Esophageal Dilatation (Bouginage)

Pages with reference to book, From 20 To 23

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Esophageal dilatation is very important addition to the medical management of esophageal strictures due to any disease.

A properly conducted, esophageal dilatation can be simple and safe. In the majority of patients after initial dilatation this procedure can be continued on out patient basis.

Experience and judgment are critical to safe dilatation, however once acquired they allow effective use of various techniques with very little risk.

Various techniques of dilatation are not universal knowledge. In the following text various methods of esophageal dilatation are described, in a step by step fashion with their advantages and pit falls.

1. Mercury filled dilators

These are available in two forms. Malony type (Fig. 1)

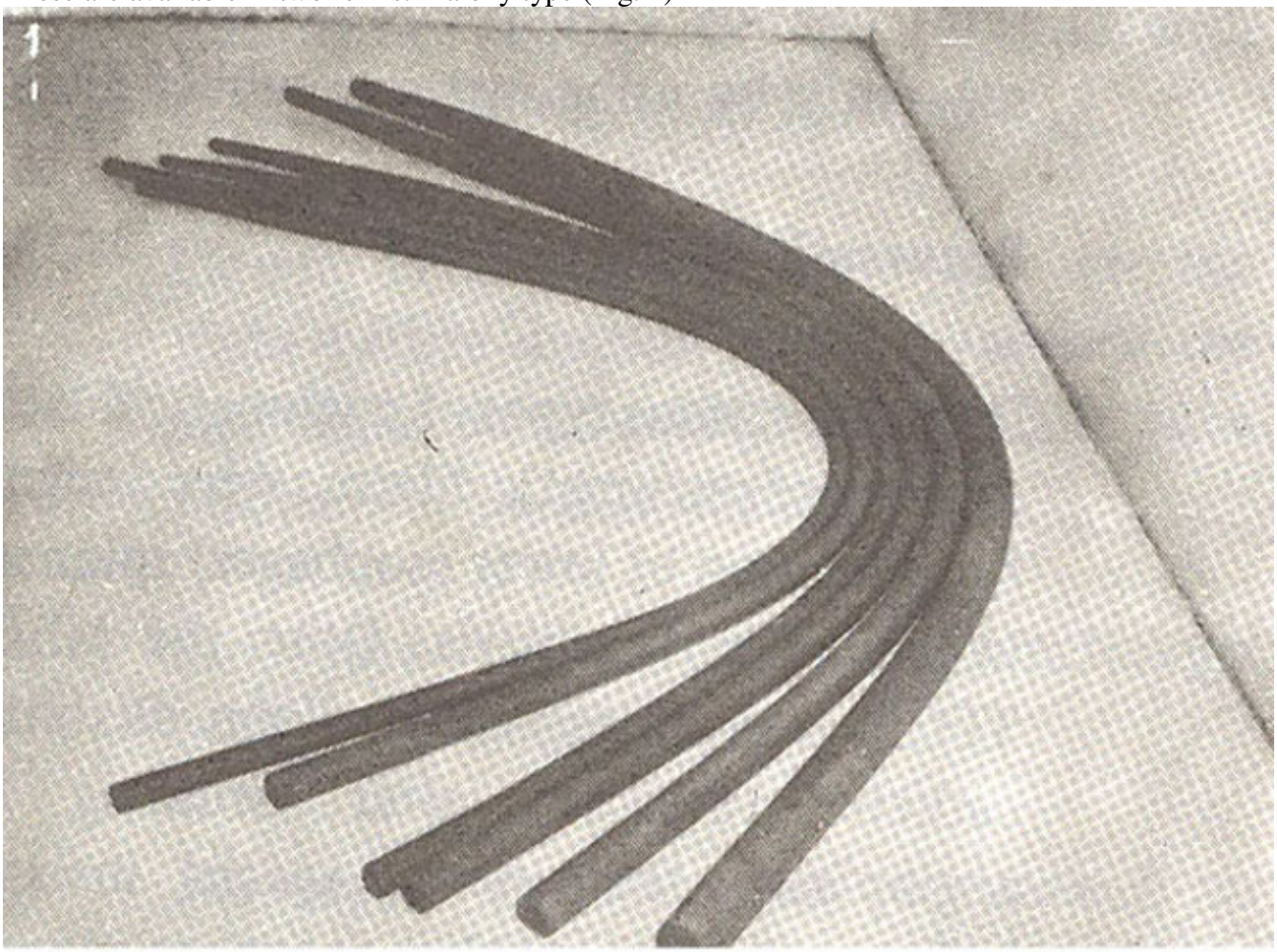

Fig. 1. Malony type dilators.

which have tapered end and Hurst type which have a rounded end. They come in sizes from 14 to SO French (Inn 3 French size). Dilatation with mercury filled dilators is usually done as an out patient.

a) Preparation

1. Place required size dilators on a clean table top in ascending order.

2. Have emesis basin, gauze pads, lubricating jelly and gloves alongwith, oral suction available for use.
3. It is advisable that patient has not taken food or liquid for several hours prior to procedure.
4. Remove if there are any dentures from patient's mouth.

b) Dilatation Prcedure

1. Ask the patient to sit in a straight back chair.
2. Place emesis basin and towel in patient's lap.
3. Ask the assistant to stand behind the patient steadying head of the patient which is tipped half way between anatomic position and full extention. Physician asks the patient to open mouth with tongue protruding out. Then Physician inserts a well lubricated rubber dilator of desired size which is allowed to pass down well beyond the cardia by its own weight. Some times it is desirable to mark 40 c.m. with a ball point pen from its tip to assure dilatation. When a Bougi meets obstruction bougieneur can use his thumb and fore finger in the back of patient's mouth and push the bougi straight down. It should be noted that the bougi should not be pushed from out side the mouth.
4. Generally passage of three progressive bougies is enough per sitting.
5. When the procedure is completed it is advisable to monitor patients vital signs before releasing him home atleast in the beginning.

c) Comments

1. A streak or tinge of blood on dilator is not necessarily alarming but one may want to stop dilatation for that day at this point.
2. It is generally recommended to dilate stricture upto 50F size and then maintain it by dilatation at suitable intervals.
3. Next day of dilatation it is best to begin with one French size less than where it was left last time.

Metal olive dilator (Eder-Peuestow)

Instrument consists of metallic olives from size 8 to 45 French. A piano wire with a short spring tip and special spring wire support,to which an olive tip can be screwed (Fig. 2).

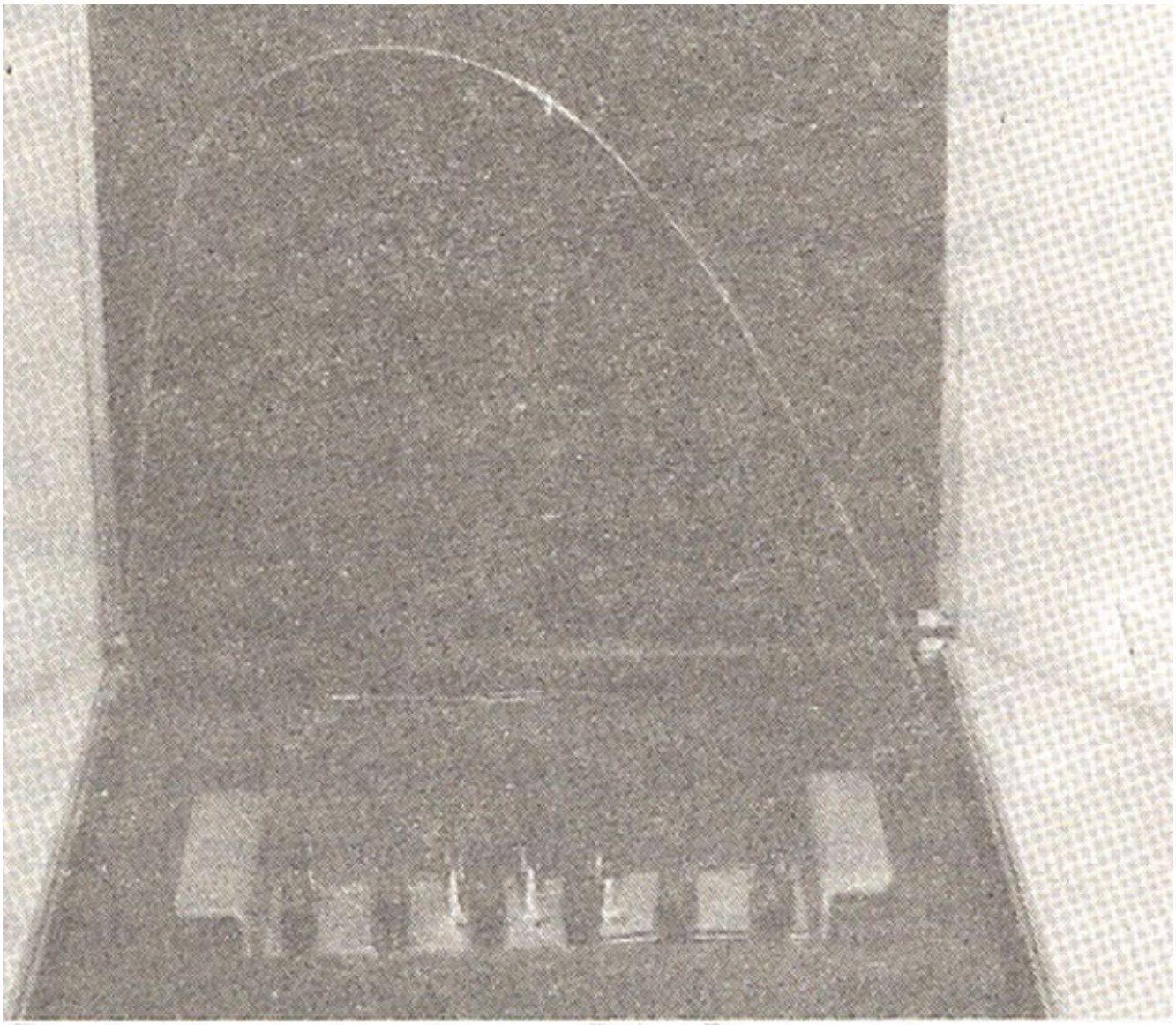

Fig. 2. Metal olive dilator (Eder Peuestow).

Preparation

1. Patient is usually placed on his left side.
2. Bougieneur should wear lead aparen.
3. Bougieneur passes the guide wire under fluoroscopic control. When the tip of the flexible spring of the guide wire is placed in the antrum a desired size olive is attached to the spring support which is then passed down to the esophagus over the wire guide and through the strictured region. In this way increasingly larger olives are subsequently used until suitable dilatation has been achieved. At the end of the prosedure both olive and wire are removed.
4. After the procedure patient's vital signs are checked before releasing the patient from the procedure area.

Critical Comments

Eder-Peuestow metallic olive dilator are ideal for dilatation of the strictures which are too hard for dilatation by rubber bougi.

2. In patients with a symmetrical strictures it is preferred to pass a black thread with weight as lumen

finder and let it pass a way down into small bowel before starting dilatation.
3. Recently others have used and we have tried passing the pianowire under direct vision through the fiberoptic endoscope. After having passed the wire under direct vision through the stricture scope is removed by pushing the wire while pulling endoscope. Then support spring with olive is slided over the piano wire in a usual manner to achieve the dilatation.
4. After achieving dilatation of a tight stricture dilation can be maintained subsequently by using mercury rubber dilator.

Pneumatic dilators

There are various types of pneumatic dilators. A group of pneumatic dilators were designed for dilatation of lower esophageal sphincter in patient with achiasia. Other the MED-TECH gastrointestinal balloon dilatation catheter, designed after Gruntzig for angioplasty, that uses a special inelastic balloon, to exert radial force on narrow segment.
Pneumatic dilator used for achiasia Pneumatic dilation is the preferred form of mechanical Interruption of lower esophageal sphinctor in the lumen. From time to time various forms of dilators have been designed for this purpose and the list includes Mosher bag, Tuckur mercury dilator, Bron-McHardydilator. The one that we are going to describe here is called Rider-Moller dilator. It consist of as shown in picture a flexible spring tube with metalic olive tip and inflatable balloon connected at one end and a Y tubing at the other end. This Y tube is attached to a pressure gage on one side and a rubber bulb on the other side (Fig. 3).

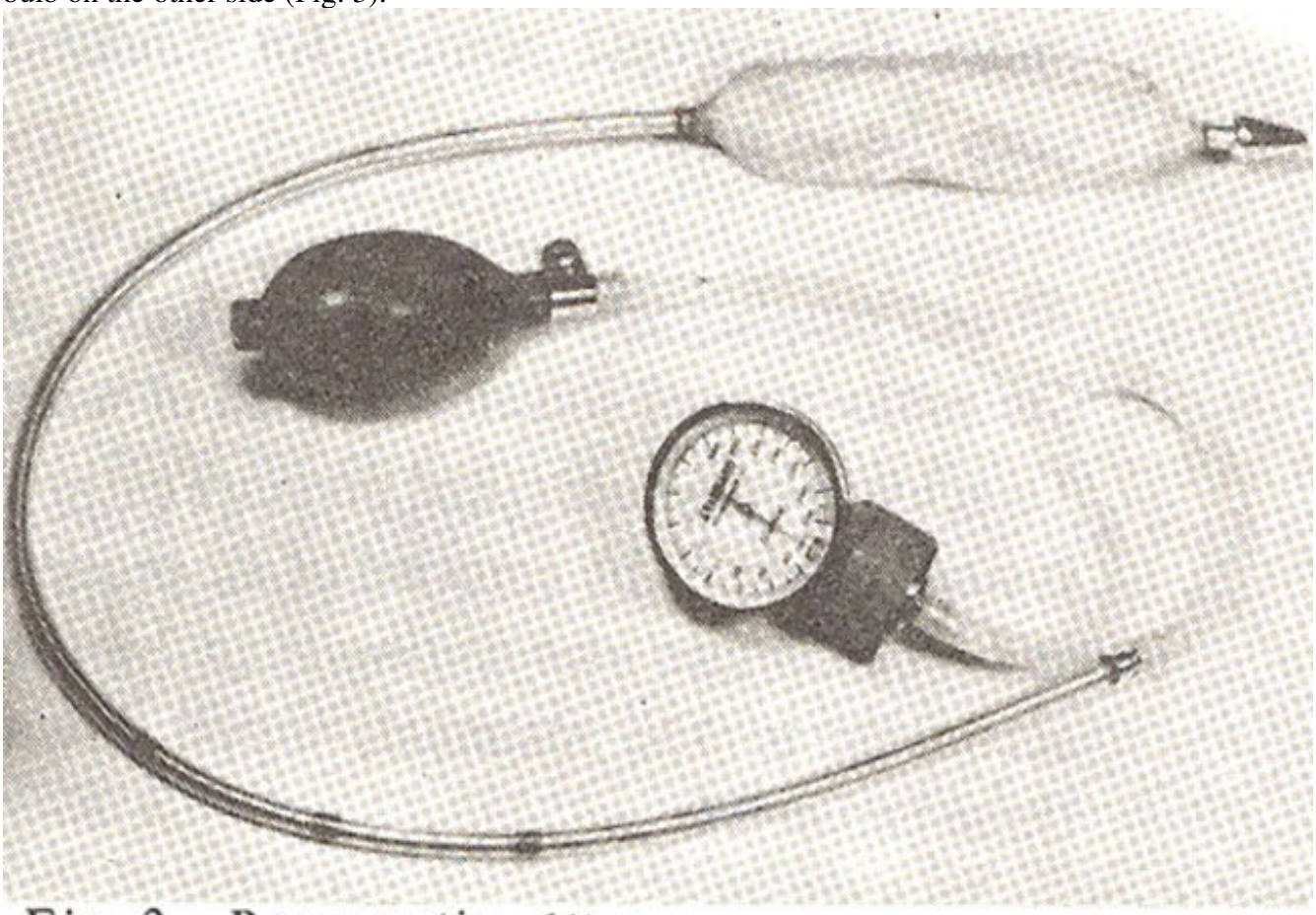

Fig. 3. Pneumatic dilator

Pneumatic

1. Pneumatic dilation of the patients with achiasia is done as in-patients only.

2. Patient is placed on liquid diet on the night before dilation and if necessary the esophagus is emptied with Ewald tube prior to the passage of instrument.
3. Procedure is performed on radiology table with fluoroscopic control.
4. Remove if there are any dentures from patients, mouth.
5. Have oral suction available alongwith gauze pads, lubricating jelly and gloves.
6. Check pneumatic dilator to be sure that balloonholds and air once it is pumped up.
7. Throat is anaesthetised using a local anaesthetic like 4% xylocaine prior to the procedure.
8. Premedication like pethidine, given intramuscularly or intravenously may help to allay anxiety.

Dilatation

1. Patient lies on the fluoroscopic table with his left side down.
2. Balloon of the pneumatic dilator is deflated and then passed under fluoroscopic control and positioned in such a way that the rubber bag extends across the area of lower esophageal sphincter. When the gag is in correct position it is inflated to a pressure of atleast 300 m.m murcury and maintained in that position for 10 to 15 second. At this time patient usually complains of sub sternal pain it may be advisable to observe the bag fluoroscopically and take a picture to confirm correct placement of the dilated balloon.-This procedure may be repeated two to three times. When balloon is withdrawn it may be blood stained if stretching had been sufficiently forcefull.

Post dilatation care

Patient is kept nothing by' mouth for next six hours, his temperature and pulse recorded hourly. If there is no record of severe pain, temperature elevation, at the end of this period, clear liquid diet may be started and normal diet resumed on next day.

Comments

1. Pneumatic dilatation gives satisfactory results in 60% of the cases with incidence of perforation in 3%.[1]
2 In advanced achiasia in which a dilated tortuous "SIGMOID" esophagus is present pneumatic dilatation may not be technically feasible.

Gastrointestinal balloon dilatation catheters Medi Tech.

Gastrointestinal balloon dilatation catheters, developed after the Gruntzing technique use special inelastic balloon made of poly-ethylene which is filled with water or dilute contrast to exert radial force on a narrow segment (Fig.4).

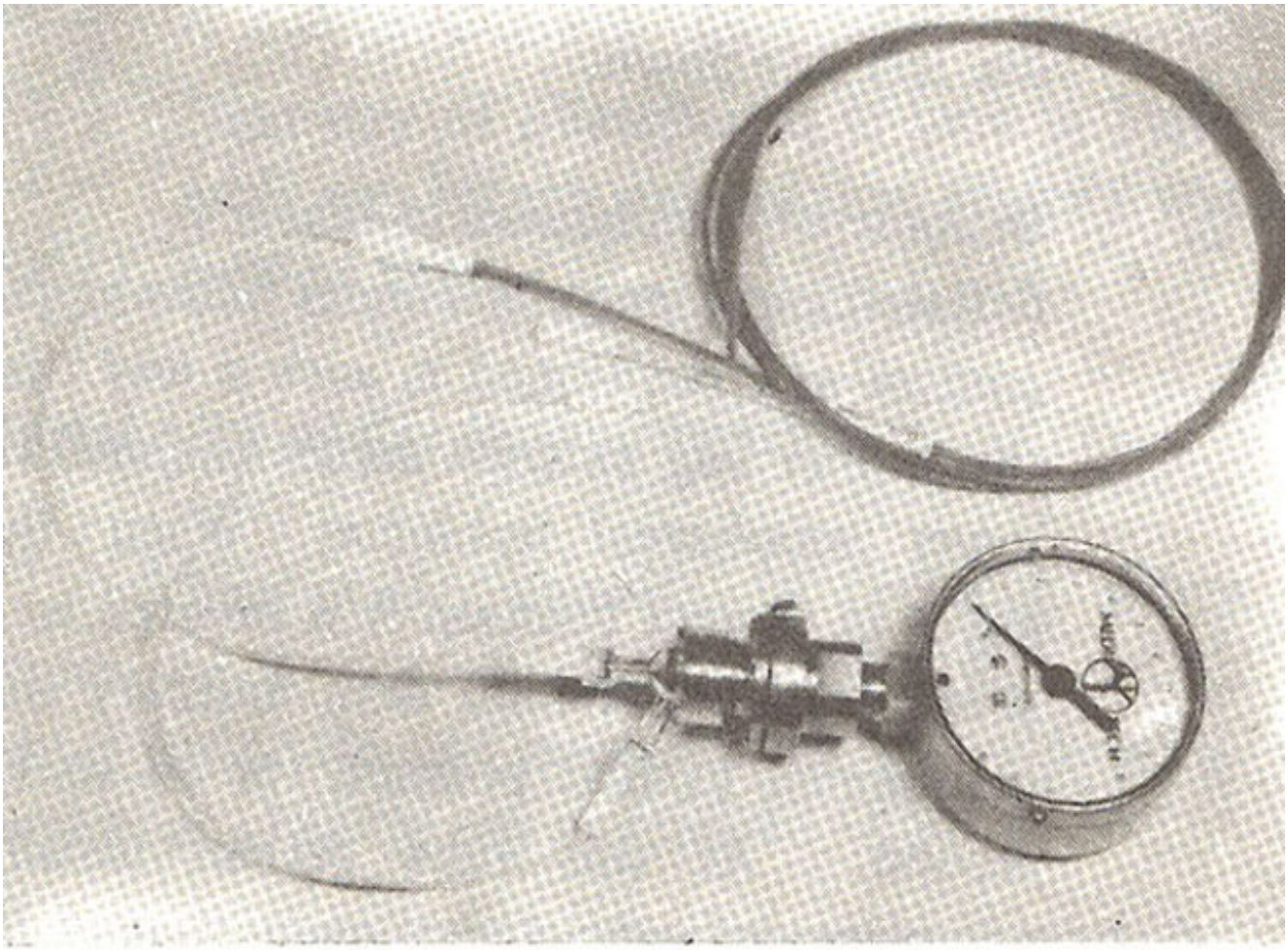

Fig. 4. Medi Tech. Catheters.

These balloons are made near the tip of poly ethylene catheter, body which has two lumens, the lumen marked distal is the central lumen of the catheter that terminate at the distal tip, and the lumen marked balloon is the balloon inflation lumen. These catheters are available in various lengths varyIng from 100 to 80 cm.

There are two types of catheters, endoscopic catheters and esophageal catheters. Outer diameter of endoscopic balloons varies from four to eight m.m and length of the balloon also varies from 4 to 8 c.m. Esophageal catheter balloons diameter varies from 6 mm to 15 mm.

These balloons are attached through a dome fitting to a pressure gauge and through an extension tube to a syring. Medi-Tech pressure gauge is especially designed to allow monitoring of inflation pressure within the dilatation balloons. These balloons are used for the dilation of very small and tight strictures. Initially dilatation of a narrow stricture can be carried out under direct vision by passing the catheter through endoscope channel by filling the balloon with water. Then by larger size esophageal balloon catheters under fluoroscopic control for dilatation upto the 15 mm.

When esophageal dilation is used one can use radio opaque solution instead of water. To achieve optimum radial pressure catheter system needs to be emptied of air properly and appropriate size syring is to be used according to the mannual, supplied with these catheters.

Reference

1. Sanderson, D.R., Ellis, F.H. Jr. and Olsen, A.M. Achiasia of the esophagus; results of therapy by dilatation 1950-1967. Chest, 1970; 58 : 116.