drop by drop, to maximum precipitation. The crystalline precipitate of histamine sulfate was separated by filtration and washed with alcohol and ether.

For identification, the histamine was converted into the dipicrate. The rhombic yellow leaflets obtained melted at 230-232°C. The melting point was unchanged when the material was mixed with dipicrate from known histamine.

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Experimental Low Colonic Obstruction.

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The evidence has been accumulating that one of the major factors in death from high intestinal obstruction is loss of fluid and chlorides. This does not signify that a toxemia of unknown nature is not important in such cases. For this reason we have studied a series of dogs with low colonic obstruction. Eleven dogs survived the operation and at autopsy showed no cause of death other than simple obstruction; in 5 of these, obstruction was produced by a band of gauze tied tightly about the rectum; in the remaining 6 the colon was severed about 8 inches above the anus and both ends closed with sutures. The average length of life in these 12 animals was 8½ days, maximum 20 and minimum 5 days. Autopsies showed the large bowel much dilated, discolored, and filled with gas and fluid fecal material. The small bowel was also markedly distended for some distance above the ileo-cecal sphincter, and showed hemorrhagic areas in the lower portion. The gall bladder was usually dilated; peritoneal cavity clear and containing little or no free fluid.

Food and fluid were allowed ad lib. Some of the animals ate well up to a few days before death, others refused food from the time of operation until death occurred. The 2 showing longest survival periods (19 and 20 days) ate almost like normal animals. All of the animals vomited slightly, the amount depending upon the intake and increasing in the 48 hours prior to death. In no case was the vomiting abundant, as seen in high obstruction.

Plasma chlorides were followed in all animals. In only 2 was a significant fall observed; these animals lived 5 and 6 days, respectively, and vomited greater quantities than the others of the series. In one the chlorides fell from a control level of 460 to 338, in the other from 552 to 445. In none of the remaining animals did the chlorides fall more than 50 mg./100 and in some cases the level just before death was higher than the control.

Blood urea was studied in 5 of the animals and in all showed a steady rise, in one case reaching 60 mg./100 the day before death. Qualitative analyses for blood indican were also made in 5 animals; the amount of indican increased only slightly above the control level.

In 3 dogs 100 cc. of barium suspension was given as an enema just prior to operation. The colon was occluded with the barium in place, and the position of the barium was ascertained each day by fluoroscopy. In no case was the barium observed to pass above the ileo-cecal valve although in each dog it appeared to mix uniformly with the contents of the colon. This indicates that the fecal matter which these dogs may vomit in small amounts probably is not brought up by reverse peristalsis from the colon.

In these dogs loss of chlorides does not appear to be an important factor, as it is in high obstruction. At the same time, the larger area of absorbing surface presented to the contents of the obstructed bowel may increase the absorption of toxic material. Thus while in high obstruction loss of chloride and fluid may play the predominant role, in low obstruction the part played by chloride loss is overshadowed by some other factor, probably absorption of toxic substances. It has been shown that distension,[1] such as occurs in these animals, may increase such absorption. These results suggest that absorption of toxins cannot be ignored as a cause of death in simple obstruction.

[1] Dragstedt, C. A., Lang, V. F., and Millet, R. F., *Arch. Surg.*, 1929, **18**, 2257.