Early diagnosis of cancer of the esophagus : a new technic of X-ray examination / Anthony Bassler.

EARLY DIAGNOSIS OF CANCER OF THE ESOPHAGUS

A NEW TECHNIC OF X-RAY EXAMINATION

ANTHONY BASSLER, M.D.

Professor of Clinical Medicine, New York Polyclinic Medical School and Hospital; Visiting Physician, New York Polyclinic Hospital; Chief Gastro-Enterologist, German Poliklinik; Visiting Gastro-Enterologist, People's Hospital

NEW YORK

It is with the hope of adding something of practical value to the diagnosis of early cancer of the gullet that I have instituted the practice of a new form of radiographic examination of it. My object was to hold the bismuth in the esophagus so that a sharper outline of it could be obtained, such as is observed when plates of the stomach are made in which the pylorus shuts on the stomach contents, allowing the bismuth to distribute itself through the entire organ, thus outlining the curvatures sharply. Since in the normal individual as well as in those who have only a small degree of cancer formation, fluids reach the cardiac end of the gullet in from five to ten seconds, and solids in about twice that length of time, it seemed to me important to plug in some way the lower end of the tube so that the bismuth introduced could fill the gullet and give a sharp outline of its walls, such for instance, as is produced when a cardiospasm is present or a stenosis which holds the bismuth above them.

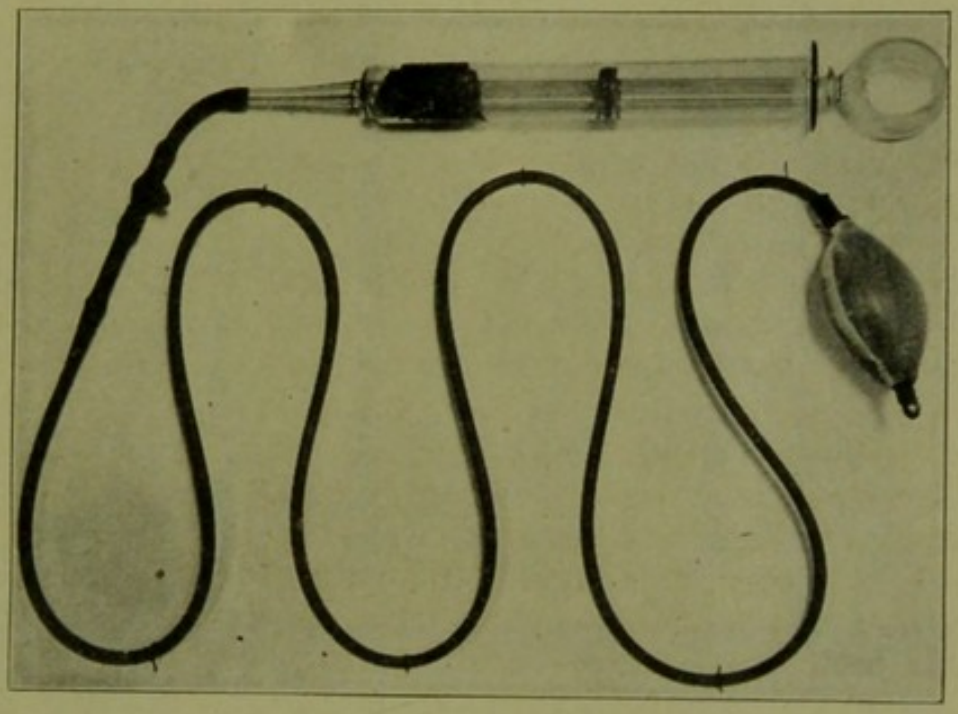
For this purpose, after experimenting with several methods, I concluded to use a simple apparatus made by George Tiemann and Company, which may be described as follows: To a 120 cm. (4-foot) length of rubber tubing 4 mm. in diameter, is attached a rubber bag covered with a reinforcement of silk, and having a brass tip at its lower end to give it weight. At the upper end of the tube is a cock. An ordinary surgical syringe of about 60 c.c. (2-ounce) capacity containing water is used to distend the bag, which, when distended, is fusiform

in shape and measures about 10 cm. in its circumference. The tube is lubricated with glycerin and passed in the usual manner of a stomach-tube, or a mandrin may be employed to assist in its introduction. It is allowed to go down to beyond a mark made on the tube about 40 cm. (15¾ inches) from the upper end of the bag. The bag is then in the stomach, after which it is filled with water by means of the syringe. When this is done, the cock is closed and the tube is pulled on so that the bag is drawn tightly into the funnel-shaped cardiac orifice of the stomach. The patient is now told to exhale completely so as to raise the dome of the diaphragm to a high level, and the external tube is held tightly at this point. It is then fastened about the forehead of the patient, a double knot being employed to hold it, or in some instances it may be fastened around the neck. This is decided according to whether the patients have an opening in the teeth line, because it is desirable to have the tube rest on the gum rather than over the sharp edges of the teeth. In most instances, for comfort and quick work, an external weight may be employed to hold the bag tightly against the cardia (this is now my preference). Any weight of from one-half to one pound answers for the purpose. There is no danger of the tube breaking because there is a silk string inside the tube to keep it from stretching too far. At the same time, the length of the string within the tube is such as to permit the first 40 cm. to stretch 2 inches, this being made so as to allow for the excursion of the diaphragm in ordinary respiration which is about 2 inches at this part of it. When this has been accomplished, a mixture of bismuth, acacia and water is run into the gullet from an irrigating jar by means of an ordinary urethral catheter, preference being given to one of large size in order to have a stiffness for ready introduction.

A study of a number of cardiospasm plates wherein there is only a slight degree of dilatation of the esophagus shows that the diameter of the gullet throughout its entire course runs about 3 cm., and the length of the normal gullet is about 23 cm. This capacity may be taken as a high standard for size, and represents about 160 c.c. It is wise to fill the gullet for an examination. Therefore 150 c.c. of suspension are placed in the irrigating jar and allowed to flow in until the bismuth mix-

ture appears in the mouth, when one knows that the gullet is filled. With the patient standing, radiographs are then taken in the lateral dorsal position with the left back to the plate. These plates may be stereoscoped. Such plates then show the outline of the gullet and its normal narrowings as well as any changes present.

It is evident that by this method of examination irregularities of the walls of the gullet can be observed, and also it is rendered possible to make a diagnosis of carcinoma of the gullet long before stenosis appears. After the plates are taken, the tube is untied or the weight taken off and the relaxation of tension permits



Bassler's cardia plugger.

the bismuth mixture to flow into the stomach. The cock is then opened and the water siphons out of the bag, particularly when it is drawn into the gullet a little to encourage its collapse. Following this, fluoroscopic observations or plates of the stomach may be made. The regular employment of this method of examining the esophagus in *x*-ray examination of the alimentary tract is recommended as a routine. When stenosis is present it is not practical and is unnecessary for diagnosis.

126 East Sixtieth Street.

Reprinted from The Journal of the American Medical Association April 26, 1913, Vol. LX, No. 17, pp. 1283 and 1284