

# Use of Esophageal Self Expandable Metal Stents - The Local Experience

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## Introduction

Carcinoma of the esophagus is the fifth commonest tumor in Pakistan<sup>1</sup>. The presentation is generally late with dysphagia even for liquids. Surgical results in these advanced cases are not very encouraging; therefore esophageal stents have been used to maintain the patency of the esophagus. These stents not only maintain the nutrition but also facilitate drainage of saliva and other secretions, which may later produce complications of aspiration. Of the various stents available, Atkinson's prosthesis has been used widely with good results but major complications including perforation of the esophagus and migration of the stent<sup>2,3</sup>. Self-expandable metallic stents are easier to place, do not migrate and have a very low complication rate. Most self-expandable stents cannot be repositioned or removed once they are fully expanded, therefore precision is a prerequisite along with the use of fluoroscopy. The Chinese self-expandable stent has the advantage that it can be repositioned (pulled up) even when half fired and it can be removed using a foreign body forceps. Once removed the stent can be recharged onto the assembly and the procedure repeated<sup>4</sup>. The only drawback for using this stent in Pakistan is the high cost. We present our experience of using these stents in 4 cases.

## Patients, Methods and Results

Four biopsy proven cases of squamous cell carcinoma of the esophagus underwent placement of self-expandable metallic stents under topical anaesthesia or intravenous medazolam. There were 3 females and one male whose ages ranged from 30-70 years. All three females had carcinoma of the middle or upper esophagus. The male patient had a lower esophageal growth which was operated surgically (esophagectomy with gastroesophageal anastomosis) but later resulted in an anastomotic leak. In this case the stent was placed with an intention to seal the leak.

The self-expandable metallic stent is made titanium and is available in sizes varying from 60-120 CMS with an internal diameter of 20mm. The stent is loaded between a sheath and an introducer. The introducer has a lumen for the guide wire and a thin tapering end to facilitate smooth introduction. The sheath is marked to guide the level of insertion.

After a standard endoscopy, the lumen of the esophagus is dilated using a size 12 dilator. The guide wire is then left in the stomach and the endoscope is reintroduced by an assistant to determine the length of the tumor (stent should be 4cms longer than the growth). The endoscope is advanced to the lower margin of the growth and held there. The operator then advances the assembly of the stent over the guide wire into the esophagus. Once the lower end of the stent has crossed the lower end of the growth then keeping the introducer stable the sheath is slowly slid back over the introducer. This mechanism releases the lower end of the stent, which is endoscopically seen to expand. The assistant then slowly withdraws the endoscope to the upper end of the growth while the operator releases the rest of the stent under endoscopic view. Once fully released the mesh of the stent is seen encircling the esophageal lumen. The endoscope is now advanced through the stent to confirm that both margins of the stent are growth free.

The procedure was well tolerated by all the patients and no fluoroscopy or anesthesia was used. The patency of the esophageal lumen was confirmed by making the patient drink water soon after the endoscopy. In all three patients with esophageal growth, adequate lumen was obtained following placement of stent. In the patient with anastomotic leak, the stent was unable to snug to the gastric end of the anastomosis therefore the gastric contents continued to leak from between the stent and the gastric mucosa. The stent was removed after a week and placed again to a slightly higher position but the problem persisted, therefore the stent was finally removed after 2 weeks without complications.

## Comments

The advent of self-expandable metal stent has replaced the need for plastic stent. These stents require minimal dilatation and sedation but provide a much wider lumen (2-2.5cms) which enables the consumption of a neat normal diet. The complications are much fewer than the plastic stents but the cost is high. These stents are successful in over 80% of the cases but the problem of reocclusion of the lumen due to tumor overgrowth, stent migration (where it crosses the cardia), haemorrhage and pain persist<sup>5,6</sup>. With the plastic coating of the stem of the stent from inside the problem of tumor in growth and migration has been controlled to a great extent<sup>7</sup>. Other metallic stents are fired using a thread which when pulled unwinds from the stent springing it to expand, once unwound and expanded, they cannot be removed or reused. The Chinese stent is easier to unload (simple withdrawal of the upper tube), can be repositioned while half open and removed if wrongly placed and recharged for reuse. Its cost is also 50% less than the other metallic stents.

## References

1. Mehdi I. Frequency of gastrointestinal malignant tumors at a teaching hospital in Karachi. *J. Pak. Med. Assoc.*, 1998;48:14-17.
2. Atkinson M, Ferguson R, Parker GC. Tube introduce and modified celestin tube for use in palliative intubation of esophagogastric neoplasms at fiberoptic endoscopy, *Gut*, 1978;19:669-71.
3. Gaspari O, Casallegno PA, Camandoma M, et al. Endoscopic insertion of 248 prostheses in inoperable carcinoma of the esophagus and cardia: short term and long term results. *Gastrointest. Endoscopy*, 1987 ;33:354-56.
4. Flexent NT. Alloy expandable stent. Changzhou New District. Garson Medical Stent Apparatus Co. Ltd., China.
5. Knyrim K, Wanger HJ, Bethge N, et al. A controlled trial of expandable metal stent for palliation of esophageal obstruction due to inoperable cancer. *N. EngI. J. Med.*, 1993; 329:1302-7.
6. Song HY, Choi KC, Kwon HC, et al. Esophageal stricture: treatment with a new design of modified Gianturco stent. *Radiology*, 1993;184:729-34.
7. Watkinson AF, Ellul J, Entwisle K et al. Esophageal carcinoma initial results of palliative treatment with covered self-expanding endoprotheses. *Radiology*, 1995;1 95:821-27.