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Palliative Treatment of Neoplastic Esophageal Strictures by Self-expanding Metallic Stent

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Treatment of cancer of the esophagus still remains a big challenge because most of the patients, when first seen, are unoperable.

The physician, surgeon, oncologist and radiotherapist are all involved to give the patient the best palliation, considering that in this situation life expectancy is usually less than six months. Patients require palliation of their dysphagia and there is no doubt that this is the most important problem to allow an acceptable quality of life.

Currently the two techniques most frequently used are recanalization with the Nd:YAG (neodimium: yttrium-aluminium-garnet) laser therapy or intubation with different kinds of prostheses.

In our opinion laser therapy, when possible, is the best choice of treatment; for very long and infiltrating tumors, intubation remains the only choice of palliation.

This retrospective review describes the results of our experience in the palliative treatment of patients with unoperable tumours of the esophagus and gastric cardia by self expanding metallic stent.

Material and Methods

From March 1992 to June 1995, 32 pts (23 males and 9 females, mean age 68.1 years) with unoperable tumors of the esophagus or gastric cardia were seen at our Institution and treated by the insertion of 44 nitinol esophageal Strecker stents (Meditech-Boston Scientific Corporation). Strictures were located 4 in the upper third of the esophagus, 10 in the middle third and 18 in the lower

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third or at the level of the cardia (including 6 pts with anastomotic recurrence after total gastrectomy). The length of the strictures varied from 4 to 21 cm.

All pts were unoperable because of advanced stage of disease, poor general conditions, cardio-respiratory problems or because they refused to undergo surgery. Before stent insertion all the patients have been dilated. The procedures were performed under fluoroscopic control with local anesthesia (xilocayn spray).

The Strecker stent is an elastic tubular mesh made of titanium alloy (nitinol) that self expands when released from its delivery system.

The prosthesis is enclosed in a pharmaceutical gelatin dissolving within 10 minutes after being exposed to esophageal fluids. Four radiopaque markers indicate the stent length before and after the final expansion.

The fully expanded stent measures 18 mm in diameter and the proximal end is a little wider (20 mm) to allow the insertion of a second stent when necessary.

These stents are available in sizes of 7, 10 and 15 cm of length.

After the insertion the stent is carefully dilated by 8 cm long and 40 mm diameter balloon catheter.

The position of the stent after its deployment is checked by hydrosoluble contrast media study and an endoscopic examination performed the day after. All the pts were controlled during the follow-up period until their death and evaluated by an X-ray or endoscopy, when necessary, according to the degree of dysphagia complained after the procedure.

Results

We used a single stent in 21 pts, two stents in 10 pts and three in one case (patient with 21 cm stricture length).

Successful stenting of the stricture was obtained in all pts even if in some cases the distal end of the delivery system could not be easily advanced through the stricture, especially in those cases with anastomotic recurrence or with the tumor at the level of the gastric cardia.

In some instances, the system kinked in its middle third while it was being advanced inside the viscus, making it difficult to release the stent. As a consequence, we experienced an uncorrect deployment resulting in faulty positioning in 8 pts, making it necessary the use of two stents instead of one. In 3 cases a second stent was positioned into the first after 15 days (1pt) and 3 months (2pts) respectively, due to tumour overgrowth.

In those cases where the tumor was located in the cervical esophagus we noted a complete stent expansion only 24 - 48 hours after the procedure. We had no mayor complications such as hemorrhage, perforation or migration of the prosthesis; three pts experienced gastro-esophageal reflux and nine pts complained of retrosternal or transitory chest pain.

One patient died the day after the procedure for a IMA.

21 pts (65%) were able to assume a regular or semisolid diet, while 11 pts (35%) only a liquid one. 18 pts died within 13 months after stent insertion (mean survival 5,6 months); at the end of the study 14 pts were alive from 4 to 15 months after stent insertion (mean survival 8,3 months).

Discussion

Palliation of dysphagia, in patients with unresectable esophageal tumors, is a major therapeutic problem. In the past years many treatments have been considered including surgery, intubation, dilatation, radio and chemotherapy; more recently lasertherapy and self-expanding metal stents have been used with successful results.

Radio and chemotherapy alone have been abandoned because of the long time necessary, even in responder patients, to achieve a lumen patency and obviate dysphagia.

Both treatments are now used in combination with others kinds of palliative methods such as surgical by-pass, intubation, or lasertherapy.

Palliative surgery is still accompanied by an unacceptable rate of complications and mortality but because of good quality of palliation in survivors, should be only performed in young and favourable risk patients and in very few dedicated Centers, Perforation, dislocation and obstruction are the three major and still frequent complications of the conventional, plastic, esophageal prostheses.

Even in a recent experience perforation and aspiration pneumonia were as high as 10% as well as prosthesis displacement (11%); mortality rate was 7,3% [1].

Total complication and mortality rates, as reported by others [2], may be so high as 57% and 21% respectively.

Lasertherapy should be considered one of the best method of palliation for unresectable tumours; in most of the studies luminal patency is obtained in about 90% of patients with an improved swallowing rate of 80 %.

Complications (perforation, hemorrhage and fistula) are less than 4% and mortality rate is usually lower than 1% [3].

Quality of life of pts treated by laser is good, dysphagia - free mean time after each treatment ranges between 2 and 3 months and mean survival is almost six months [4]. On the other hand for long, infiltrating and circumferential neoplastic strictures laser is not indicated and push-through intubation is the best choice.

Self-expanding metal stent have some advantages compared to the conventional prostheses: can be positioned through a narrow strictures, in case of very high lesions because well tolerated, in presence of very long strictures and the insertion is easier for lesions of cervical and lower esophagus. The disadvantages are essentially the impossibility to insert the stent in presence of T-E fistula, impossibility to remove the stent and the high cost.

As far as concern the last problem we want to report a very interesting study, presented at the last Congress of the I.S.D.E (International Society for Diseases of the Esophagus).

The Authors [5] compare the overall cost in a series of 30 Plastic Stents, 30 Fine Mesh Self Expanding Stents (Wallstent) and 29 Dilatable Metallic Stents (Ultraflex).

Success rate in both metal stent groups was 95% versus 73% success rate of plastic stent group, with a complication rate of 6% and 13% respectively. Considering clinical success, complications rate and the follow-up, the global cost of the patients treated with metal stent is only a 20% more elevated than the group treated with conventional tubes.

In our series we did not experience hemorrhage, perforation or migration of

the prosthesis; we only had three late occlusion by tumors ingrowth (the problem is now overpassed by the new version of the stents with silicone coated walls) and few minor complications lasting short time or managed with medical therapy.

Same results are reported by others [6].

The major problem in our experience was uncorrect deployment of the delivery system, resulting in faulty positioning of the stent itself; but this technical aspect should now be by-passed making it easier for the endoscopist and more comfortable for the patient the insertion of the prosthesis.

We want just remember that a new form of palliation for the unoperable cancer of the esophagus has been recently proposed that is the tumor necrosis induced by Endoscopic Ethanol Injection; this technique seems to be very effective, with no complications, inexpensive and easily available [7].

In conclusion and in our opinion, self expanding metal stents are effective in the palliative treatment of the esophageal malignant strictures for many reasons.

The success rate is very high with a very low complication rate, the technique is feasible in all patients even in those cases with long, narrow or very high lesions and it is a day hospital procedure that will secure a good quality of life at a reasonable cost.

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