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Review Article

Our New Endoscopic Treatments for Incomplete Pancreatic Divisum (IPD): Rendezvous Pre-cut method and Reverse Balloon Dilation Method

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Introduction

Incomplete Pancreatic Divisum (IPD) is a rare mulfusion 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 new endoscopic treatments - Rendezvous Pre-cut method and Reverse Balloon Dilation method. We aim to clarify the safety of our new endoscopic treatments.

A New Classification and Treatments of IPD

We have experienced 66 cases of IPD over the past 10 years. 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 8,1,17,0,39 and 0 respectively. One case was unclassified.

They consisted of 43 males and 23 females, aged 13-90 y/o (mean 63). It was 4.0% of naïve ERP cases in this period. The states of disease were 4 ARP (acute relapsing pancreatitis), 48 CH (chronic pancreatitis), and 14 asymptomatic. The 49 symptomatic cases consisted of 39 males and 10 females (alcoholic 80%). 9 severe pancreatitis cases with pseudocysts were all calcified alcoholic male cases. While 17 asymptomatic cases consisted of 6 males and 11 females (non-alcoholic 69%).

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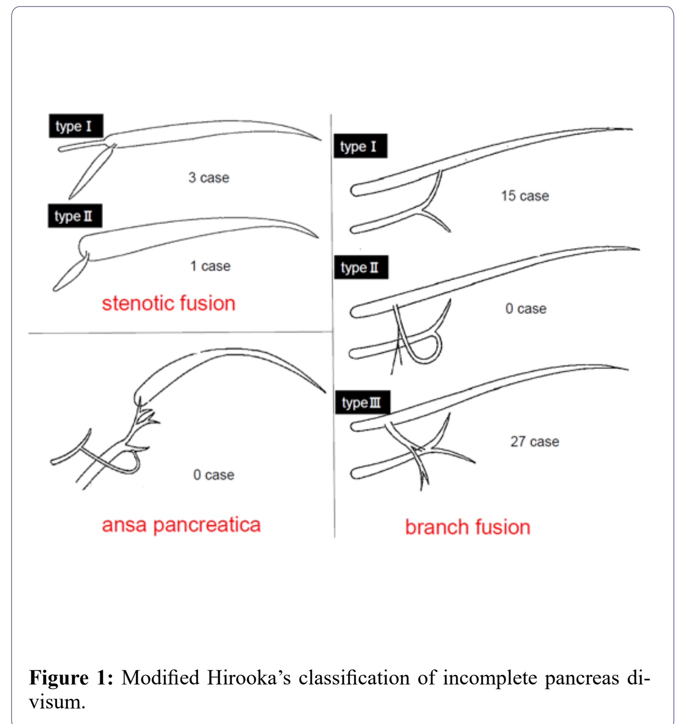

Figure 1: Modified Hirooka's classification of incomplete pancreas divisum.

Treatment procedures consisted of ESW+endoscopy (via major papilla) 2, ESWL+endoscopy (via minor) 13, endoscopy alone 4 (via minor). 1 case received pancreato-duodenectomy after medical treatment and 1 received pseudocyst resection in the tail without medical treatment (Table 1).

66 cases of Incomplete pancreas divisum (IPD)

M43 F23 13~90y/o (mean 63) 66/1524 (naive ERCP) = 4.0%

(2014. 4.1.- 2023.3.31)

type	stenotic fusion	I 8	II 1		state	ARP 4
	branch fusion	I 17	II 0	III 39		CH 48
	ansa pancreatica		0			asympto. 14
	unclassified		1			
diag.	ERP and MRCP	49				
	MRCP alone	20				
treat.	ESWL+ endo (via major 13, via minor 23)	36				
	endo alone (via major 3, via minor 10)	13				
	ESWL alone	1				
	primarily ope (tail cyst resection)	1				
	ESWL+endo(via major) + ope.	1				
	no therapy	15				
prognosis of successful endo.therapy		49				
	goon course	45				
	pain relapsing	3				
	operation	1				
unsuccessful endo.therapy		2				

Table.1

In the literature, reports about IPD treatment are few, so we would like to report their treatments, especially 2 new procedures: rendezvous pre-cut method and reverse balloon dilation method.

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Case Presentations

Rendezvous pre-cut Method; 12 Cases

Case 1: 56-year old male. bf3 IPD. The guidewire, 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 variant of the rendezvous method (Figure 2) [1,2].

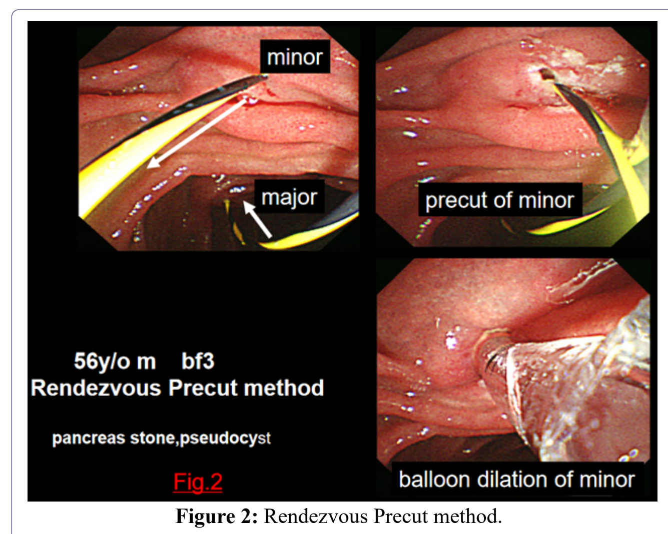

Figure 2: Rendezvous Precut method.

Reverse Balloon Dilation Method; 3 Cases

Case 2: 13-year old female bf3 IPD: She entered into our hospital complaining of reccurent epigastralgia. The guidewire, 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 (rendezvous pre-cut method), and a balloon catheter was inserted along the guidewire and the minor papilla was dilated from the reverse direction by a 4mm dilation balloon, then EPS was placed into the dorsal duct (Figures 3&4) [1,2].

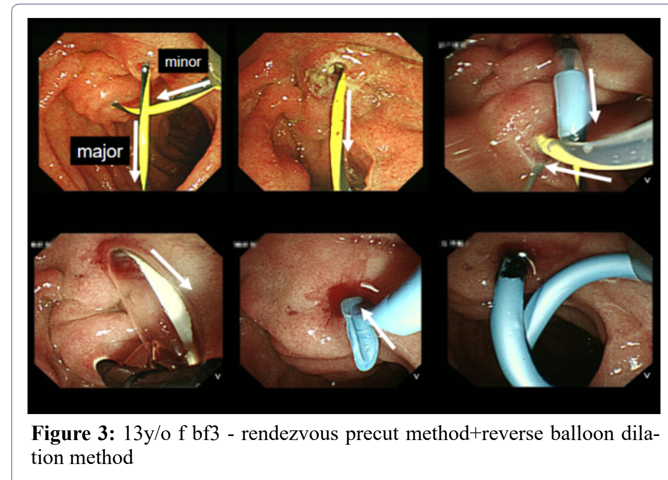

Figure 3: 13y/o f bf3 - rendezvous precut method+reverse balloon dilation method

Case 3: 78-year old female. bf3 IPD. ERP showed a large pseudocyst in the tail. When the catheter was proceeded into the duodenum via the minor papilla under short guidewire insertion into the duodenum, injured the duodenal wall and made peri-duodenal abscess. Percutaneous abscess drainage was performed, then cured. Deep guidewire placement into the duodenum via the minor papilla is necessary to prevent wall perforation by catheter (Figure 5).

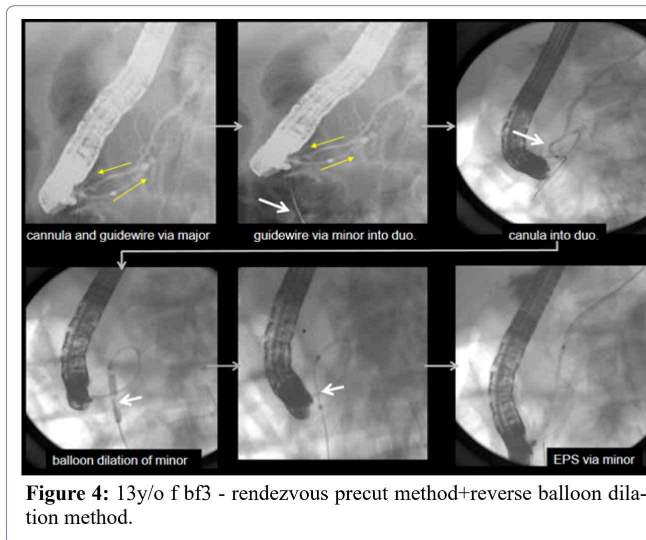

Figure 4: 13y/o f bf3 - rendezvous precut method+reverse balloon dilation method.

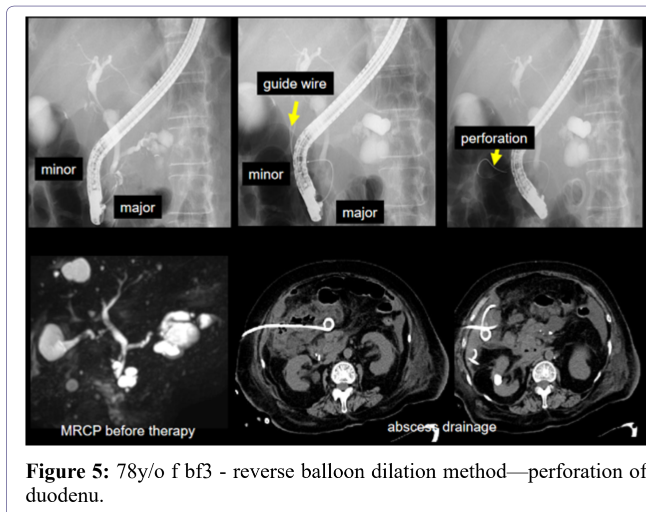

Figure 5: 78y/o f bf3 - reverse balloon dilation method—perforation of duodenu.

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 safety and usefulness of our new methods-Rendezvous Pre-cut method and Reverse Balloon Dilation Method for IPD.

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