TUTORIAL GROUP.

The following paper on "Test Meals" was presented for discussion on October 14th at 39, Portland Place, W., at the meeting of the Tutorial Group, by Miss Ethel Stachey Laing, Tutor Sister, Mayday Road Hospital, Thornton Heath.

Nursing Procedures—Test Meals.

A complete examination of the "stomach contents" gives valuable information from a diagnostic and therapeutic point of view. Test meals vary considerably in minor details, but the main principles are the same.

A very common meal is:

Ewald's Test Breakfast.—A cup of tea, devoid of milk and sugar, and from 2 to 4 ounces of dry toast is given. At the end of an hour, a stomach tube is passed and the stomach is emptied, the contents being received into a cone-shaped glass.

The following points can be noted with the naked eye:—

(*a*) The quantity returned.
(*b*) The amount of undigested or semi-digested solid.
(*c*) The presence of any abnormal constituents, *e.g.*, blood or mucus.

The chemical analysis will reveal:—

(*a*) The amount of free Hydrochloric Acid.
(*b*) The amount of combined Hydrochloric Acid.
(*c*) The amount of Acid Salts, and Organic Acids.

Riegal's Test Meal.—This meal is now used very largely in place of the one previously described. It consists of:—

Seven to 8 ounces of meat broth.
Seven ounces broiled beef steak.
1½ ounces of mashed potato. The meal is removed at the end of three hours. It serves a useful purpose in testing the mobility of the stomach.

Fractional Gastric Analysis.—As the name denotes the meal is withdrawn in fractions.

The meal itself consists of a pint of gruel, which is prepared in the following way: two tablespoonfuls of very fine oatmeal is boiled in a quart of water, until the bulk is reduced to one pint. It must then be carefully strained through muslin, and kept warm until the patient is ready for it.

The meal is given as early as possible in the morning, the patient having fasted from the previous evening. Many physicians like the patient to have had charcoal in some form as the last food given, *e.g.*, charcoal biscuits, or charcoal in milk.

The nurse should prepare: Ryle's Tube, a glass labelled "fasting contents," or some mark it "resting juice," 12 to 16 sterile test tubes, numbered from 1 upwards, and a 20 cc. syringe.

Ryle's Tube is much smaller in diameter than a stomach tube. Its end is weighted, covered with rubber, and it is also perforated with small holes. About 16 inches from the weighted end the tube is marked with a single line, 6 inches farther along is a double line, and 6 inches farther along is a treble line. Some have a fourth marking. These lines serve as an indication as the various lengths for passing the tube.

Method.—The patient having fasted from the evening before, the tube is passed into the stomach. For a gastric analysis, the double line of the tube should be just visible at the lips. The 20 cc. syringe is attached to the end of the tube and any fluid there may be in the stomach is withdrawn, and put into the glass marked "fasting contents." In some patients there may be no fluid at all, while in others there will probably be a considerable amount, or a few ounces only.

The tube is now clipped and fastened to the clothing, and the patient given the gruel to drink. At intervals of from 10 to 15 minutes, 10 cc. of the meal is withdrawn, and put into the tubes in consecutive order. The amount of free and combined acid is tested for in every sample, and the result plotted in a graph.

Some of the greatest errors committed by nurses are:—

(1) The tube is inserted either too far or not far enough. When inserted too far, it reaches the duodenum, with the result that part of the analysis is duodenal instead of wholly gastric.
(2) Enough care is not taken to use the tubes in strict numerical order, consequently the curve of acidity when drawn is obviously wrong, and everybody's time has been wasted.
(3) There is also a tendency to forget that after each 10 cc. has been withdrawn, and the syringe emptied into the test tube, there will still be some fluid actually in the tube, which must be sent back to the stomach by injecting 2 or 3 cc. by the syringe into the rubber tube.
(4) When withdrawing the "resting juice" a negative result should not be recorded until the nurse has readjusted the tube a little and tried again.

Barium or Bismuth Meals.—The meal consists of milk, or bread and milk, to which has been added either (*a*) Bismuth Carbonate 3 ounces; or (*b*) Barium Sulphate 3 ounces. Both these substances are opaque to X-rays. Sugar may be added to taste. Barium Sulphate is very much cheaper than Bismuth Carbonate.

These meals serve a very useful purpose in diagnosis. The position of the stomach, and its size are easily observed. Strictures, if present, can be located, and the rate at which the stomach empties can be ascertained.

Preparation of the Patient.—Any patient having bismuth or iron in his medicine should have the medicine discontinued for several days previous to the examination.

A dose of castor oil is given 36 hours before the examination, and at least not later than 24 hours before. The colon should not be distended at all, and the aperient should have been given well beforehand. The meal is given about 9 to 9.30 a.m., and the patient should be clothed in a long white gown, fastened with tapes. Any wounds on the body should be dressed with simple dressings such as gauze. In many cases two subsequent examinations are made at four hourly intervals during the day. In these cases no food should be given to the patient without permission from the radiologist, until after the last examination.

Where stricture of the œsophagus is suspected either in its course, or at the cardiac orifice, the meal or some of it is often taken to the X-ray room with the patient, so that actual screening can be carried out during swallowing. If another examination is to be made 24 hours later, to see if there is any delay in the colon emptying itself, the nurse does not administer an aperient that evening.

In connection with the X-ray meals, it is interesting to note that the substance to be used, whether barium or bismuth can now be made much more palatable by using potato flour and small quantities of malted milk. This factor is of great advantage when two or more examinations are to be made, for the stomach always works more efficiently if an appetising substance has been taken, than a food which to the patient was very unpleasant.

FIXTURES FOR NOVEMBER AND DECEMBER.

November 18th.—Meeting of Tutorial Group. Subject for Discussion, "Laryngeal Diphtheria." 5.30 p.m.

November 22nd.—Monthly Meeting of the Council. 2.15 p.m.

November 26th.—H.R.H. Princess Arthur of Connaught, R.R.C., will preside at the Lecture on "Nursing History," given by Miss Isabel Macdonald. 3 p.m.

Miss M. S. Cochrane and Miss A. M. Bushby, Councillors, At Home. 4 to 6 p.m.

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