

Conversion of Percutaneous Transhepatic Cholangiodrainage Tube into an Endoprosthesis by Means of Burying its External Tip in the Subcutaneous Tissue

HIROYUKI NOGUCHI, MASAHARU KATSUMI, NOBUJI KONO, NOBUO TAKEI,
HIROAKI KAWASHIMA, YOJI TABUSE, MASAKAZU SASAKI, MICHIAKI
KAKIHARA, YOSHIHIRO SUGIMOTO and HIDEO KIN

Department of Gastroenterological Surgery, Wakayama Medical College

SADAO OKAMURA and YUZO OHSAWA

Department of Surgery, Kainan Municipal Hospital

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Introduction

Recently percutaneous transhepatic external biliary drainage has become to relieve biliary obstruction with safety and may also be used for long-term palliation of cholestasis in patients with inoperable carcinoma of the head of pancreas or the common bile duct, and in some patients percutaneous transhepatic cholangiodrainage (PTCD) may be converted into internal drainage with an endoprosthesis (1-5). When the endoprosthesis is dislocated or clogged by tumor and/or sludge, it is distressing and troublesome for patients to remove the wrong endoprosthesis and reinsert a new one.

However, a method, that the PTCD tube is changed for endoprosthesis by burying the external tip of the PTCD tube in the subcutaneous tissue, may make removal and reinsertion of the endoprosthesis easier with little distress of the patients.

The object of this paper is to describe the technique of the method performed in 4 clinical cases.

Materials

This study is based on a total of 4 patients with an inoperable lesion, who received internal drainage which was converted from PTCD by means of single tube method (7).

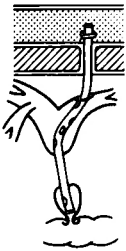
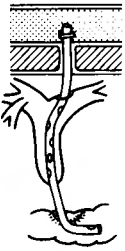
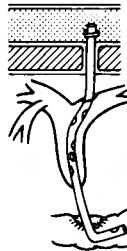
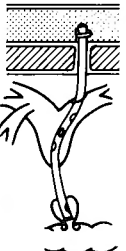
As show in Table 1, they consisted of 2 cases of carcinoma of the head of pancreas and 2 cases of carcinoma of the common bile duct.

Key words: Percutaneous Transhepatic Endoprosthesis, Percutaneous Internal Biliary Drainage, Bile Duct Endoprosthesis

索引語: 経皮経肝的エンドプロスティシス, 経皮的内胆汁瘻, 胆管エンドプロスティシス.

Present Address: The Department of Gastroenterological Surgery, Wakayama Medical College, Wakayama, Japan.

Table 1. Summary of Clinical Cases Having Undergone Our Endoprosthesis Procedure Converted from PTCD

Case Number age & sex	I 80-year-old woman	II 61-year-old man	III 59-year-old man	IV 50-year-old woman
Disease	Choledochus Carcinoma	Pancreas Head Carcinoma	Pancreas Head Carcinoma	Choledochus Carcinoma
Schema of Method				
PTCD Tube for Endoprosthesis (Fr. No.)	8	8→10 change No 8 for No. 10 after a while	10	10
Prognosis after Insertion of Endoprosthesis	Dead after about 6 months	Alive after about 7 months	Dead after about 1 month	Dead after about 2 months

Technique

Initially percutaneous transhepatic cholangiography (PTC) and cholangiodrainage (PTCD) were performed using the "PTCD set" (TOP CO., LTD., Tokyo, Japan) by the method described by TAKADA (6).

The percutaneous transhepatic cholangio-internal-drainage was usually carried out about 2 weeks after PTCD. Cholangiography performed via the PTCD tube indicated the exact site and length of an obstruction. A guide wire (COOK TSF) with a soft flexible tip was inserted via PTCD tube, and could often be passed safely through the structure even when the obstruction seemed to be complete on the cholangiogram. The guide wire was advanced further into the duodenum and the tube was inserted covering the guide wire and another tip of the tube was confirmed to be in the duodenum by duodenography carried out via the tube. The guide wire was reinserted through the PTCD tube into the duodenum, and the PTCD tube was drawn out. Thereafter a polyvinyl tube (Fr. No. 8) with several side holes was inserted covering the guide wire. Side holes were made on the tube wall prior to its insertion so that multiple side holes would be located above and below the obstructive lesion. No side hole on the tube wall was located within the hepatic parenchyma to prevent intermittent bleeding from hepatic veins into the tube (8) and it was favorable that the tube in the duodenum was 10 cm in length or more (7), if the tip of the tube was left in the duodenum. After successful tubing, external biliary drainage was established for several days. Internal drainage was accomplished later by closing the outside tube. After several weeks, subcutaneous granulation tissues surrounding the PTCD tube was removed through about 2 cm by skin incision under local anesthesia, and the tube was obstructed by a clip for ligation and cut off. A tip of the cut tube was burned for sterilization and crushed to prevent the tube from slipping off. A primary closure of the incision wound was performed.

Results

Table 1 shows a summary of the cases who underwent converted PTC D by our method.

In all the cases the palliation of cholestasis was effective. The two patients could discharge with the endoprosthesis. In Case III he had an abscess formation in the wound for concealing the tip of the tube in the subcutaneous tissue, and it was cured soon by incision and drainage.

In Case I and II the tubes for endoprosthesis were clogged by sludge about three and four months after the completion of the endoprosthesis respectively. However, the tubes were able to be changed easily for a new one.

Comment

Recently percutaneous transhepatic external biliary drainage has become to relieve biliary obstruction with safety, but long standing external biliary drainage brings depletion of water, electrolytes and bile salts. Internal biliary drainage can solve these disadvantages. Conversion of PTC D into internal drainage using external tube by a single tube method is a minor operative procedure and, moreover, safe and effective. But patients with external tube for internal drainage cannot help having dissatisfaction, such as inconvenience at bath and stain of the skin around the

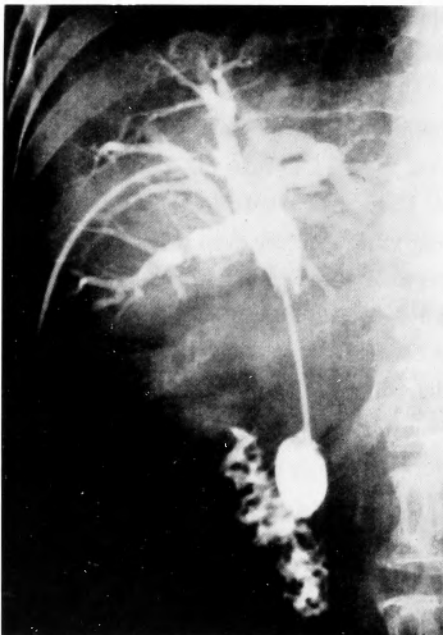


Fig. 1.

Fig. 1. Case I Injection of contrast material through temporary external drainage tube. The distal end is below the obstruction in the choledochus, and the proximal side holes in the biliary tree above the obstruction.

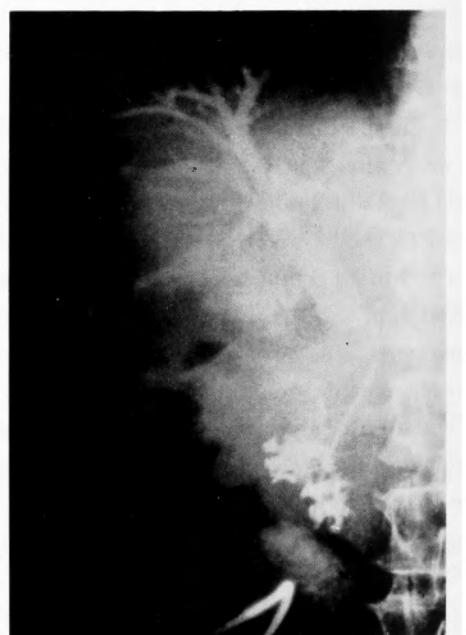


Fig. 2.

Fig. 2. Case II Figure showing internal drainage for the pancreas head carcinoma. The distal end is in the duodenum beyond the obstruction, and the proximal side holes in the biliary tree above the obstruction.

tube inserted.

Endoprosthesis, such as the Surgimed (3, 4) and Lunderquist-T-Owman endoprotheses, provides permanent internal drainage without an external tube, and patients who received it can have a sufficient daily life. But these endoprotheses have some disadvantages such as clogging with sludge due to impossibility of flushing the endoprosthesis, invasion of the tumor from the side holes of the tube and dislocation and dislodging of the endoprosthesis.

When patients have encountered some troubles concerning the tube, the endoprosthesis should be removed through duodenoscopy and a new endoprosthesis must be inserted by the same method. It is distressing and troublesome on both sides of patients and surgeons to remove and reinsert these endoprotheses.

On the other hand our procedure, which conceals the external tip of PTCD tube in the subcutaneous tissue, may establish internal biliary drainage and make it easy to remove and reinsert the endoprosthesis even if the endoprosthesis has been clogged with sludge and/or tumor.

In other words, when the endoprosthesis is obstructed, the external tip of PTCD tube for the endoprosthesis in the subcutaneous tissue is exposed again by a skin incision and cut off for removing the clip, and the guide wire is inserted into the duodenum via the obstructed tube, which is drawn out thereafter. A new endoprosthesis with several side holes is inserted again for internal biliary drainage with the aid of the guide wire. The external tube is sealed by clipping and cut off and buried in the subcutaneous tissue in the same manner as previously done.

The advantages of our procedure are as follows.

- 1) Dislocation and dislodging of the tube functioning as an endoprosthesis never happen, because the tip of the tube is fixed in the subcutaneous tissue.
- 2) It is more simple to change the tube for a new one with lesser distress for patients, even if the tube has been clogged by sludge and tumor.

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和文抄録

PTCD-tube の体外先端皮下埋没による
Endoprosthesis 化の一考

和歌山県立医科大学消化器外科

野口 博志, 勝見 正治, 河野 暢之, 竹井 信夫, 田伏 洋治

川嶋 寛昭, 佐々木政一, 柿原美千秋

杉本 恵洋, 金 秀男

海南市民病院外科

岡村 貞夫, 大沢 祐三

手術不能な悪性閉塞性黄疸症例に対して, 安全に経皮経肝の胆管ドレナージ (PTCD) が行われ, 更に症例によってはドレナージチューブの内瘻化, endoprosthesis の挿入により胆汁の腸内還元が可能となった. 我々は PTCD-tube による内瘻化施行 4 症例 (総胆管癌 2 例, 膵頭部癌 2 例) に対し, チューブの体外端の

皮下埋没による endoprosthesis 化を計り, 満足すべき結果を得た.

この方法は手技が簡単で, prosthesis の除去および再挿入が容易であり, 患者にとってもチューブの存在感がなく, 挿入部の汚染, 入浴の障害からも解消されて満足な日常生活を送ることができる.