

## Pancreaticobiliary Drainage by T-tube, A Promising Technique for Prevention of Pancreatic Leakage following Pancreaticoduodenectomy (Whipple Surgery)

SA Tabatabaee, SM Hashemi, MR Fazel<sup>1</sup>, S Dadkhah<sup>1</sup>, AH Davarpanah Jazi<sup>2</sup>

Department of Surgery, <sup>1</sup>Medical Student Research Center, <sup>2</sup>Medical Education Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

### Correspondence to:

Prof. SM Hashemi,  
Department of Surgery, Al Zahra Hospital,  
Shohadaye Soffeh St, Isfahan, Iran.  
E-mail: mozaffar\_hashemi@med.mui.ac.ir

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### DEAR EDITOR,

Peri-ampullary and pancreatic head cancer can cause significant morbidity and mortality among gastrointestinal malignancies in human beings because of its important anatomy and physiology.<sup>[1]</sup> This tumor is responsible for about 150,000 deaths annually all over the world, and is categorized as the 5<sup>th</sup> leading causes of death among the malignancies.<sup>[2]</sup> Pancreaticoduodenectomy (PD) is the complex palliative procedure for patients affecting peri-ampullary and pancreatic head tumors, benign neoplasm and for other conditions such as chronic pancreatitis showing obstructive jaundice as a common symptom, which was first time invented by Whipple *et al.*<sup>[3-7]</sup> Despite best palliative and occasionally curativeness of this procedure, there are some contraindications for the surgery including: Metastasis to distant organs, tumor infiltration to mesenteric and portal vessels and affecting small bowel mesentery by tumoral mass.<sup>[8]</sup>

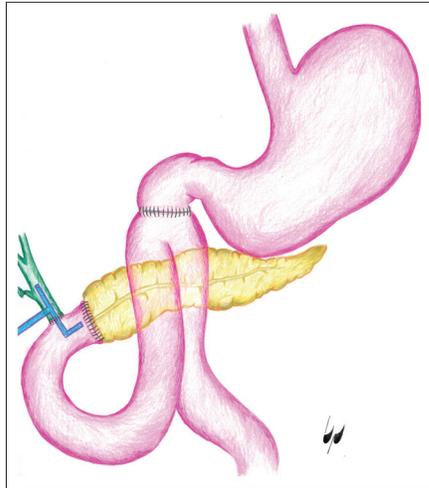
Although, during past two decades the mortality rate of PD has been improved to less than 5% in the centers undergoing large amount of procedures with specialized surgeons, the morbidity rate during and after the surgery is still remarkable and it remains as the main concern.<sup>[8,9]</sup>

This wide operation may cause some complication affecting the morbidity and mortality of the patients such as anastomosis leakage, infection pancreatic insufficiency and hemorrhage.<sup>[10,11]</sup>

Pancreaticojejunal anastomosis leakage is the most complicated situation occurred after Whipple operation with a high incidence and also high mortality of 0%-13%. This complication may cause some other complications which directly deteriorate the patient's situation, such as intra abdominal abscess and sepsis.<sup>[12]</sup> Some modified techniques were suggested for the reduction of this problem such as: Pancreatic duct occlusion, reinforcement of anastomosis with fibrin glue, placement of internal stent, and pancreaticogastrostomy but none of them may show reliable improvement for decrease of leakage postoperatively.<sup>[13]</sup> So the question remaining is how to prevent leak during and after the operation. This manuscript presents a modified procedure in order to achieve reduction of the problem mentioned above as an important goal in patients with the Whipple operation.

Forty two cases have undergone PD due to pancreatic and peri-ampullary cancer during 2 years in Al-Zahra hospital, department of surgery. Classic Whipple operation has been done for 30 patients but remained 12 cases have undergone the method explained below:

The first step is to perform pancreaticojejunal (PJ) anastomosis. Choledochojejunostomy must be accomplished as the second step and also duodenojejunostomy or gastrojejunostomy as well. The novelty is to use a T-tube placed inside the choledoch and other its end passed via choledochojejunostomy



**Figure 1:** A T-tube placed inside the choledoch and other its end passed via choledochojejunostomy anastomosis and placed into the blind jejunal loop anastomosed to pancreas (Figure by Dadkhah S)

anastomosis and placed into the blind jejunal loop anastomosed to pancreas. After creating a stab wound, the tube passes through the anterior abdominal wall [Figure 1].

In cases operated by classic Whipple surgery, pancreatic leakage occurred in 4 patients. But the consequence of performing biliary drainage by using the T-tube during the surgery showed no pancreatic leakage in any of 12 cases operated with this new technique. Jejunostomy was not required for cases in the second group and liquid diet was started 4 days postoperation without any complication.

It can be conclude that in this new technique, two factors may have associated with the prevention of pancreatic leakage. The first factor refers to decrease intraluminal pressure of blind jejunal loop after draining the bile and the second is to prevention of pancreatic secretion activation by diverting them using external drainage through T-tube following the operation.

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