Palliative Esophageal Stent or Surgery in Advanced Esophageal Malignancy

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Abstract

Esophageal malignancy is one of the most aggressive malignancies. Unfortunately, the majority of patients present with incurable disease. Then palliative treatment to relieve dysphagia is the mainstay of treatment. We compared the mortality, procedure-related complications, hospital stay, intervention time, improvement of dysphagia and survival time between esophageal stent and surgery. There were twenty patients who underwent esophageal stent and twenty-three patients underwent surgical treatment. Pretreatment characteristics were similar between the two groups. The mortality between the surgical group and the esophageal stent group was 30.43 per cent (7/23) and 5 per cent (1/20) ($p<0.05$). The complications in the surgical group included anastomotic leakage 39.13 per cent (9/23), wound dehiscence 4.35 per cent (1/23), small bowel obstruction 4.35 per cent (1/23) and late anastomotic stricture 37.5 per cent (6/16). In the esophageal stent group, the complications were severe chest pain 10 per cent (2/20), stent displacement 10.52 per cent (2/19), stent obstruction from food impaction 15.78 per cent (3/19) and tumor overgrowth leading to stent obstruction 5.26 per cent (1/19). More intervention time and hospital stay (post intervention period and ICU period) was spent in the surgical group (320.43±133.84 mins *vs* 57.5±23.98 mins $p<0.001$, 30.39±20.69 days *vs* 4.9±2.61 days $p<0.001$, 9.79±16.64 days *vs* 0 days $p<0.05$). The improvement of dysphagia was 1.00±1.03 *vs* 1.75±0.72 ($p<0.05$). Survival between the two groups was not statistically different ($p>0.05$).

Key word : Esophageal Stent, Esophageal Malignancy

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Esophageal malignancy is one of the most aggressive malignancies with an overall 5 year survival rate of below 15 per cent[1,2]. Management of esophageal malignancy depends on the stage of disease at presentation. Unfortunately, due to the tendency for early spread and the absence of symptoms in early cancer, presentation is usually delayed until the onset of dysphagia. By this time the patients have either advanced localized disease or distant metastases, leading to the majority of the patients presenting with incurable disease. Therapeutic intervention is effective palliation of dysphagia at the lowest risk, cost and maintenance of quality of life until death occurs[1-4]. The optimal treatment of patients with esophageal malignancy is still a subject of debate. Surgical treatment remains the mainstay therapy for patients with resectable esophageal cancer who are fit for a major operation. However, in the presence of incurable disease, resection can offer superior palliation compared to other non-operative treatment modalities with restoration of normal swallowing in over 90 per cent of patients but about 20 per cent of the patients have post-operative dysphagia caused by either tumor recurrence or anastomotic stricture[4,5]. In spite of recent advances in surgery, morbidity and mortality are still high especially in patients who are frequently elderly, debilitated, undernourished and have a number of concomittant serious clinical conditions[6-8].

Esophageal stent is an attractive alternative therapy because it can provide a more lasting palliation after a single procedure. Stent insertion carries a perforation risk of 5-10 per cent[9-11]. It is effective, rapid and safe with restoration and maintenance of swallowing ability and shortened hospitalization. The aim of this retrospective study was to compare the result of two palliative treatments between surgery and esophageal stent in patients with advanced esophageal malignancy who underwent only one intervention without any previous or post intervention adjuvant treatments.

PATIENTS AND METHOD

Between April 1993 and March 2000, there were 43 patients with advanced esophageal malignancy who underwent either palliative surgery or esophageal stent at the Department of Surgery, Bangkok Metropolitan Administration Medical College and Vajira Hospital. All patients underwent only single intervention without any previous or adjuvant treatment. The records were reviewed and the patients were followed-up until death. Data collection included patient demographics, neoplasm characteristics, mortality, morbidity, intervention time, hospital and ICU stay, pre and post-intervention dysphagia scores and survival time. The functional scores of dysphagia were graded as 1-6 (1 = eating normally, 2 = required liquid with meals, 3 = able to take semisolids, 4 = able to take liquid only, 5 = unable to take liquid, but able to swallow saliva and 6 = unable to swallow saliva).

There were 23 patients who underwent palliative surgical treatment including 10 transthoracic esophageal resection, 11 transhiatal esophageal resection and 2 esophageal bypass alone after intraoperative finding of an unresectable lesion. All the surgically treated group were classified in stage III-IV from post-operative and pathological staging except only 2 patients with an unresectable lesion. There were 20 patients who underwent palliative esophageal stents including 12 plastic stents (Wilson-cook), 1 expandable Z-stent (Wilson-Cook) and 7 expandable Ultraflex stents (Microvasive). Insertion of a plastic stent was done under general anesthesia and an expandable stent was done under intravenous narcotics and benzodiazepines sedation in a fluoroscopy suite. Stent insertion required baseline flexible esophagoscopy, stricture dilatation by balloon or Savary-Guilliard dilators, proximal and distal tumor marking with external radiopaque markers and stent placement under guide wire and fluoroscopic control. Adequate placement position and complete stent expansion were ascertained by repeat esophagoscopy. All patients who underwent esophageal stent were classified in stage III-IV by clinical and radiological staging.

Hospital charts of these patients were reviewed for preintervention findings, tumor characteristics, pre and post intervention grading of dysphagia, intervention time, post intervention hospital stay (ICU and ordinary ward) and post intervention outcome.

Statistical method

Statistical analyses were performed with SPSS for Windows 95. Statistical differences between the two groups were assessed using independent *t* test, Mann-Whitney U test and Chi-square test. Survival distribution was assessed by using actuarial method, and using the logrank test to make statistical comparisons of the distributions. A two-

Table 1. Patients' characteristics and pre-intervention findings.

Characteristics	Surgical group n = 23	Stent group n = 20	p-value
Age, mean± SD (years)	62.95±7.74	66.95±11.38	NS
Age, range (years)	50-78	46-84	
Gender (male/female)	18/5	15/5	NS
Tumor characteristics			
-Squamous cell carcinoma	23	18	NS
-Adenocarcinoma	0	2	NS
Tumor staging			
-Stage III	20	16	
-Stage IV	3	4	NS
Mean dysphagia score (before treatment)	3.22±0.42	3.8±0.61	NS

tailed probability value of less than 0.05 was considered to be significant.

RESULTS

The patients' characteristics and pre-intervention findings are shown in Table 1. In the surgical group, there were 30.43 per cent (7/23) post-operative mortality and post-operative complications in 18 patients (78.26 %) including anastomotic leakage in 39.13 per cent (9/23), wound dehiscence in 4.35 per cent (1/23), small bowel obstruction in 4.35 per cent (1/23), late anastomotic stricture in 37.5 per cent (6/16), respiratory failure requiring permanent tracheostomy in 4.35 per cent (1/23). All patients with anastomotic leakage were managed conservatively and patients with anastomotic stricture were managed by periodical dilatation. Ultimately, stent insertion was successfully placed without esophageal perforation. There was no procedure-related mortality in the stent group. Only 1 patient died 15 days post stent from myocardial infarction. Acute placement complications which were noted in 3 patients (15%), included severe retrosternal chest pain 10 per cent (2/20) and pneumonia 5 per cent (1/20). Subsequent stent-related complications occured in 36.84 per cent (7/19) including distal migration in 10.52 per cent (2/19), stent obstruction from food impaction in 15.78 per cent (3/19), stent obstruction from tumor overgrowth in 5.26 per cent (1/19) and tracheal obstruction from tumor invasion in 5.26 per cent (1/19). The management of stent obstruction from food impaction was endocopic manipulation and the tumor overgrowth was managed by endoscopic laser ablation. The latter patient with tracheal obstruction from tumor invasion was successfully managed by tracheal stent placement.

The mean intervention time in the surgical group was 320.43±133.84 minutes and in the esophageal stent group was 57.5±23.97 minutes ($p<0.001$). The patients in the surgical group spent an average of 9.79±16.64 days in ICU and 30.39± 20.69 days in the hospital post surgery, and the esophageal stent group spent an average of 4.9±2.61 days in the hospital posttreatment without ICU admission ($p<0.05$, $p<0.001$ respectively). The quality of palliation as graded by the patient proved to be most dependent on swallowing ability. The improvement of dysphagia scores was 1.00±1.03 in the surgical group and 1.75±0.72 in the esophageal stent group ($p<0.05$). Survival between the two groups was not different ($p>0.05$). Table 2 shows the post-intervention outcome.

DISCUSSION

The majority of patients with dysphagia due to esophageal malignancy are not suitable for curative surgical resection either owing to extraesophageal local spreading and distant metastasis. Then the aim of treatment is strictly palliative[1-4]. The modality and quality of palliation become very important to this group of patients whose overall life span is severely limited. A review of the pretreatment characteristics of the patients included in this study revealed that they indeed had advanced disease and represented a challenge to palliation.

The most common palliative treatment in Thailand is surgery including esophageal resection and esophageal bypass. Surgery probably provides

Table 2. Post intervention outcome.

	Surgical group n = 23	%	Stent group n = 20	%	p-value
Mortality	7	30.43	1	5	<0.05
Complications of the surgical group					
- Anastomotic leakage	9	39.13			
- Small bowel obstruction	1	4.35			
- Wound dehiscence	1	4.35			
- Anastomotic stricture	6/16	37.5			
Complications of the stent group					
- Severe chest pain			2	10	
- Pneumonia			1	5	
- Stent displacement			2/19	10.52	
- Stent obstruction from food impaction			3/19	15.78	
- Stent obstruction from tumor overgrowth			1/19	5.26	
- Late tracheal obstruction			1/19	5.26	
Intervention time (min)	320.43±133.84		57.5±23.97		<0.001
Intensive care unit period (days)	9.79±16.64		0		<0.05
Postintervention hospital stay (days)	30.39±20.69		4.9±2.61		<0.001
Mean dysphagia score					
- After treatment	2.18±1.04		2.05±0.22		>0.05
- Improvement of dysphagia scores	1.00±1.03		1.75±0.72		<0.05

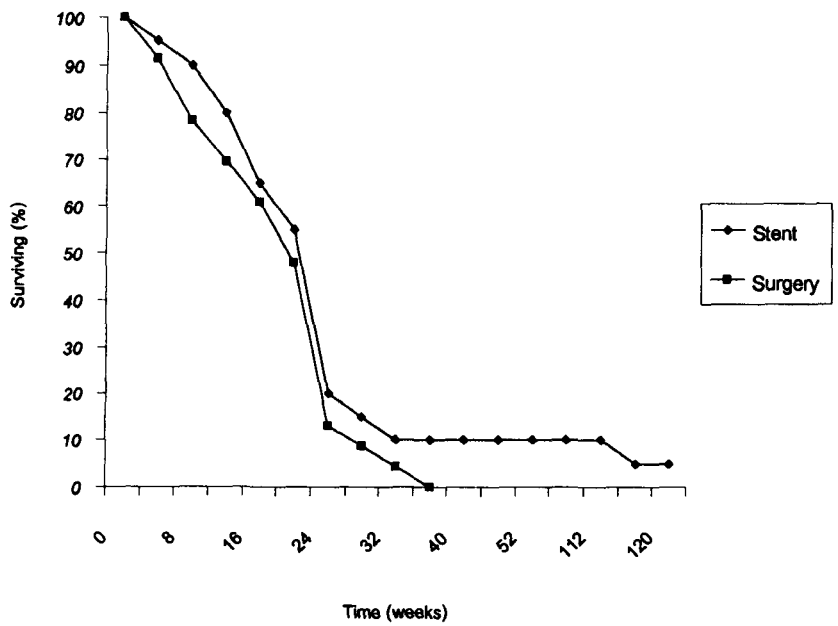

Fig. 1. Comparison of survival for patients with esophageal stent and surgery, using actuarial methods (p>0.05).

the most effective palliation of dysphagia, despite improvements in medical and surgical care but it is associated with not only a higher morbidity and mortality but also longer time and higher cost in taking care of these patients. As categorized as major surgery, the patients undergoing major surgery should have sufficient cardiopulmonary reserve to tolerate the proposed procedures. Most patients are not candidates for surgery because of older age with multiple underlying medical problems[5-7].

The rationale for the use of an esophageal stent alone is based on its simplicity, one-stage procedure with shorter hospitalization. It is a very low mortality related procedure but stent related problems are still high. Fortunately, the majority of stent related problems can be solved by endoscopic intervention under only intravenous sedation. Now, a variety of self expandable stents have been developed in an attempt to avoid acute and subacute complications. As a result, it is a very suitable technique in palliative treatment of advanced esophageal malignancy(11-16).

Up to now, multimodality of treatment should be used to improve survival with good quality of life for as long as possible. But completely repeated treatment and admission especially for chemotherapy and radiation seldom occur for patients in our country. In the present study, the authors want to promote esophageal stent which is easy in endoscopic placement and relatively safe for advanced esophageal malignancy instead of surgery.

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การรักษาแบบประคับประคองด้วยหลอดอาหารเทียมเปรียบเทียบกับการผ่าตัดในโรคมะเร็งหลอดอาหาร

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โรคมะเร็งหลอดอาหารจัดเป็นโรคที่มีการพยากรณ์โรคที่ไม่ดี กว่าที่ผู้ป่วยจะมีอาการมาพบแพทย์โรคจะลุกลามไปมากกว่าที่รักษาให้หายขาดได้ การรักษาส่วนใหญ่จึงเป็นการรักษาแบบประคับประคองเพื่อให้ผู้ป่วยมีคุณภาพชีวิตที่ดีขึ้นในระยะสุดท้ายของชีวิตโดยสามารถทานอาหารได้เองทางปาก ได้ทำการศึกษาเปรียบเทียบผลการรักษา 2 วิธีคือ การใส่หลอดอาหารเทียมและการผ่าตัดหลอดอาหารในผู้ป่วยโรคมะเร็งหลอดอาหารระยะลุกลาม จำนวน 43 ราย พบว่าคุณ-ลักษณะของผู้ป่วยทั้งสองกลุ่มก่อนที่จะได้รับการรักษาไม่มีความแตกต่างกัน การรักษาด้วยการใส่หลอดอาหารเทียมพบว่ามีอัตราตายหลังผ่าตัดน้อยกว่าอย่างมีนัยสำคัญทางสถิติ (5% และ 30.43% $p<0.05$) ระยะเวลาในการทำหัตถการ (57.5$\pm$23.98 นาทีและ 320.43$\pm$133.84 นาที $p<0.001$), ระยะเวลาที่พักรักษาตัวในหออภิบาล (0 วันและ 9.09$\pm$16.64 วัน $p<0.05$) และหอผู้ป่วยสามัญ (4.09$\pm$2.61วัน และ 30.39$\pm$20.69 วัน $p<0.001$) สั้นกว่าอย่างมีนัยสำคัญทางสถิติ นอกจากนี้ยังทำให้การกลืนอาหารภายหลังการทำหัตถการดีขึ้นอย่างมีนัยสำคัญทางสถิติ (1.75$\pm$0.72 หน่วยและ 1.00$\pm$1.03 หน่วย $p<0.05$) สำหรับอัตราการอยู่รอดภายหลังการรักษาไม่มีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติ ($p>0.05$)

คำสำคัญ : หลอดอาหารเทียม, โรคมะเร็งหลอดอาหาร

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