

Esophageal stent migration leading to distal small bowel perforation

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Abstract

Covered oesophageal stents are often used to treat dysphagia in patients with inoperable oesophageal cancer. Stent migration is a well-known but usually benign complication. We report the case of a patient whose esophageal stent migrated into the distal ileum with perforation hereof. A laparoscopic stent extraction and intestinal repair was necessary to treat the perforation. (*Acta gastroenterol. belg.*, 2020, 83, 663-665).

Key words : esophagus, cancer, migration, stent, perforation.

Introduction

The reason for using esophageal stents is either the palliation of dysphagia of esophageal cancer or the gastroesophageal junction or the treatment of esophageal perforations or anastomotic fistulas and rarely the treatment of benign stenosis of the esophagus (1,2).

The management of esophageal cancer remains a major challenge given the incurable presentation of the disease in more than 50% of patients. Even if the dysphagia was severe, palliative surgery in this situation is generally futile if not impossible, hence stents are often used (2,3).

There are two types of stents : plastic and metal. Metal stents can be covered with polyurethane (partially or completely) or uncovered (4).

Up to 20% of covered stents migrate, especially when placed at the oesogastric junction.(4) Generally, migration is limited and easily treatable endoscopically either by repositioning or by extracting the stent. However, possible complications of migration include hemorrhage, obstruction, perforation, or fistulization (eg, tracheoesophageal) (1).

Clinical case

A 46-year-old patient presented with adenocarcinoma of the distal esophagus entering the cardia with circular tumor stenosis from 35 to 41 cm from the dental arches with semi-circumferential extension in the sub-cardial region. A massive lymph node extension above and below the diaphragm was seen on CT and PET-CT. Biopsies showed a poorly differentiated adenocarcinoma, without overexpression of HER2-neu, with low expression of PD-L1, with stability of microsatellites and absence of EBV. Staging corresponded to a cT3N3M0 or stage IIIB.

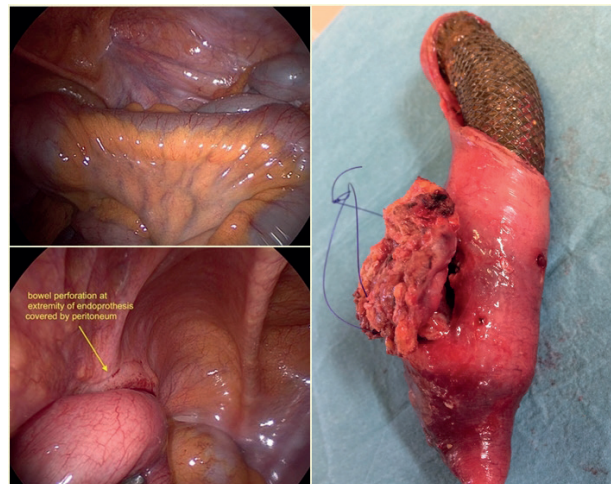


Figure 1. — On the left : Laparoscopic peroperative images showing the prosthesis inside the small intestine, approximately 40-50cm from the Bauhin valve as well as the covered perforation in contact with the bladder dome. The last image shows the intestinal anastomosis after segmental resection. On the right : Resected part with approximately 6cm of small intestine containing the stent as well as part of the bladder dome which adheres to the small intestine.

The patient was in excellent general condition, ECOG 0. But due to diffuse retro-peritoneal, mediastinal and supraclavicular lymph node involvement, only palliative treatment could be offered.

Due to the stenosis of the lesion the patient had significant dysphagia that he described as discomfort during swallowing food and reflux after having swallowed one or two mouthfuls. This was also painful with irradiation towards the jaw. The patient benefited from the implantation of an Ultraflex® metallic expandable esophageal prosthesis (Boston Scientific) 12 cm long, 20/28mm in diameter, placed in the distal esophagus in trans-cardial position without prior pneumatic dilation.

After three months and five well tolerated courses of FLOT chemotherapy (docetaxel, 5-fluorouracil and oxaliplatin), the patient complained of transient acute epigastric pain. An abdominal CT-scan showed

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Figure 2. — Abdomino-pelvic CT scan: Presence of an “esophageal” stent near the pylorus and Radiological monitoring of the position of the stent, which seems to be stagnating at the level of the last small bowel loop.

a migration of the esophageal prosthesis into the small intestine explaining the patient’s symptomatology (Figure 1). In the hope of natural evacuation of the stent, an expectant attitude was taken with regular monitoring by abdominal x-rays (Figure 1). A week later, the prosthesis projected lower than previously into the right iliac fossa. A colonoscopy was performed to try to extract the stent but no intestinal lesion was detected and the prosthesis was not viewed. A few days later, the abdominal x-ray shows that the prosthesis was no longer progressing. A second colonoscopy showed signs of intestinal wall injury consisting of edema, hyperemia and ulcers. A perforation was suspected. Given the impossibility of removing the prosthesis endoscopically, surgical removal was necessary.

Laparoscopy located the stuck prosthesis in the distal ileum, about 40 to 50 cm from the ileo-caecal valve. It adhered to the abdominal wall and to the peritoneum above the bladder dome. The proximal part of the prosthesis had eroded causing a localized perforation covered by the bladder dome without diffuse peritoneal contamination. A short segmental resection of small intestine of approximately 6 cm was done (Figure 2). In order to remove any potentially tumor contaminated tissue around the stent, an enlarged resection to the affected peritoneum and external muscular wall of the bladder at the level of the perforation was performed.

After surgery, normal transit was restored by the 5th post-operative day. Occurrence of a superficial surgical site infection at the extraction site required ambulatory opening under local anesthesia of the wound at the extraction site one week and administration of antibiotics (Dindo-Clavien complication score 2). Abdominal evolution was uneventful thereafter.

Discussion

Adenocarcinoma of the distal esophagus is one of the deadliest malignant diseases with a significant increase in global incidence during the last decades (5).

At diagnosis, more than 50% of patients are diagnosed at an incurable stage and can only benefit from palliative treatments (3,4,6).

A large number of esophageal cancer patients complain of severe dysphagia. One of the goals of treatment in inoperable patients is to relieve this dysphagia at the lowest risk in terms of morbidity and mortality. Therapeutic options for this include palliative resection, surgical bypass, radiotherapy, laser unclogging, photodynamic therapy or intralesional alcohol injection and most often palliation by placement of various types of stents. All of these options have their advantages and disadvantages. Esophageal stents remain the most used therapeutic option because they generally allow rapid alimentionation after the procedure at the cost of a simple and low-risk endoscopic procedure (2,6).

However, complications can happen on short and long terms. Short-term complications (within 7 days) include migration, esophageal perforation, food obstruction and hemorrhage. Later complications (after 7 days) mainly include stent migration, gastroesophageal reflux, hemorrhages, obstruction by growth of the tumor or granulation tissue through the stent meshes (parts not covered), obstruction by the food bolus and the formation of fistulas with the surrounding structures. (7,8) The probability of stent migration varies from 3.7% to 50% depending on the diameter, coverage, the place of placement (tumor remaining in place or post-operative placement for anastomotic fistulas) and the material of the stent. (8).

Migration would be more frequent with covered stents than with uncovered or partially covered stents (8).

Metal stents are generally preferred over plastic stents because of their lower morbidity and mortality. On the other hand, the disadvantages of metal stents include the ingrowth of the tumor through the metal meshes, causing obstruction by the food bolus and esophago-bronchial fistula. Also, metal stents cannot be removed once in place (9).

To prevent migration, partially covered prostheses have been designed and endoscopic fixations have been attempted. A study evaluating the stent fixation by sutures or endoscopic clips carried out on a very small population (11 patients) did however not show any reduction in the risk of migration by these fixation techniques. However, there was a clearly higher number of migrations with fully versus partially covered prostheses (8).

In the case of our patient, a covered metal stent was used as these are preferred because of their durability to treat patients with a potentially prolonged survival prognosis. They avoid growth of the tumor through metal meshes, phenomenon which occurs in more than 25% of not covered stents.(4) Migration can happen upwards or downwards. Upwardly migrated stents can be easily repositioned or removed using forceps through a flexible or rigid endoscope. Stents which migrated downward can theoretically be eliminated naturally or remain asymptomatic within the patient allowing chemotherapy

to be continued. However, a number of stents cause complications, such as perforation or blockage, and need to be surgically removed (3).

Compared with biliary stents, which are much smaller in size and thus easily eliminated via natural ways in asymptomatic patients (10,11), there is currently no literature reporting natural elimination of an esophageal stent.

The probability of spontaneous expulsion therefore remains very low.

In the case of our patient, as soon as the migration was discovered, a “wait and see” type follow-up decision was made while being aware of the low probability of natural elimination. The patient was followed closely and at the slightest suspicion of non-progression and / or complication, a surgical procedure was recommended with favorable outcome.

Conclusion

Migration of an esophageal stent into the small intestine is a rarely reported complication. Some migrated stents may be asymptomatic and left in place (e.g. in the stomach) to avoid having to interrupt chemotherapy treatment. The main risk of intestinal migration of the stent is perforation which can be accompanied by infection or even by tumor contamination of the peritoneum. In case of non-progression of a stent, surgical removal is necessary to avoid these complications.

Conflict of interest

No potential conflict of interest was reported by the authors.

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