MEGA JOURNAL OF CASE REPORTS

OPEN ACCESS

Case Presentation

Compiled Date: April 05, 2025

Our New Endoscopic Treatments for Incomplete Pancreatic Divisum (IPD) - Rendezvous Pre-Cut (RPC) Method and Reverse Balloon Dilation (RBD) Method

Tadao Tsuji*, G Sun, T Shinobi, M Kubochi, K Ohishi, Y Moriya, H Kaihara, S Yamamoto, K Aoto, Y Naritomi, M Kimura, M Ono and T Masuda

Department of Gastroenterology, Saitama Cooperative Hospital, Japan

***Corresponding author**: Tadao Tsuji, Department of Gastroenterology Saitama Cooperative Hospital, Japan

Keywords: Incomplete pancreatic divisum; Endoscopy; Minor papilla

Introduction

Incomplete Pancreatic Divisum (IPD) is a rare congenital disease caused by malfusion between Wirsung's duct and Santorini's duct in the 7th fetal age. In the literature, papers about its endoscopic treatment are few, so we would like

to report our endoscopic treatments, especially our new endoscopic treatments - Rendezvous Pre-Cut (RPC) method and Reverse Balloon Dilation (RBD) method. We aim to clarify the usefulness of our new endoscopic treatments.

The New Classification and Treatments of IPD

We have experienced 77 cases of IPD over the past 11 years **(Table 1)**. We classified them by the modified "Hirooka's classification" into stenotic fusion type 1,2 (sf1,sf2), branch fusion type 1,2,3 (bf1,2,3), and ansa pancreatica type **(Figure 1)**. Each number was 8,1,18,0,49 and 0 respectively. One case was unclassified. They consisted of 48 males and 29 females, aged 13-90 y/o (mean 63). It was 3.7 % of naïve ERP cases in this period. The states of disease were 4 ARP (acute relapsing pancreatitis), 58 CH (chronic pancreatitis), and 15 asymptomatic. Diagnoses were performed by ERP in 56 cases and 21 cases were by MRCP alone. The 59 symptomatic cases consisted of 43 males and 16 females (alcoholic

78%). While 18 asymptomatic cases consisted of 6 males and 12 females (non-alcoholic 72%). 9 severe pancreatitis cases with pseudo-cysts were all calcified alcoholic male cases **(Table 2)**. Treatment procedures consisted of 45 ESW+ endoscopy (via major papilla 17, via minor 28), endoscopy alone 13 (via major 3, via minor 10). 1 case received pancreato-duodenectomy after medical treatment and another 1 received pseudocyst resection in the tail without medical treatment. In the literature, reports about IPD treatment are few, so we would like to report 4 cases treated by RPC method and 5 cases by RBD method.

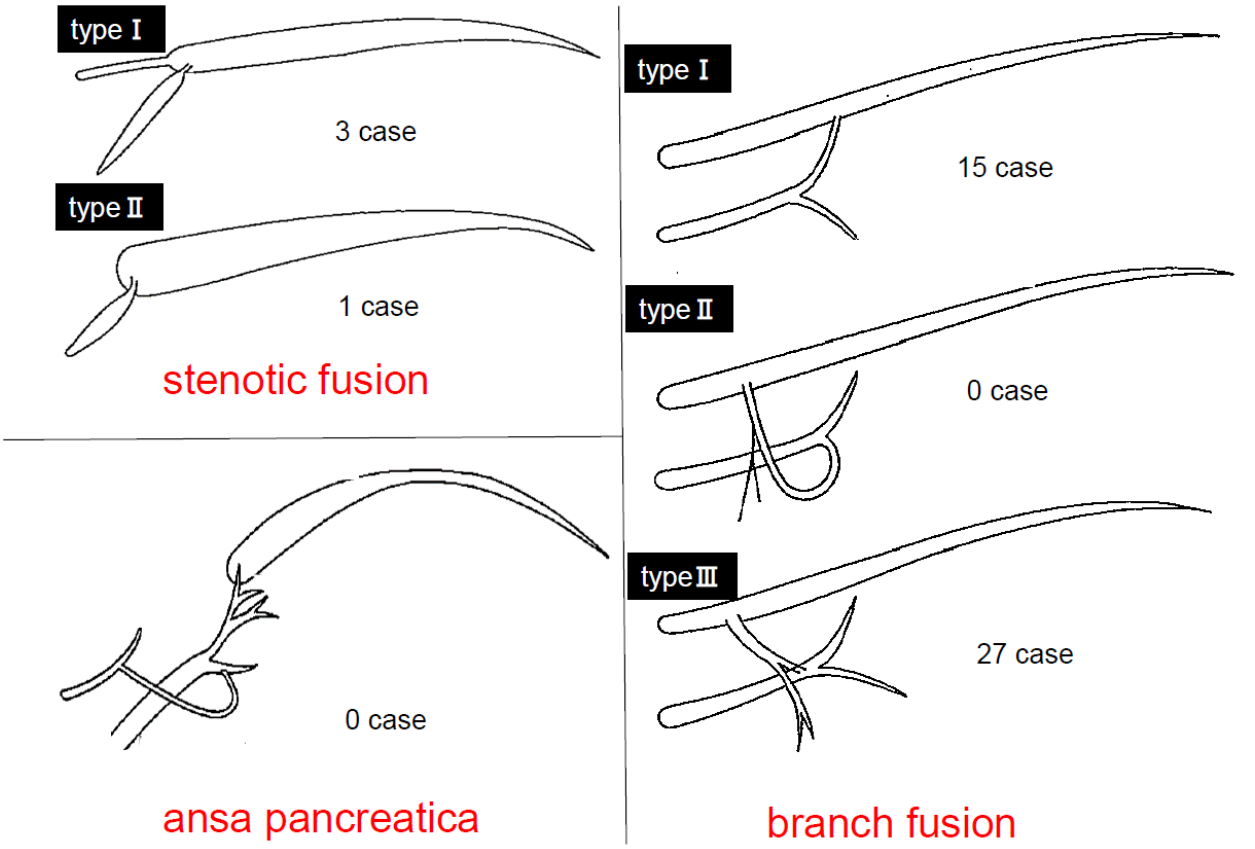
77 cases of Incomplete pancreas divisum (IPD)

M48 F29 13~90y/o (mean 63)

type	stenotic fusion	Ⅰ 8	Ⅱ 1		state	ARP	4
	branch fusion	Ⅰ 18	Ⅱ 0	Ⅲ 49		CH	58
	ansa pancreatica	0				asympto.	15
	unclassified	1					
diag.	ERP	56					
	MRCP alone	21					
treat.	ESWL+ endo (via major 17, via minor 28)						45
	endo alone (via major 3, via minor 10)						13
	ESWL alone						1
	primarily ope (tail pseudocyt)						2
	ESWL+endo(via major) + ope.						1
	no therapy						15
prognosis after endo.therapy							59
	goon						54
	poor						4
	operation						1
unsuccessful endo.therapy							3

Tab. 1

Fig.1 Modified Hirooka's classification of Incomplete pancreas divisum



	pain (+) 59		pain (−) 18	
	M 43	F 16	M 6	F 12
alcho. (+) stone (+)	42		3	
alcho. (+) stone (−)	4		2	
alcho. (−) stone (+)	10		1	
alcho. (−) stone (−)	3		12	
	pain (+) / alcho.(+) 46/59 = 78%		pain(-) / alcho.(-) 13/18 = 72%	

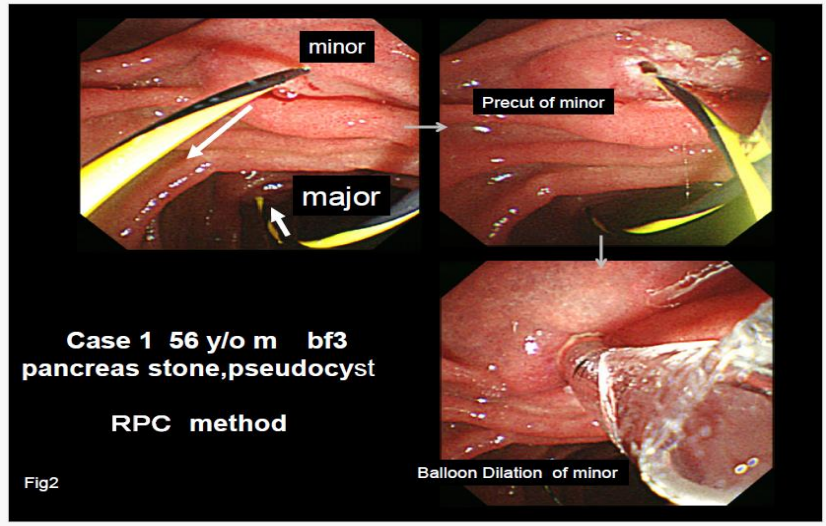
Tab.2

Case Presentation

A. Rendezvous Pre-Cut (RPC) method; 4 cases

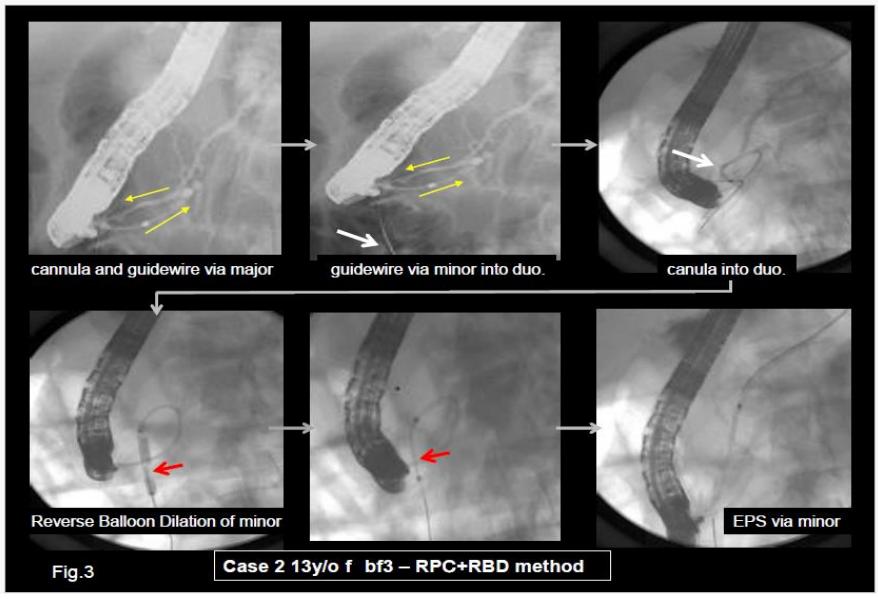
Case 1 56y/o m bf3 The guide wire, inserted through the major papilla, came out into the duodenum via the minor papilla. Along this guide wire, the minor papilla was cut by a needle type papillotome and the catheter was inserted into the minor papilla, then EPS was placed. This is our original procedure, a kind of

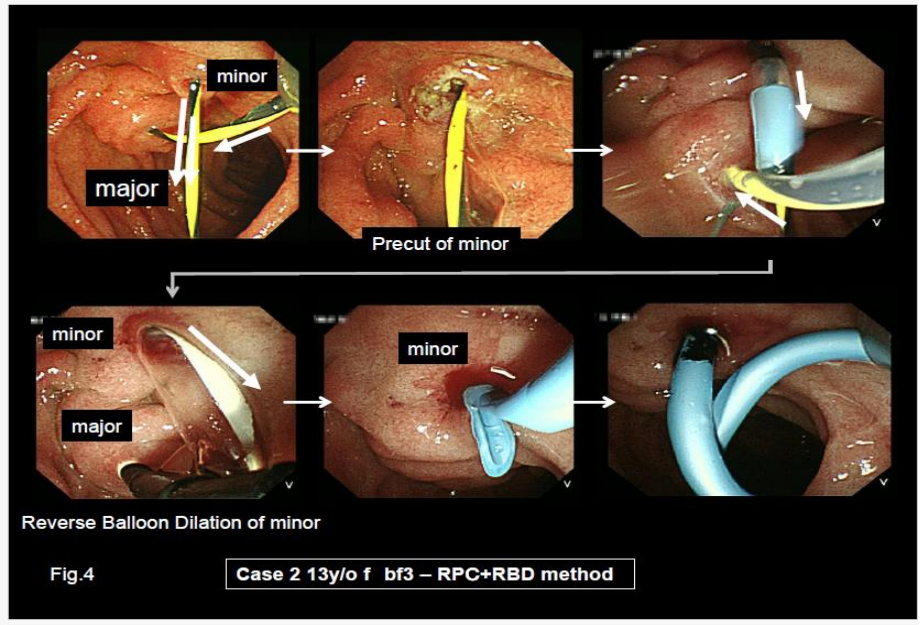
variant method of the rendezvous method **(Figure 2)** **[1-4]**.



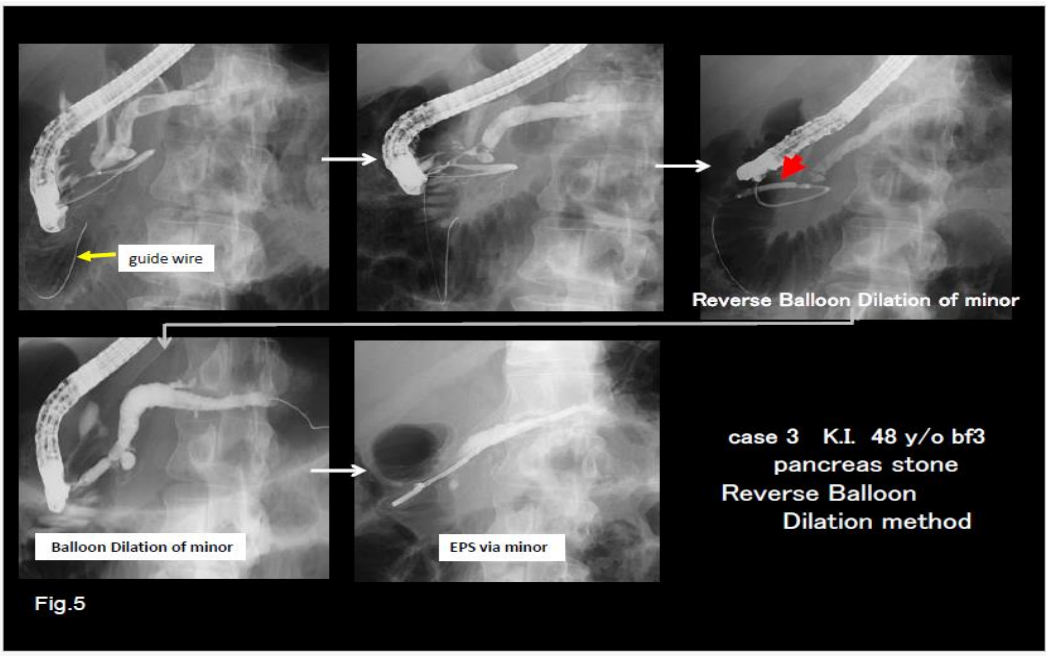
B. Reverse Balloon Dilation (RBD) method; 5 cases

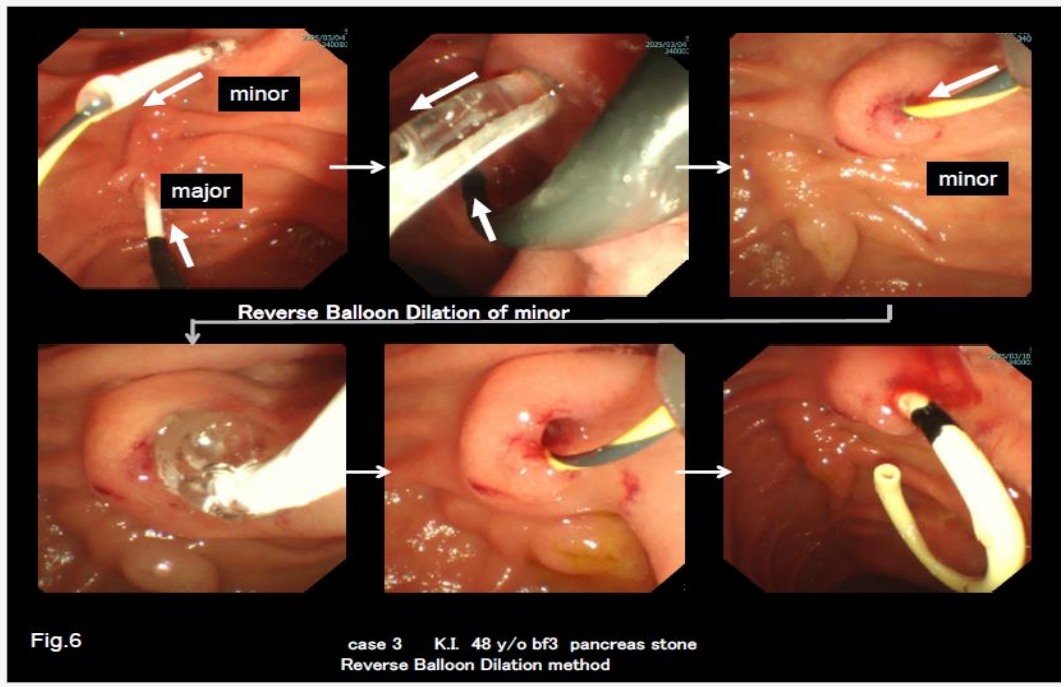
Case 2 13y/o f bf3 She entered into our hospital complaining of recurrent epigastralgia. The guide wire, inserted into the major papilla, came out via Wirsung's duct, connecting branch, Santorini's duct and minor papilla into the duodenum. The minor papilla was cut by needle type papillotome (RPC method), and a balloon catheter was inserted along the guide wire and the minor papilla was dilated from the reverse direction, then EPS was placed into the dorsal duct **(Figure 3 and 4)** **[1-4]**.



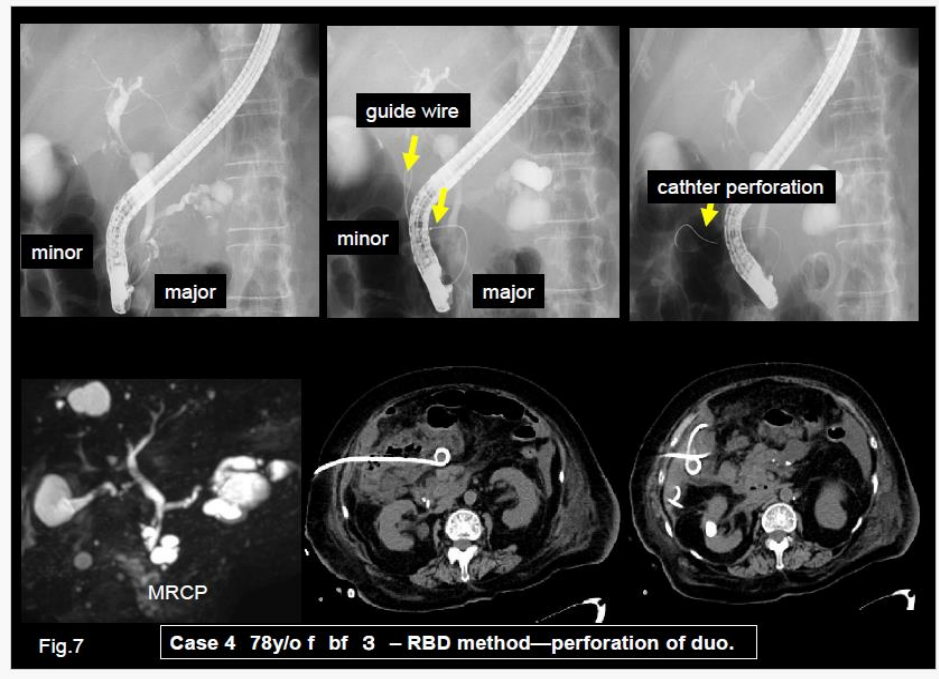


Case 3 48y/o m bf3 pancreatic stone (+) The guide wire, inserted into the major papilla, came out via Wirsung's duct and Santorini's duct into the duodenum. The minor papilla was dilated by 4 mm balloon from the reverse direction, then the catheter was inserted via minor papilla into the dorsal duct, then EPS was placed successfully **(Figure 5 and 6)**.





Case 4 78 y/o f bf3 MRCP showed a large pseudocyst in the tail. When the catheter was proceeded into the duodenum via the minor papilla under guide wire into the duodenum, injury of the duodenal wall and peri-duodenal abscess occurred (catheter perforation). Percutaneous abscess drainage was performed, and then cured. After reverse dilation of the minor, the pseudocyst in the tail disappeared. Deep guide wire placement into the duodenum via the minor papilla is necessary to prevent wall perforation by catheter **(Figure 7)**.



In the literature, Chavan reported 1 case of IPD treated by reverse sphincterotomy of the minor papilla. They used sphincterome to cut the minor papilla reversely **[3].**

Conclusion In this paper, we reported the usefulness of our new endoscopic methods- Rendezvous Pre-Cut (RPC) method and Reverse Balloon Dilation (RBD) method for IPD.

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Citation of this Article

Tsuji T, Sun G, Shinobi T, Kubochi M, Ohishi K, Moriya Y, Kaihara H, Yamamoto S, Aoto K, Naritomi Y, Kimura M, Ono M and Masuda T. Our New Endoscopic Treatments for Incomplete Pancreatic Divisum (IPD) - Rendezvous Pre-Cut (RPC) Method and Reverse Balloon Dilation (RBD) Method. Mega J Case Rep. 2025;8(4):2001-2008.

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