

## CASE REPORT

# Palliative Therapy of Esophageal Stent Installation with Shim Modified Fixation Techniques on An Esophageal Adenocarcinoma Patients

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## ABSTRACT

Esophageal carcinoma is a progeny disease that often results in significant disruption to the ability to ingest solid foods and liquid foods at an advanced stage. Reported case of a 27-year-old man with a diagnosis of an intestinal type of adenocarcinoma gastroesophageal junction stage III with a dysphagia score 4. Diagnosis based on anamnesis, endoscopy and anatomical pathology. Patients have undergone chemotherapy and palliative therapy with esophageal dilatation. Patients experienced improvement in dysphagia score from initial score 3 (unable to swallow solid or liquid food), to 2 (able to swallow semisolid food) after the installation of esophageal stent. The patient planned to continue therapy his chemotherapy.

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## Introduction

Esophageal carcinoma is a progeny disease that often results in significant disruption to the ability of ingesting solid foods and liquid foods at an advanced stage. Esophageal carcinoma is more common in men than women (7: 1) and is ranked seventh as the most cancer in men. The types and incidence of esophageal carcinoma vary depending on the geographical location. The highest level is found in Asia, stretching from northern Iran through the Central Asian Republic to northern central China, where it is often referred to as the "esophageal carcinoma belt", with an incidence rate of up to 800 cases per 100,000 people (Chai, 2012).

The most common complaint seen in esophageal carcinoma is dysphagia. Significant weight loss occurs because the disease has a long latency period. Physical examination of patients with esophageal carcinoma is generally not found abnormalities unless enlarged lymph nodes are visible, so the diagnosis should be assisted with gastrointestinal endoscopy and radiological examination (Lin, 2010).

In 50-60% of patients, localized metastatic or localized conditions are detected at the time of diagnosis. In these circumstances, resection is not an option and its primary therapy is palliative therapy and prolongs survival (Sekaal, 2004). At present esophageal stent has been the primary choice for postoperative palliative care and during chemoradiation therapy for dysphagia due to its proven effectiveness, ease of use and improvement of dysphagia complaints. The purpose of stent installation is to reduce complaints and support oral infections such as food, fluids and drugs, closing fistulas or leaking anastomosis after surgical intervention, and improving quality of life (Mougey, 2008).

Here is reported the case of a patient with dysphagia due to improved esophageal adenocarcinoma with palliative therapy of esophageal stent insertion.

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## Case

A male patients, Mr. M, 27 years old, resident in Nganjuk, Javanese ethnicity, a private employment, came to private hospital in Surabaya on November 18, 2013 with difficulty swallowing complaint.

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## Anamnesis

Patients complain of difficulty in swallowing since 10 months before entering the hospital, the longer the more burdensome. Every meal and drink a few moments later the patient always vomits. Currently the patient cannot even consume liquid food. No complaints in swallowing saliva. Patients also complained of nausea. No complaints of dyspnea, coughing, hoarseness, or

chest pain. The body feels lethargic and his weight decreases. Urination is smooth with clear yellow 3-4 times per day. Defecate within normal limits, 1-2 days.

Based on previous disease history, the patient has been diagnosed with esophageal carcinoma in March 2013, and performed surgery one month later. However, during surgery, it was noticed that the tumor had spread to the surrounding tissue so that the removal of the tumor was not performed and gastrostomy feeding was performed to meet the nutritional needs. Patients then undergo chemotherapy as much as 6 cycles with the Cis-5Fu regimen. After the third chemotherapy cycle, the patient was able to swallow solid food and it was decided to close the gastric stoma. Two weeks later, the patient unable to swallow again and palliative action was performed in the form of dilation of the esophagus with the dilator. But there was a narrowing so the patient was hospitalized. Patients have no history of diabetes or high blood pressure. Patients do not smoke, do not consume alcohol and no family of the patient suffering from similar diseases.

Based on physical examination, the general condition of the patient was weak, weight 42 kg, good consciousness, GCS: 4-5-6, blood pressure was 110/70, pulse was 92 x/minute, respiration frequency was 20x/minute, axilla temperature was 37°C. On examination of the head of the neck was not obtained anemia, jaundice, cyanosis or tightness. No enlarged lymph nodes obtained and no JVP enhancement. On examination of the heart and lung abnormalities was not found. On abdominal examination, we found scarred tissue from surgery and stoma wound that have been closed in the left upper quadrant, normal bowel sounds, enlargement of liver and lien was not found. On examination of limbs obtained warm extremity, dry skin and edema was not found.

Based on laboratory test obtained Hb: 11,2 g/dl, leukocytes: 8,410/uL, platelets: 472.000/uL, Hct: 37%, SGOT: 7,4/uL, SGPT: 8,7/uL, albumin: 4, 73 mg/dl, Bun: 22 mg/dl, serum creatinine: 0.93 mg/dl, GDA: 101 mg/dl, sodium: 137 mEq/L, potassium: 3.08 mEq/L, chloride 102 mEq/L. Complete urin: negative glucose, negative bilirubin, negative ketone, density 1.025, negative blood, pH 6.0, negative protein, normal urobilin, negative nitrite, negative leukocyte, sediment: erythrocyte 0-1, leukosit 0-1.

Based on the results of radiological examination, there is a picture of thoracic images: both of pulmonary parenchyma are good, no infiltrates, metastatic nodules, both hilum are well, both sharp phrenicocostal sinus, big heart and normal shape. Conclusion: thoracic photos show no abnormalities.

Patients carrying the results of previous examination conducted which is abdominal ultrasound on April 9, 2013 in the form of conclusions: liver, pancreas, lien, kidney, bladder, prostate and normal McBurney area; The result of upper endoscopy examination on 17 April 2013, scope was inserted until D2 duodenum. Esophagus: narrow LES, fragile, scope

entry with difficulty. Gastric: mass visible in cardia, gastroesophageal junction area. Duodenum: normal; The conclusion is suspicious of ca esophagus, GE junction. Gastric inlet partial obstruction. The results of anatomical pathology examination dated April 17, 2013 (No: JPB.130430) received endoscopic biopsy materials of 5 pieces of soft tissue, white, 2 mm in diameter to 4x3x1 mm size. All processed in dosage and cut series: made rebates. Microscopic shows chronic gastric mucosal fragments of chronic malignant tumors forming irregular small acini, with rounded, hyperchromatic and pleiomorphic nuclei, 4/10 hp mitosis, invasive among fibrotic stroma with mononuclear inflammatory cells and papillary growth on the surface. The diff-quick coloring does not get HP colonies. Conclusion: gastric adenocarcinoma, intestinal type. Abdominal CT scan of July 31, 2013 in the form of conclusions: liver, pancreas, bile, spleen were normal. Both kidney size were normal, no ectasis visible. Normal jars, normal prostate size. No visible mass of the gastric area. Separate normal intestine, normal intestinal gas, absent-free of abdominal fluid. No visible aortic enlargement. Vertebrae and lumbal are normal.

From the results of anamnesis, physical examination and support, the patient was diagnosed with an intestinal type of adenocarcinoma gastroesophageal junction stadium 3 with a degree of dysphagia scores 3 (Mellow and pinkas dysphagia scoring) + weak KU. Patient then admitted to a hospital at a private hospital in Surabaya on November 18, 2013 and receive fluid diet therapy, KA-EN MG3 and amiparen infusion 14 drops/min, intravenous 1x20 mg omeprazole, intravenous 2x10 mg metoclopramide. Patients planned radiological examination of upper GI.

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### Illness History

The second day in the hospital, the general condition of the patient is still weak, nausea is reduced but he still found vomiting. The amount taken is equal to the total amount of fluid being vomited. Radiological examination of upper GI was obtained and the result of contrast was not successful by constriction of the distal esophageal area by the tumor, although it had been awaited 4 hours. The shadows of the stomach are only slightly filled with air. Conclusions: The tumor induces total obstruction from the distal esophagus. Treatment was given infusions KA-EN MG3 and amiparen 14 drops/minute, omeprazole 1 x 20 mg intravenously, metoclopramide 2 x 10 mg intravenously. Patients planned the installation of the esophageal stent.

The fifth day at the hospital, an esophageal stent was performed with general anesthesia. Obstacles in esophagogastric junction mounted self-expandable covered metallic esophageal stent 10 cm (Wilson cook

Evo-FC-R-20-25-10-E). After stent installation of the patient is well conscious, general condition is still weak, no pain, vomiting or tightness. Treatment given: the patient may drink water a little and if not found nausea or vomiting may be given liquid diet, infusion RD5 14 drops/minute, omeprazole 1 x 20 mg intravenously, metoclopramide 2 x10 mg intravenously.

The sixth day in the hospital, the general condition of patient is well, can swallow the liquid diet. There was no vomiting complaint. But there is still nausea. Not getting congested or painful. Treatment given liquid diet, infusion RD5 14 drops/minute, omeprazole 1 x 20 mg intravenously.

Seventh day in hospital, the patient condition is sufficient, vomiting complaint every time consume liquid food reappear. No tightness or pain. Treatment given liquid diet, infusion of RD5 21 drops/minute, omeprazole 1 x 20 mg intravenously, metoclopramide 2 x10 mg intravenously. The patient is planned endoscopy to evaluate the stent.

On the eighth day at the hospital, an endoscopy was performed to assess the stent position. Stent images is obtained and showed it has fallen down into the gastric. The treatment is given infusion of RD5 and amiparen 14 drops/minute, omeprazole 1 x 20 mg intravenously, metoclopramide 2 x10 mg intravenously. The patient planned to reposition the esophageal stent.

Day ninth at the hospital, reposition of the esophageal stent with general anesthesia. In the final stages of esophageal stent insertion, an inverted T backbill is employed with a 7F-7cm stent 7db stent bolster and attached to a thread-bound nasojejunal tube 8F. Fixation is done on the end of the yarn by gluing it to the nose of the patient. After repositioning the esophageal stent, the patient is conscious, the general condition is weak, no pain or tightness is found. Treatment given: the patient may drink a little water and if not found nausea or vomiting may be given liquid diet, RD5 14 drops/minute, omeprazole 1 x 20 mg intravenously, metoclopramide 2 x10 mg intravenously.

Two weeks in hospital, patient condition is sufficient, he can drink more and have been able to swallow more solid meal without nausea and vomiting. Not getting congested or painful. Urination and defecation is within normal limits. Patient is discharged with 2x20 mg omeprazole tablet therapy.

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### Discussion

The pathogenesis of esophageal carcinoma is not fully understood. Some studies show oxidative damage due to factors such as smoking or gastroesophageal reflux, which causes inflammation, esophagitis and increased cell turnover that can initiate carcinogenic processes (Chai, 2012). Helicobacter infections, dietary patterns, lifestyle, environmental carcinogens, and

genetic predisposition are also reported to trigger these conditions (Enzinger, 2003; Melhado, 2010).

The most common complaints seen in esophageal carcinoma are dysphagia and weight loss. The degree of dysphagia can be assessed using Mellow and Pinkas dysphagia scores, with the following classifications: 0 = normal dietary ability, 1 = unable to swallow solid food, 2 = unable to swallow semisolid food, 3 = unable to swallow liquid food, and 4 = unable to swallow. (Nederlof, 2011).

Currently the patient cannot consume either solid or liquid foods so that it has a grade 3 dysphagia score.

The diagnosis of esophageal carcinoma stages can be measured by classification according to the American Joint Committee on cancer tumor-node-metastasis system (TNM) classification system, which takes into account the characteristics of primary tumor, lymph node metastasis, and distant metastasis (Table 1). The letter (T) represents the stage of the primary tumor based on the depth of invasion of the tumor. The letter (N) states the participation of the spread of the lymph nodes. The distant metastasis is divided into (M1a) which expresses metastasis to the cervical and lymph nodes, whereas (M1b) declares the metastasis to a further area. (Kim, 2009).

Based on anamnesis, clinical, laboratory, and radiological examination obtained the patient data with primary tumor extension to surrounding tissue (T4), without involvement of lymph node (N0) and without distant metastasis (M0). Thus, based on the American Joint Committee on Cancer-Node-Metastasis System (TNM) classification system, currently the patient has stage III esophageal carcinoma (Table 1).

Table 1. TNM Classification system (Kim, 2009).

Stage	Tumor	Node	Metastasis
0	Tis	N0	M0
I	T1	N0	M0
IIA	T2	N0	M0
	T3	N0	M0
IIB	T1	N1	M0
	T2	N1	M0
III	T3	N1	M0
	T4	Any N	M0
IVA	Any T	Any N	M1a
IVB	Any T	Any N	M1b

Palliative therapy of esophageal carcinoma aims to improve the symptoms of dysphagia, treat complications, maintain oral intake, minimize hospital stay, reduce pain, relieve reflux and regurgitation, prevent aspiration to improve quality of life. Currently there are a variety of palliative therapies such as esophageal dilatation,

esophageal stent radiation therapy, chemotherapy, laser ablation, thermal electrocoagulation, photodynamic therapy, tumor sclerotherapy and nutritional support (Harma, 2010).

Esophageal stent is still the most choice because some of the benefits include one, safe and cost-effective (Hindy, 2012). Two, has an advantage in placement systems with smaller caliber sizes. Three, larger reconstruction of the lumen of the esophagus as compared to the conventional esophageal tube stent (Kawasaki, 2003) and lastly, it can be done with a shorter hospitalization time (Selinger, 2008). The installation of the esophageal stent is mainly performed on an inoperable esophageal and cardiac tumor, esophago-respiratory fistulae, esophageal stricture caused by malignancy and external suppression (Sekaal, 2004), patients with functional status who cannot tolerate radiotherapy and chemotherapy, has failed with previous therapies (Dobrucali, 2010).

In these patients experience intestinal type of inoperable gastroesophageal junction adenocarcinoma that only improves while with esophageal dilatation so that the installation of the esophageal stent is the right choice.

The esophageal stents are made of alloy and durable polymer compounds. The latest development of existing models is self-expanding plastic stents (SEPS) and self-expanding metal stents (SEMS) available in 3 types: uncovered, fully covered, and partially covered. Uncovered SEMS is an early generation developed, in the form of metal wire without any synthetic material. However, due to complications from tumors and growth of granulation tissue into the esophageal lumen via a stent wire mesh web, various coverings (mostly polytetrafluoroethylene) were developed. The fully covered stents SEMS completely lacks exposed metal parts of the esophagus, whereas partially covered SEMS has a small portion of exposed metal part in the proximal and distal portion to allow attachment in the esophageal wall (Hindy, 2012).

Patient was decided to do the installation of esophageal stent in the form of self-expendable metallic stent (SEMS) partially covered type in order to avoid growth of granulation tissue into the lumen of the esophagus through the net of stent wire mesh but still allows attachment in the esophageal wall.

Complications related to esophageal stent insertion are generally classified as early and delayed. Early complications arise in an immediate time duration of up to 2-4 weeks post-installation. These include chest pain, fever, bleeding, GERD, full sensation, perforation and stent transfer. Delayed complications are a type of complication that occurs at least after 2-4 weeks post stent involving tumor growth into the lumen via stent webs, stent migration, stent occlusion, esophageal fistula and stricture. Stent migration is one of the most common complications compared to others (Hindy, 2012). Several studies have reported that migratory incidence is more

common in the type of covered stents than uncovered species (Selinger, 2008; Dobrucali, 2010).

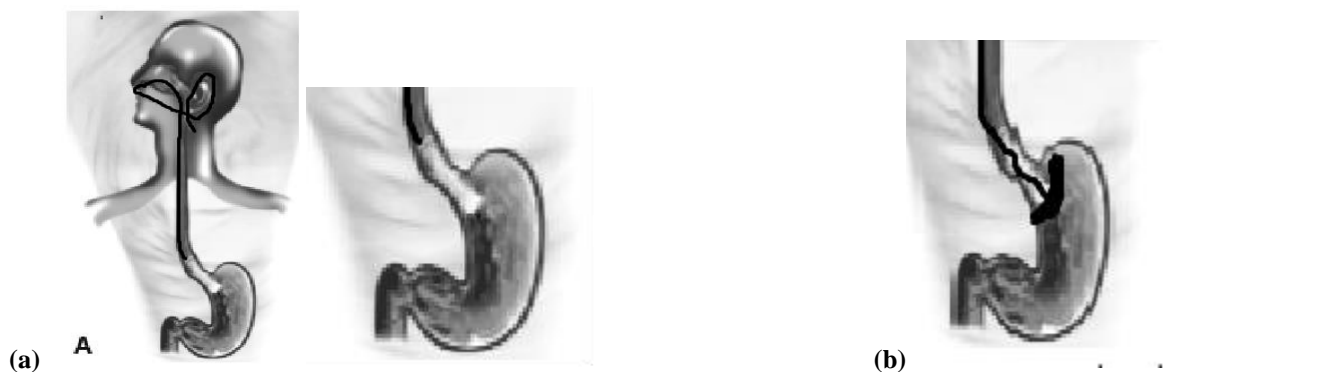
In patients found early complication two days post stent installation in the form of stent migration. Management to address stent migration is still debatable today. The repositioning of endoscopes will depend on the type of stent and location of the migration. Among the several methods that can be used for post stent migration intervention is the repositioning of the stent by using forceps compared with the second stent installation. Iron stents migrating distally but still in the esophagus can be drawn on the hooks that are on the proximal stent using forceps. However, if the stent has migrated into the stomach it requires endoscopic expertise to take the stent back and bring it back to the esophagus (Homs, 2011).

The problem of stent migration can be solved if the stent can be fixed properly. Shim proposed a technique (Shim's technique) to fix the stent in order not to migrate by using a partial-covered iron stent whose proximal

edge is tied with silk thread. After stent placement, the esophageal thread is extended along the esophagus up through the nose and then in the nasal fixation or the patient's ear with adhesive. The yarn may also be lined with plastic tubes to avoid irritation of the esophageal mucosa. Another way that can also be done is to sew the stent to the esophageal wall of the stent (Shim, 2012; Martin, 2014).

In this patient the stent has descended into the stomach. After stent repositioning using forceps and re-placed in the esophagus, a fixation was performed with a modified Shim technique in the form of anchoring at the distal end surface of the esophageal stent using a 7F-7cm stent CBD stent crossed in which the middle part was tied (acting as anchor) and then the thread is stretched out of the nose to be fixed in the patient (figure 1).

Figure 1. Shim modification technique applied to this patient.



(a) Shim technique; the edge of the proximal end of the stent is tied with thread and the thread is extended along the esophagus up through the nose and fixed in the patient's ear

(b) Technique modification shims; the distal end edge of the stent is given a transverse bracket that is centered in the yarn like anchors, and then extends out of the nose like the Shim technique

The success of therapy using esophageal stents can be assessed from improvements in Mellow and Pinkas dysphagia scores as noted above. In a case series report, the stenting success rate reached 96-100%, in general with improvement in the dysphagia score from 2-3 to 0-1. Dysphagia can be relieved in 90% of patients and this figure is better than that achieved with radiation therapy and chemotherapy (Rapici, 2008).

This patient had improvement in the score of dysphagia from the initial score 3 (unable to swallow solid or liquid food), into 2 (able to swallow semisolid food) after the installation of the esophageal stent. This patient also planned to continue his chemotherapy.

In the past 5 years, overall life expectancy is quite bad, but now life expectancy has increased from 4% in 1970 to 13%. Patients with distant metastasis (stage IV) treated with palliative chemotherapy have an average survival of less than one year. A multivariate

analysis of TNM stages concluded that weight loss of more than 10% of body mass, dysphagia, large tumors, advanced age and lymphatic micrometastatic (immunohistochemistry analysis) were independent predictors of poor prognosis (Veulez, 2007).

This patient has stage III esophageal carcinoma with symptoms of dysphagia and weight loss, so the probability of this prognosis is poor.

## Summary

It was reported that a 27-year-old man, was diagnosed with gastroesophageal junction stage III adenocarcinoma with a dysphagia score of 4. Diagnosis based on anamnesis, endoscopy and anatomical pathology. Patients have undergone chemotherapy and palliative therapy with esophageal dilatation. Because of

the narrowing happened, it was decided to install partially covered installation of SEMS, which subsequently experienced migration. So it must be repositioned stents by using forceps and fixed with modified Shim techniques. Although his prognosis bad, the patient had improved the score of dysphagia.

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### Conflict of Interest

The author stated there is no conflict of interest

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### References

1. Chai J, Mazen M, 2012. Esophageal malignancy: A growing concern *World J Gastroenterol.* 18(45): 6521-6526
2. Dobrucali A, Caglar E, 2010. Palliation of malignant esophageal obstruction and fistulas with self expandable metallic stents. *World J Gastroenterol.* 16(45): 5739-5745
3. Enzinger PC, Mayer RJ, 2003. Esophageal Cancer. *N Engl J Med* 349:2241-52
4. Ferguson MK, 2002. Squamous Cell Carcinoma of the Esophagus Cancer in Posner MC, Vokes EE, Weichselbaum, eds. *Cancer of the upper gastrointestinal tract. USA: PMPH,* 123-137
5. Harma RS, et all, 2010. Role of Esophageal Stents in Benign and Malignant Diseases. *Am J Gastroenterol.* 105:258-273
6. Hindy P, Hong J, Lam-Tsai Y, Gress F, 2012. A Comprehensive Review of Esophageal Stents. *Gastroenterology & Hepatology.* Volume 8, Issue 8 526-534
7. Homs MY, Siersema PD, 2011 Endoscopic palliation of malignant dysphagia and esophageal fistulas in Gineberg GG, Gostout CJ, Kochman ML, North ID, eds. *Clinical gastrointestinal endoscopy.* Philadelphia: Saunders. 350-372
8. Kawasaki R, Sano A, Matsumoto S, 2003. Long-term Outcomes and Complications of Metallic Stents for Malignant Esophageal Stenoses. *Kobe J. Med. Sci.* Vol. 49, No. 6, pp. 133-142,
9. Kim TJ, Kim HY, Lee KW, Kim MS, 2009. Multimodality Assessment of Esophageal Cancer: Preoperative Staging and Monitoring of Response to Therapy, *Radiographics.* 29:403-421
10. Kuwano H, Nakajima H, Miyazaki T, Kato H, 2003. Distinctive Clinicopathological Characteristics in Esophageal Squamous Cell Carcinoma. *Ann Thorac Cardiovasc Surg.* 9: 6-13
11. Levine MS, Rubesin SE, 2005. Diseases of the Esophagus: Diagnosis with Esophagography. *Radiology.* 237:414-427
12. Lin SH, Chang JY, 2010. Esophageal cancer: diagnosis and management. *Chinese Journal of Cancer.* Vol. 29 Issue 10 843-854
13. Martin, et all, 2014. Endoscopic management and prevention of migrated esophageal stents. *World J Gastrointest Endosc* 2014 February 16; 6(2): 49-54
14. Melhado RE, Alderson D, Tucker O, 2010. The Changing Face of Esophageal Cancer. *Cancers.* 2: 1379-1404
15. Mougey A, Adler D, 2008 Esophageal Stenting for the Palliation of Malignant Dysphagia. *J Support Oncol.* 6:267-273
16. Nederlof N, 2011. End-to-End Versus End-to-Side Esophagogastrotomy After Esophageal Cancer Resection. *Ann Surg.* 254:226-233
17. Rapici A, Raado G, 2008. Expendable stent for maligna dysphagia. *Tech Gastrointestinal Endosc.* 10: 175-83
18. Salem AAS, et all, 2012. Self-Expandable Metal Stents in Palliation of Inoperable Esophageal & Gastro-Oesophageal Carcinoma. *Cancer and Clinical Oncology.* Vol. 1, No. 1;159-166
19. Sekaal J, et all, 2004. Palliative treatment of advanced oesophageal cancer, *Folia Gastroenterol Hepatol.* 2 (3): 121 - 132.
20. Selinger CP, Ellul P, Smith PA, Cole NC, 2008. Oesophageal stent insertion for palliation of dysphagia in a District General Hospital: experience from a case series of 137 patients. *Q J Med.* 101:545-548
21. Shim CS., 2012. Esophageal Stent for Cervical Esophagus and Esophagogastric Junction. *Clin Endosc.* 45:235-239
22. Stahl M., 2010. Esophageal cancer: Clinical Practice Guidelines for diagnosis, treatment and follow-up. *Annals of Oncology* 21 (Supplement 5): v46-v49
23. Veuillez V, 2007. Multimodal treatment of esophageal cancer. *Best practice & Research Clin gastroenterol* 21, 947-63.

