

# A study of the results of our efforts to the postoperative pancreatic fistula in our hospital

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## 【 Discussion / Conclusion 】

- It was found that removal of the drain within 5 days significantly decreased PF(p<0.01). But the frequency of POPF is still high in our institution. That's because the drain fluid amylase value was high or drain was cloudy.
- PGA + FG has reduced the amount of drain fluid amylase value, which has resulted in early removal of the drain as planned. So, we believe that **PGA + FG is helpful in preventing the occurrence of POPF.**

## 【Object】

- ①Risk factors of POPF of DP    ②Divided into three periods in which the coping methods were changed.

### ①Risk factors of POPF

## 【 Materials and methods ①】

Consider the following factors using the chi-square test

### 1) Preoperative factors

Age, BMI, Alb, Diabetes, Hypertension, Pancreatitis, Smoking, Neoadjuvant chemotherapy(NAC), Pathology(carcinoma / benign)

### 2) Operative factors

Open/Laparoscopy, Operative time, Bleeding, Dissection(hand/stapler), Drain removal, PGA and FG

## 【 Results①】

n=66 (2012. Jan- 2022. Nov)

Sex : male : Female 35: 31    Age : 69.3(Median) (23-86)

### Preoperative factors

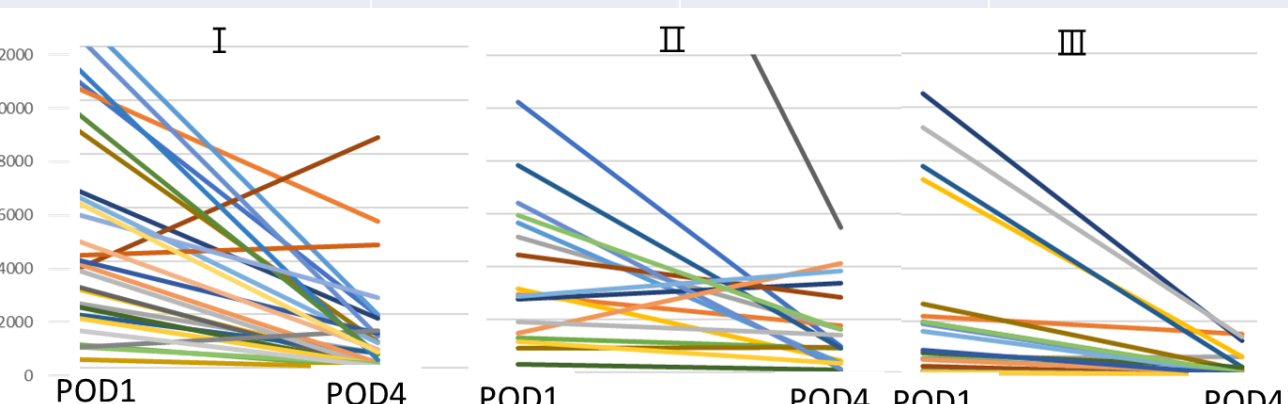
	POPF(+)	POPF(-)	p(<0.05)
Age(∼57/58∼)	2/14	16/34	.112
<b>BMI (∼22.5/22.6∼)</b>	2/14	25/25	.007
<b>Alb(∼4.5/4.6∼)</b>	10/6	44/6	.031
<b>Smoking(-/+)</b>	15/1	31/19	.013
Diabetes(-/+)	12/4	37/13	.608
<b>Hypertension(-/+)</b>	6/10	34/16	.031
Pancreatitis(-/+)	14/2	43/7	.624
NAC(-/+)	16/0	42/8	.183
Pathology(carci/benign)	5/11	24/26	.189

### Operative factors

	POPF(+)	POPF(-)	P(<0.05)
Open/Laparo	13/3	37/13	.412
<b>Operative time (∼231/232∼)</b>	0/16	13/37	.017
Bleeding (∼338/339∼)	7/9	32/18	.127
Dissection (hand/stapler)	11/5	30/20	.375
<b>Drain removal (∼5/6∼)</b>	0/22	16/28	<0.001
<b>PGA and FG (-/+)</b>	16/0	36/14	<.012

### Drain Fluid amylase value (DFAV)

	I	II	III
DFAV POD1	4171(323-14339)	3051(914-10223)	1653(115-10530)
DFAV POD4	583(27-162783)	1193(107-5464)	80(41-1439)



	I	II	III
Drain removal(day)	20(4-50)	7(4-53)	4(4-35)
Within(∼5/6∼7/8∼)	3/6/20	6/4/8	13/5/1

## 【 Introduction 】

- Postoperative pancreatic fistula (POPF) is one of the most important complications after distal pancreatectomy (DP). Although various preventive management have been taken, the frequency is still high and has not yet been overcome.
- The effectiveness of early drain removal<sup>1)</sup> and polyglycolic acid (PGA) felt and fibrin glue (FG) use at the pancreatic stump closure for preventing POPF after DP has been reported<sup>2)</sup>.

1) Ann Surg 2010 252(2):207-214    2)JAMA Surg 2017 152(2):150-155

### ②Study among three groups

## 【 Materials and methods ②】

Pancreatic resection cases from 2012 to 2021 were classified into three groups: control group, early drain removal group, and PGA + FG group. Preoperative and surgical factors were examined. Drain amylase progression in the three groups was examined.

## 【 Results②】

n=66 (2012. Jan- 2022. Nov)

Group I ) N=29(2012-2017) : control

Group II ) N=18(2017-2019) : Early drain removal(POD4-5)

Group III ) N=19(2019-2022) : PGA and FG

- If the drain becomes cloudy, removal will be postponed.
- PGA felt (Neoveil; Gunze) is absorbable nonwoven textile, and is widely used for tissue reinforcement. Its attachment on a tissue is greatest when applied in combination with FG.

	I	II	III
Sex( M : F )	10 : 19	14 : 4	11 : 8
Age	68.8(23-84)	68.4(28-86)	72.9(39-84)
Carci : benign	12:17	12:6	13:6
Time(minute)	259(177-647)	331(243-477)	314(208-621)
Bleeding(ml)	276(11-2927)	324(56-2357)	314(11-1463)
Open/laparo	21:8	16:2	13:6
Drain removal	20(4-50)	7(4-53)	4(4-35)
<b>PF</b>	<b>10/29(34%)</b>	<b>6/18(36%)</b>	<b>0/19(0%)</b>
DGE	1/29(3%)	3/18(16%)	2/19(10.5%)
Abscess(no PF)	0/29(0%)	1/18(5%)	1/19(5%)
PPH	0/29(0%)	1/18(5%)	1/19(5%)
<b>Discharge(POD)</b>	<b>27(12-58)</b>	<b>27.5(14-65)</b>	<b>16(11-70)</b>

### Drain Fluid amylase value (DFAV) (Group I : PF)

	DFAV POD 1	DFAV POD 4	DFAV POD 7	DFAV POD 10	PF	Abscess
No1	11380	1958	2942	129600	+	-
No2	2569	533	1789		+	-
No3	3316	8597	31880		+	-
No4	2082	545	193		+	-
No5	1985	121	755		+	-
No6	835	156	180	215480	+	-
No7	12019	287	17480		+	-
No8	10195	518	171	1863	+	+
No9	6592	583	122		+	+
No10	14339	163280	66100		+	-

- Drain long-term placement resulted in elevated amylase (6/10)
- Compared to group I, group II had more cases in which drain amylase increased from POD1 to 4. The median value on POD1 was also lower than in group I, but on POD4 it was higher than in group I. There were 8 cases in which the drain could not be removed for 8 days or more, one of which had a large amount of chylous ascites, and the remaining 7 cases in which drain clouding early after surgery.
- In Group 3, drain amylase improved in all cases from POD1 to 4, and the median values on POD1 and 4 were also low. Except for one case in which removal was delayed due to massive chylous ascites, drain removal was completed within 5 days in 13 cases and within 6-7 days in 5 cases.