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## Gastric Cannula: A Modification to Combat Leakage.* (29909)

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Long term animal experiments, which involve the collection of small quantities of secretions from gastric pouches, are often seriously upset by the development of a leakage of secretions around the cannula. Experiments designed to compare pouch acid output after various consecutive procedures are valueless if a leak develops around the cannula. In these circumstances, reimplantation of the cannula may so alter the secretory capacity of the pouch as to negate all further observations.

The major problem of preventing complete erosion of the cannula through the pouch has for all practical purposes been solved by constructing the pouch in the manner used in this laboratory(1) and by employing the improved cannula described by Condon and Harkins(2).

However, a certain proportion of Heidenhain pouches so constructed develop leakage around the cannula after several months' experimentation. This is especially noticeable when the method of collection is that described by Savage, Stavney, Nyhus and Harkins(3), a method which strains the leakproof qualities of any cannula.

This problem has caused us considerable difficulty, and we have devised a simple addition to the cannula described by Condon and Harkins(2), which has considerably reduced the incidence of this problem. This addition consists of a Silastic‡ rubber ring which fits securely around the gastric end of the cannula. Its outer surface is beveled as shown in the diagram. The measurements given are those which will fit our cannula (Fig. 1). Addition of this Silastic ring gives the gastric end of the cannula a "sloping shoulder" (Fig. 2). The cannula is inserted in the manner previously described from this laboratory(1).

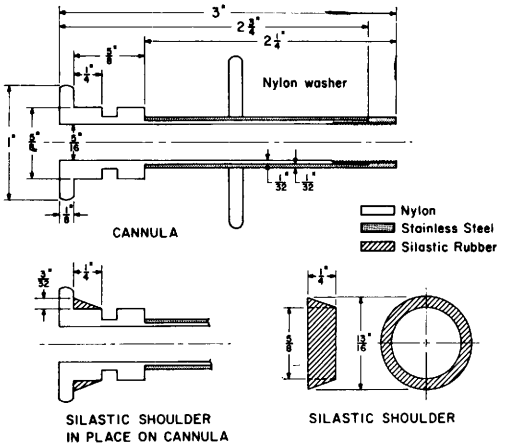


FIG. 1. Mechanical drawing of cannula and Silastic shoulder.

Several months' use of this modification in many dogs has convinced us of its efficacy. If after some months the cannula becomes loose and can be easily rotated, the slight weight of any attached collecting apparatus is sufficient to pull the cannula down and force the sloped shoulders into the orifice of

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‡ Medical grade Silicone rubber (Dow Corning).

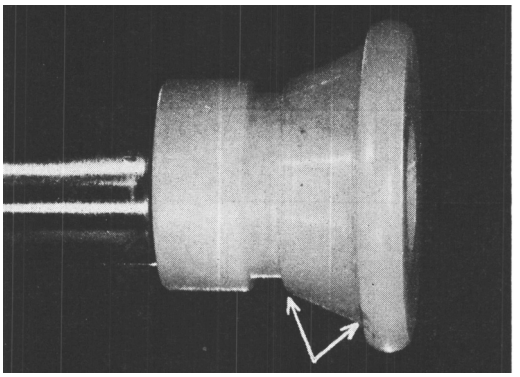

FIG. 2. Silastic ring *in situ,* position marked by arrows.

the pouch thus providing a leak-proof junction. When collection is finished, the cannula tends to slip back a fraction into the pouch, and the orifice of the pouch like any fistulous tract, closes around the smallest diameter of the cannula.

Examination of the cannula at autopsies has revealed no apparent deterioration of the Silastic rubber shoulder, even after many months' usage.

*Summary.* A simple addition, consisting of sloped "Silastic shoulders," to the gastric pouch cannula has been designed, and found to prevent the development of troublesome leakage around gastric pouch cannulas.

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## Concentration of Magnesium in Tissues of the Dog.* (29910)

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Because of the difficulties with chemical methods for determination of magnesium in tissues, biologic data on magnesium are scarce and inaccurate. The recent description of a simple and accurate flamephotometric method by MacIntyre(1) for determination of magnesium in tissues has rectified these difficulties. This report provides data, previously unavailable, of the magnesium content of 73 different tissues and body fluids of the dog obtained flamephotometrically comparing with those obtained by chemical methods. Acid digestion of the tissues for flamephotometric measurement of magnesium is also introduced.

*Method.* The method used for determination of magnesium by flamephotometry (Zeiss PMQII, double monochromator) was that described by MacIntyre(1) except that acid digestion was used for the tissues instead of dry ashing. Thirteen dogs were rapidly killed by clamping the great vessels near the heart. Samples of fresh tissue, lightly blotted, were placed into volumetric flasks: 50 ml flasks for samples of 0.3-0.6 g; 25 ml flasks for samples of 0.1-0.3 g; 10 ml flasks for samples less than 0.1 g. After weighing, the samples were placed in an oven at 105°C for 48 hours, and were then reweighed. The samples were digested over an open flame. $HNO_3$ (0.5 ml), $H_2SO_4$ (0.2 ml), and $HClO_4$ (0.5 ml) were used for samples of 0.3-0.6 g and proportionally less of each acid for smaller samples. Initial addition of $HNO_3$ accomplished most of the digestion, but there was usually a residue of visible fat which required $H_2SO_4$ for digestion. Finally, the addition of $HClO_4$ resulted in a clear, colorless solution. The digestant was brought up to volume in

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