embalmed cat was dissected in the Purdue Laboratory. This cat, a male, was apparently a young adult and showed externally no abnormal conditions except a somewhat enlarged thorax and a constricted lower abdomen. Dissection, however, revealed a strange distribution of the internal organs.

Figure 1 shows the arrangement of the viscera as they appeared with the ventral part of the body wall removed.



Fig. 1.

Nearly the entire small intestine was crowded into the right pleural cavity, having entered through a hole in the diaphragm approximately one inch in diameter. The figure shows a probe thrust through this opening which was located dorsally and at the right side. The intestine and lung occupied the cavity together with no membrane separating them. The spongy condition of the lung indicated that it had functioned during life presumably in a normal manner. The pancreas and spleen were found also in the lung cavity, somewhat malformed and large, but otherwise apparently normal. They were attached to the great omentum which was partly in the plural cavity. The stomach, about two inches of the duodenum, a three-inch fold of the jejunum, the lower two inches of the ileum, the large intestine, and the liver were below the

diaphragm. The right part of the liver, which was the smaller, consisted of two lobes, the left part of four.



Fig. 2.

Only one kidney, the left, was found. It was large, about three times the size of a normal kidney. There were, however, two straw-colored bodies (Fig. 2) found connected by a twisted thread and lying unattached in the dorsal part of the abdominal cavity. One was about seven-eighths of an inch long and ellipsoidal in shape. The other was about half as large and roughly spherical. The surface of both bodies was rough, appearing similar to the bumpy exterior of a cucumber. When sliced, they were found to have a cheesy consistency. It is thought that they may have been the remains of the missing kidney.

This condition in man is described by Arey¹ and called a diaphragmatic hernia. Persons so affected have been referred to popularly as having an "upside-down stomach." It is said to occur most often in man on the left side, in contrast to the present instance in the cat which was on the right.

Diaphragmatic hernia arises not as the result of an accident in adult life as might be supposed, but rather it is a developmental anomaly in which the pleuro-peritoneal membrane may fail to unite properly with the edge of the septum transversum to form the diaphragm. Thus, an opening is left through which some of the abdominal viscera may protrude into the thoracic cavity.

It is possible that diaphragmatic hernia may not be extremely rare in cats; Dr. W. P. Morgan of Indiana Central College informs me that he has observed this condition at his laboratory in a cat that was taken in Indiana. The specimen described in this paper was obtained from a supply house in Rochester, N. Y.

¹ Arey, L. B., 1924. Developmental anatomy. W. B. Saunders, Philadelphia.