The first transendoscopic plastic to self-expandable metal stent replacement in Serbia and Montenegro using a diagnostic duodenoscope

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INTRODUCTION

For patients presented with jaundice due to unresectable pancreaticobiliary tumors, the palliation can be performed with biliary metal stent placement in case of long life expectancy. Plastic stents frequently become occluded, which leads to a periodic stent exchange, while operative biliary bypass carries higher morbidity and mortality1. Although large bore plastic stents may reduce this problem the luminal diameter of the stent is limited by the diameter of the endoscope accessory channel. Self-expandable metal stents (SEMS) are designed to overcome this problem. Inserted through the accessory channel of an endoscope a SEMS can expand up to 30 Fr2. Studies have shown that SEMS remain patient longer with fewer associated complications compared with conventional plastic stents3,2. Most SEMS for ERCP are made of Nitinol, a super elastic nickel-titanium alloy, with thermal shape memory, a property of reassuming a predetermined shape through heating4. Some designs allow stent expansion without significant shortening, whereas other designs shorten as they expand - a characteristics that must be taken into consideration during deployment5. Zilver stent®, a nitinol zig-zag mash SEMS (Wilson Cook Medical Inc, Winston-Salem, NC; Fig. 1.) has a special advantage, having a thin introducer diameter of 7 Fr with a fully deployed span of 10mm6. Due to modest technical conditions in therapeutic endoscopy in Serbia and Montenegro, the SEMS placement was not routinely performed.

MATERIAL AND METHODS

A 48-year-old woman presented with obstructive jaundice with level of total bilirubin 250 mol/L, GT 1663 IJ/L, AP 464 IJ/L, ALT 238 IJ/L, AST 133 IJ/L. Abdominal US, CT scan and MR showed a 3.2 cm mass in the head of pancreas with a stricture of distal common bile duct (CBD). Due to a diagnosis of unresectable pancreatic carcinoma with consequent stenosis of CBD, infiltration of local blood vessels and life expectancy longer than six months, it was decided that an endoscopic palliative drainage procedure should be performed. In the first act the plastic stent was inserted, followed by exchange with a SEMS. The technique of transendoscopic plastic to metal stent exchange will be described below.

At first, at Clinical Hospital Center "Dr D. Misovic-Đedinje", Belgrade, Serbia, an endoscopic retrograde cholangiopancreatography (ERCP) was performed with biliary endoscopic sphincterotomy and a plastic 7cm long 7 Fr stent (CHBOSO-7-7, Wilson Cook Medical Inc, Winston-Salem, NC) was inserted. The patient was sedated with 5mg midazolam i.v. and intestinal motility was inhibited with 40 mg of buscopan i.v. to Once the diagnostic 2.8 mm accessory channel duodenoscope (JF-T30, Olympus, Japan) reached the papilla the cannulation of CBD duct...
was achieved by standard double lumen sphincterotome (PTG-30-6-NG, Wilson Cook Medical Inc, Winston-Salem, NC) with a hydrophilic guide wire 0.035" (DWG-35-260, Wilson Cook Medical Inc, Winston-Salem, NC). The contrast was applied and the stricture of distal CBD was visible on 3 cm from papilla, together with expanded cholecist and intrahepatic bille ducts. The sphincterotome was removed over the guide wire, following by the placement of a plastic stent using a 7 Fr pusher. The bile drainage was achieved immediately. A jaundice relief was accomplished in 11 days, presenting with decreasing levels of bilirubin to 180-70-20 mol/L.

Two weeks after the first ERCP, at General Hospital "Danilo I", Cetinje, Montenegro, the transendoscopic stent exchange was performed. The plastic stent was captured close to the distal flap in the duodenum by a standard polypectomy snare (Fig. 2.), AcuSnare (AS-1, Wilson Cook Medical Inc, Winston-Salem, NC). The elevator was locked and using a pulling manoeuver the stent was extracted together with the scope. Using a standard 6 Fr guiding catheter Cotton-Huibregtse and a standard metallic 0.035" guide wire (THSF-35-480, Wilson Cook Medical Inc, Winston-Salem, NC) the CBD was cannulated. After removing of guide wire the CBD was opacified with a contrast medium and showed an irregular narrowing followed by a proximal dilatation at the distance of a 3cm over the papilla. Over the wire the Zilver stent® (ZILBS-10-8, Wilson Cook Medical Inc, Winston-Salem, NC) was introduced slowly obtaining the optimal position us-

FIGURE 1. ZILVER STENT®, SELF-EXPANDABLE BILIARY METAL STENT

FIGURE 2. EXTRACTION OF A PLASTIC STENT USING A POLYPECTOMY SNARE

FIGURE 3. ENDOSCOPIC POSITIONING OF ZILVER STENT®

FIGURE 4. BILE FLOW IMMEDIATELY AFTER ZILVER STENT® DEPLOYMENT
ing fluoroscopy (Fig. 3.). After the SEMS deployment the bile flow was achieved (Fig. 4.) and the distal part of SEMS was widely open in the duodenum (Fig. 5.). Immediate radiography showed opened SEMS (Fig. 6.), but the optimal width diameter was reached after 48h, controlled by a plain abdominal X-ray (Fig. 7.).

CONCLUSION.

The patient lived 7 months after implementation of Zilver stent® and died anicteric due to progression of a primary disease. Cost analyses have even suggested that metal stent placement is the least expensive initial treatment in patients with malignant biliary obstruction who are expected to survive at least 6 months. The transendoscopic plastic to metal stent exchange is a feasible palliative method which requires a basic endoscopic equipment and experienced staff and therefore is applicable in developing countries as well.

SUMMARY

PRVA ENDOSKOPSKA ZAMENA BILIJARNOG PLASTIČNOG STENTA “SELF-EXPANDABLE” METALNIM STENTOM U SCG

Studije su pokazale da metalni stentovi (SEMS) odlažu i smanjuju pojavu komplikacija u poredjenju sa konvencionalnim plastičnim stentovima. Zilver stent®, nitinol cik-cak SEMS, ima posebnu prednost zbog malog ulaznog dijametra od 7 Fr, a širinom prilikom otvaranja od 10mm. Kod bolesnice (48 god.) sa opstruktivnim ikterusom i djagnozom inoperabilnog karcinoma glave pankreasa sa stenozom distalnog holedohusa, infiltracijom lokalnih krvnih sudova i prognozom preživljanja dužom od šest meseci, uradjena je endoskopska palijativna drenažna procedura. Opisana je tehnika transendoskopske zamene plastičnog stenta metalnim, koristeći dijagnostički duodenoskop. Bolesnica je živela 7 meseci posle implementacije Zilver stenta® i egzitirala anikerična usled progresije osnovne bolesti. Transendoskopska zamena plastičnog stenta metalnim je izvodljiv palijativni metod koji zahteva osnovnu endoskopsku opremu i iskusno osoblje, te je stoga primenljiv i u zemljama u razvoju.

BIBLIOGRAFIJA


