

Treatment of Malignant Duodenal Obstruction by placing a Metallic Stent under the Duodenoscope and X-ray monitoring

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【 Abstract 】

Objective

To study the methods and clinical values of treatment for inoperable malignant obstruction in the middle-lower segment of duodenum by placing a metallic stent under the duodenoscope.

Methods

25 self-expandable metallic stents were placed for 20 patients with confirmed obstruction symptoms, including 15 with duodenal tumors, 2 with carcinoma of head of pancreas and 3 with hepato-pancreatic ampulla carcinoma, by using duodenoscope under X-ray fluoroscopy.

Results

Metallic stents were successfully placed for 20 patients, with a single-time success rate 100%. The shortest operation time was 1/3h and the longest time was 1.5h, meanly 2/3h. Metal stents were placed into both biliary tracts and intestinal tracts for 5 patients. 3 of them were placed metal stents in 2 times separately. After stents placement, patients' obstruction symptoms were relieved and they were able to take soft food. One week later, the vomiting disappearance rate was 100% and the relief rate of abdominal distention reached 85% (17/20), without any severe complications occurring. The follow-up period was 2 to 16 months, and patients' mean survival period was 4.6 months.

Conclusion

Placement of metallic stents by using duodenoscope is a simple, effective and less-wounded method for treatment of patients with inoperable malignant obstruction in the middle-lower segment of duodenum.

【 Key words 】

Malignant duodenal obstruction; Metallic stent; Duodenoscope

Generally, patients suffering from alimentary tract obstruction caused by malignant tumors in the middle-lower segment of end-staged duodenum can't tolerate operative treatment due to the complication of other visceral metastasis. In recent years, some reports on treatment of obstruction by placement of a metallic stent mainly include trans-oral deployment of stents under X-ray and by using gastroscopic channel. However, it's extremely difficult to treat the tumors located at middle-lower and horizontal segments of the duodenum. The

positioning and deployment of the stents are hard to be confirmed due to the limitations of medical apparatus, instruments as well as the technologies. From March 2002 to October 2007, we obtained good clinical results to treat 20 cases of patients suffering from malignant obstruction in the middle-lower segment of duodenum by placing metallic stents under the duodenoscope with X-ray guidance.

1 Material and method

1.1 Clinical data

This group contained 20 cases, including 13 males and 7 females, who were 62-89 years old, meanly 66. All were diagnosed clinically as malignant tumors through radiography and/or gastroscopy, 15 of them with duodenal tumors, 2 with carcinoma of head of pancreas and 3 with cancers of biliary ducts. All of them had the obstruction symptoms, such as epi-gastric distention, refractory vomiting, gastric reflux and unable to eat. Through parental nutrition and gastrointestinal decompression were applied, the qualities of life reduced and 5 patients suffered from icterus.

Apparatus

Micro-tech (Nanjing) Co., Ltd Type MTN titanium-nickel shape memory alloy intestinal tract stents, stent delivering system, dual-lumen catheter, soft tipped super-hard guide wire, super-sliding guide wire and Olympus-TJF240 video-duodenoscope.

1.3 Operation methods

(1) The duodenoscope was inserted to the proximal end of obstruction in combination with X-Ray fluoroscopy. (2) Under the direct vision of endoscope, the dual-lumen catheter was inserted with guide wire through the duodenoscope channel and the super-sliding guide wire was inserted to the distal-end small intestine through the strictured segment of duodenum. Then, the dual-lumen catheter was advanced into the small intestine via the obstruction segment along the guide wire. In case the guide wire failed to pass through the obstruction segment, the microwave or hot electrode was applied. As a result, a small channel was made for guide wire to pass through the obstruction segment. (3) Under the X-ray monitoring, 60% compound meglumine diatrizoate was injected. So the location of the stricture could be confirmed. (4) The length of the strictured segment and positioning the metallic stents was determined by using the measurement of the guide wire. (5) The strictured segment could be dilated by using dilation balloon. (6) Different dimensions of metallic stents were used (diameter 20mm and lengths from 40mm to 60mm) according to the lesion and stricture. Membrane-covered metallic stents were placed in the patients with a predicted survival period longer than 3 months. (7) A stent delivering system was inserted along the guide wire through catheter until the distal end of the lesion; (8) When the lesion position was re-confirmed, the stent was slowly deployed. The contrast medium was injected. The whole procedure was under radiographic

monitoring.

1.4 Surveillance

The X-ray follow-up was carried out after a month. Stent migration or ablation may be observed during the follow-up. Dietary monitoring and survival conditions were recorded with 1-2 months follow-up program.

2 Results

2.1 Success rate of stents placement

25 stents were placed successfully for 20 patients. The metal stents were also placed for 5 of them. 3 of patients were placed 2 times and every time only one stent was placed, respectively, due to their poor tolerances on the procedure. A single-time success rate was 100%. The shortest operation time was 1/3h and the longest time was 1.5h, meanly 2/3h.

2.2 Short-term clinical effects

No serious complications were reports in 20 patients. The stents were confirmed to be correctly placed and deployed properly. After the gastrointestinal decompression tube pulled out, the vomiting symptoms were relieved immediately. Gastric reflux and abdominal distention were relieved on the first day. Patients were able to take in semi-fluid food on the next day. 1 week later, the vomiting disappeared totally and the relief rate of abdominal distention reached 85% (17/20). Main complications were epigastric discomfort and "black-stool", which could be improved by means of analgesic medication and application of hemostats in the first week.

2.3 Surveillance

X-ray fluorography were applied 1 month after the stent placement, there was no migration, ablation or breakdown of the metallic stents. During the 2-16 months follow-up, 1 patient had survived for 16 months and was able to take in fluid food, and the average survival rate 4.6 months. In the follow-up survey, re-stenosis of the stents was found in 2 patients, which had to be treated by means of dilation balloon.

3 Discussion

Malignant duodenal obstruction is very common. Many patients are discovered at the end stage. In lack of nutrients and with a poor health, they miss the opportunity of surgical treatment. Traditional surgical treatments include palliative enterostomy and gastrojejunostomy, gastro-anastomosis, etc. However, their large operative wound and numerous complications^[1,2] are beyond

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was increased and complications were reduced, too. Common complications include bleeding and stent migration, etc ^[6,9]. One of the complications in this group of patients was epi-gastric discomfort, which was related to the stent extruding the surrounding tissue, thus most patients didn't need to be treated. Some of them may need analgesics. Other complication was black stool, which was caused by mild transitional bleeding and could be relived through clinical observation or application

of some hemostat. Satisfactory results was obtained without any stent migration and related symptoms. Restenosis had been reported in 2 cases and the strictured segment was being dilated. The mean survival lifespan was 4.6 months ^[6,9]. Placement of metallic stents under the duodenoscope is safe, effective, less invasive method with fewer complications. It improves the patients' quality of life and provides a new clinical mean to treat malignant obstruction in the middle-lower segment of duodenum.

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