The use of self-expanding metal stents (SEMS) in cervical stenosis or fistulas is somewhat limited due to severe cervical pain, globus sensation, bleeding, migration and patient intolerance. Additionally, the endoscopist needs to have great skill to properly adjust the proximal stent end. Recently, a self-expanding plastic stent (SEPS), namely Polyflex, was designed for palliation of dysphagia in tumoral stenosis frequently needs some kind of stenting apart from other therapeutic modalities such as radiotherapy.

The experience of stenting four high cervical esophageal strictures with the Polyflex endoprosthesis.

Stenting of strictures close to the upper esophageal sphincter with the Polyflex stent

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Abstract

Stent insertion in strictures in the upper cervical esophagus present special difficulties, such as patient discomfort and worry due to continuous neck globus sensation and a metallic taste. Additionally, the endoscopist needs to have great skill to properly adjust the proximal stent end. We present the experience of stenting high cervical esophageal strictures with a self-expanding plastic stent (Polyflex), in three tumoral and one postoperative benign stenosis. Dysphagia disappeared and the endoprosthesis was well tolerated. The Polyflex stent seems to be suitable for insertion in the upper esophagus.

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Key words: Polyflex; Dysphagia; Esophageal stent

INTRODUCTION

Cervical esophageal strictures are a therapeutic challenge. Despite the fact that endoscopic dilation will solve most of the benign stricture cases and small fistulas will eventually heal, some difficult to manage, severe strictures will remain in some patients. In addition, palliation of dysphagia in tumoral stenosis frequently needs some kind of stenting apart from other therapeutic modalities such as radiotherapy.

CASE REPORT

Patient characteristics are shown in Table 1. Tumoral strictures were caused by primary esophageal cancer in two occasions and metastasis/compression of lung cancer in one case (patient 4, Table 1). In Figure 1A a tumoral stricture in the cervical esophagus, close to the upper esophageal sphincter is shown. The benign post-
operative stricture was due to esophagectomy for mid-
portion esophageal cancer. Dysphagia was severe in all
patients who were virtually unable to drink liquids. The
sizes of the Polyflex employed were 9 cm length and 16
mm width (with 20 mm in the upper flared portion).

Polyflex insertion was monitored endoscopically, as
previously reported by us, for peptic strictures in the
lower esophagus[2]. Briefly, the insertion manoeuvre was
as follows, an ultrathin gastroscope (Pentax EG-1870
K) with an outer diameter of 6 mm was passed into the
stomach. A Savary guide wire was then inserted through
the working channel and left inside the gastric cavity, and
the ultrathin gastroscope was withdrawn. Dilation was
performed with Savary bougies or neumatic balloons, to
a diameter of 10-12 mm. Next, the Polyflex, after being
loaded into the applicator, was passed over the guide
wire, traversing the stricture. Below the distal tip of
the pusher, the blue radio-opaque marks of the upper part
of the stent were seen. A mark with a felt-tipped pen
can be made on the pusher to indicate the level of
the upper part of the SEPS. This level was maintained as the
stent was released several centimeters above the Killian’s
mouth.

Figure 2A shows the Polyflex stent, loaded into
the applicator that has passed into the esophagus and
is visualized with an ultrathin gastroscope positioned
alongside the applicator in the hypopharynx. The vocal
cords lay before the applicator but are not seen from this
position. A blue mark has been made on the distal tip of
the pusher, corresponding to the upper level of the
stent. During the release manoeuvre this blue mark has
to be kept several centimeters above the Killian’s mouth.
The outer sheath of the applicator is gently removed,
while keeping the upper end of the stent in the desired
position above the stricture, until complete deployment
of the Polyflex has been achieved.

Therefore, the key point for proper placement is to
maintain the proximal end of the stent in all cases im-
mediately below the Killian’s mouth and check the stent
release with the ultrathin endoscope placed in the hy-
opharynx.

After suitable complete Polyflex deployment the up-
per part of the stent is typically positioned just below
the Killian’s mouth. In Figure 2B complete Polyflex re-
lease is seen. The plastic rod on which the folded stent
was mounted is still visible from the hypopharynx.

After insertion only mild pain was observed in one
patient. Dysphagia disappeared and patients were able to
eat. Radiographs were taken at the end of the procedure
and for follow up when necessary. In Figure 2B a Self-
expanding plastic stent (Polyflex, 9 cm length × 16 mm
diameter, 20 mm in the upper flared portion) has been
placed in the upper esophagus. Nearly the entire endo-
prosthesis is radiolucent, except for three crowns of ra-

Table 1 Characteristics of patients with cervical esophageal strictures stented with the Polyflex endoprosthesis

| Patient | Gender/age (yr) | Type of stricture | Outcomes after Polyflex stenting |
|---------|----------------|------------------|---------------------------------|
| 1       | Male/63        | Benign postoperative | Spontaneous stent migration after two months. Stricture permanent dilated |
| 2       | Female/79      | Tumoral          | Spontaneous stent migration after chemotherapy. Asymptomatic. No need for further stenting |
| 3       | Male/80        | Tumoral          | Asymptomatic until death several months after |
| 4       | Male/53        | Tumoral          | Asymptomatic until death several months after |

Figure 1 Radiograph of the stricture and Polyflex in the upper esophagus.
A: Malignant stricture; B: Polyflex.
diopaque material placed at both ends and in the middle of the stent (Figure 1B).

Stent migration occurred in one neoplastic stricture after chemotherapy and in the benign stricture after achieving permanent dilation. Thus no further stenting was necessary. On follow up radiographs stents were seen in the stomach and were easily removed endoscopically. Stricture dilation was also assessed during these endoscopies. The remaining two patients having tumoral stenosis died several months after stent insertion without complaining of dysphagia. As they were able to eat and had many other medical problems, doctors in charge did not check stent position on follow up radiographs.

**DISCUSSION**

Stent insertion in strictures in the upper cervical esophagus presents special difficulties, such as patient discomfort and worry due to continuous neck globus sensation and a metallic taste. Nevertheless, SEMS have been employed in this setting in specialized tertiary centers, emphasizing that physician experience with stent placement is important and is likely to influence patient outcome in this particularly challenging group of patients where precision in stent deployment is essential[1].

The Polyflex endoprosthesis, a SEPS, was made available several years ago, as an adequate stent to achieve and maintain patency in benign or malignant gastrointestinal strictures[2]. The Polyflex stent has the advantage of easy removal. In the event of incorrect insertion, it can be extracted and reinserted during the same session. This is one of the most important factors in its increasingly widespread use, apart from having much less granulation tissue reaction at the ends of the endoprosthesis than SEMS. These facts make plastic stents removable.

In contrast to older esophageal plastic stents, the Polyflex stent is a self-expanding endoprosthesis. Consequently, it is inserted at a smaller diameter, requiring minimal stricture dilation prior to the procedure. When compared to SEMS, plastic stents have the disadvantage of a so-called “memory” or the tendency to revert to their original shape (length, diameter) after they have been compressed to facilitate insertion. SEMS are manufactured and then packed in the “reduced” size, ready for insertion. In contrast, SEPS must be loaded into the introducing device immediately before insertion because a longstanding contraction damages the plastic material. This procedure can appear complex initially but is easily performed once experience has been gained.

Although this study is limited to a small number of patients, tolerance to Polyflex in the upper esophagus appeared to be good and suitable for managing these strictures. Furthermore, if the Polyflex is not properly adjusted during insertion, it can be extracted, loaded again into the applicator and reinserted during the same session. This is an important fact in complex cases or when the endoscopist does not have extensive experience.

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