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Pylorus Preserving Pancreatoduodenectomy (PPPD) A patient case

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Vienna, nov. 30th

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Declaration of conflict of interest

Type	Company
Employment full time/ part time	None
Research Grant (P.I., collaborator or consultant; pending and received grants)	None
Other research support	None
Speakers Bureau/ Honoraria	None
Ownership interest (stock, stock-options, patent or intellectual property)	None
Consultant/ advisory board	None

Maastricht UMC+ - European Surgery Center Aachen Maastricht (ESCAM) our service area

MUMC+ 2018
33 PPPD

UK Aachen 2018
85 PPPD

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Introduction

Preoperative patient characteristics and postoperative complications after PPPD:

- How to recognize
- How to treat
- Patient consequences

Content

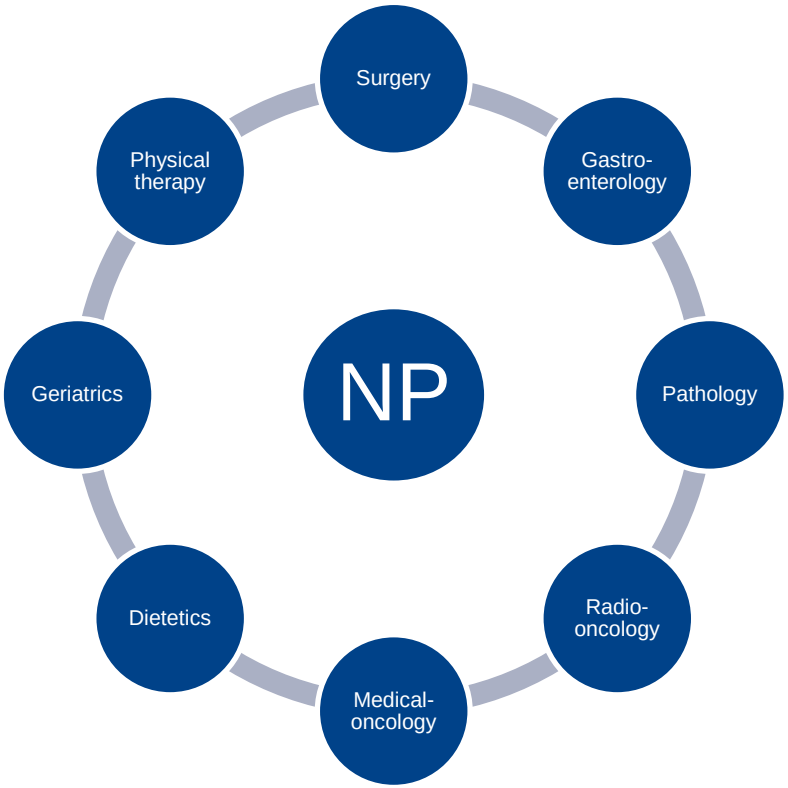
- Dutch Professional Nurse Practitioner (NP) Organization (V&VN VS)
- The role of the NP in the tumor group HPB-surgery
- The role of the NP in the HPB-surgery Maastricht UMC+
- 3 Patient cases
- Concluding remarks

Dutch Professional Nurse Practitioner (NP) Organization (V&VN VS)

The role of the NP in the tumor group HPB-surgery

The role of the NP in the HPB-surgery Maastricht UMC+

Multidisciplinary Team



NP roles

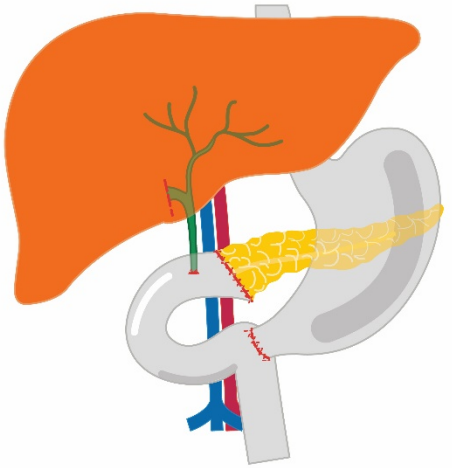
- Multidisciplinary consultation
- Validation of medical history
- Physical examination
- Discuss the case with the patient
- Educating
- Clinical care preparation for presentation at MDT meeting
- Preoperative risk screening
- Enhanced Recovery After Surgery (ERAS)

Pancreatic head carcinoma: patient characteristics and complications after PPPD

Focus on 3 patient cases:

Preoperatively

Autoimmune disease (IgG4): preoperative challenge!



Postoperative

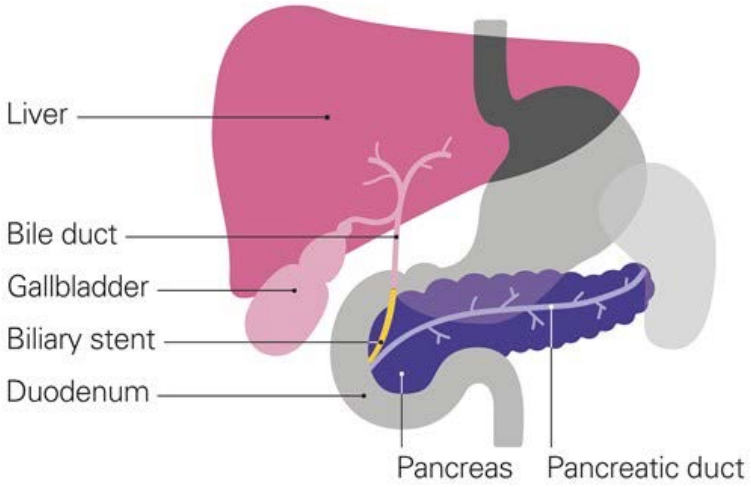
- Wound infection (incidence 20%)
- Delayed Gastric Emptying (DGE) (incidence 24%)
- Exocrine Pancreas Insufficiency (EPI) (incidence 80-90%)
- Pancreas leakage (incidence 20%)

Case 1

Patient 1: Mr. A 63 Year old (1)

Outpatient clinic (preoperatively)

- Hypertension
- Referred to Maastricht: icterus, nausea
- Diagnosis: suspicion pancreatic head carcinoma
- Performance score: WHO 0-1
- Bilirubin 140: stent in common bile duct (CBD)
- Medical history: profession not asked



Operation

- PPPD: uncomplicated

Patient 1: Mr. A 63 Year old (2)

Admission

- Uncomplicated

Discharge from hospital

- 10 Days after PPPD

Histology

- No malignancy
- IgG4 Autoimmune pancreatitis

Complications

- Exocrine Pancreatic Insufficiency
- Chance of developing Endocrine Pancreatic Insufficiency

Patient 1: Mr. A 63 Year old (3)

- Autoimmune disease: concentration of the fourth subtype immunoglobulin G is strongly increased
- Possible cause IgG4: blue-collar workers exposed to chemical-, paint-, oil substances
- Presented as a malignancy
- Serum diagnostics: plasma cells PCR IgG4 or obtain tissue
- No surgery!!!
- Treatment with immune suppression
- Take home message: Always ask about the profession!
- *In this case the patient is exposed to a major abdominal surgery, with a high risk of complications and even mortality*
- *And after the operation the patient developed Exocrine Pancreatic Insufficiency*

de Buy Wenniger. Et Al. 2013. IgG4- gerelateerde ziekte. Nederlands tijdschrift geneeskunde. 157: A6476

Patient 1: Mr. A 63 Year old (4)

Exocrine Pancreatic Insufficiency (EPI)

- 42-45% preoperatively, 20-60% unresectable pancreatic cancer, after PPPD 80-90%, after distal pancreatectomy 20-50%
- Steatorrhea, weight loss, vitamin deficiency, maldigestion complaints
- Elastase in defecation
- Pancreatic enzyme replacement therapy (PERT)
- In this patient case we started with PERT 1-1-2, despite still discolored defecation
- Increased 2-2-2 and give advice to take an extra capsule depending on the fat intake per meal

Capsurso G Et.Al. 2019. Exocrine pancreatic insufficiency: prevalence, diagnosis, and management. Gastroenterol; 12: 129-139.

Case 2

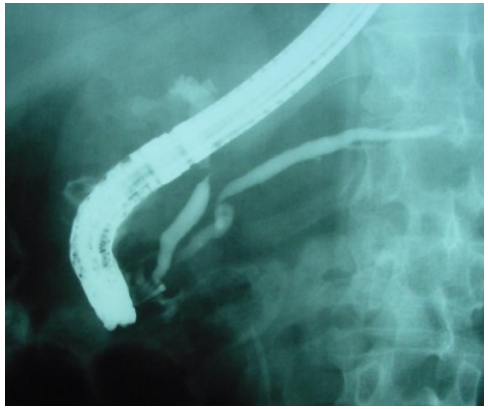
Patient 2: Mr. B 70 Year old (1)

Outpatient clinic (preoperatively)

- 2015 Appendectomy
- Referred to Maastricht: icterus and abdominal pain
- PG-SGA 8: cachexia
- Diagnosis: Pancreatic head carcinoma
- Performance score: WHO 0
- Bilirubin 132.6: Stenting not possible. Percutaneous Transhepatic Biliary Drainage (PTBD)

Operation

- PPPD: uncomplicated



Patient 2: Mr. B 70 Year old (2)

POD 1+

- Postoperative abdominal drain: secretion 70cc
- No fever
- Start mobilization

POD 2+

- Nausea, vomiting
- Abdominal drain: secretion 50cc

POD 3+

- Increased nausea and vomiting
- Increased CRP 360 (90), fever 39 °**C**
- Wound infection: redness, fever, start antibiotics
- Delayed Gastric Emptying (DGE) grade A
- Nasogastric tube for excessive (2L) stomach secretion and start tube feeding jejunum
- Reduced abdominal drain production: 40cc

Patient 2: Mr. B 70 Year old (3)

Wound infection

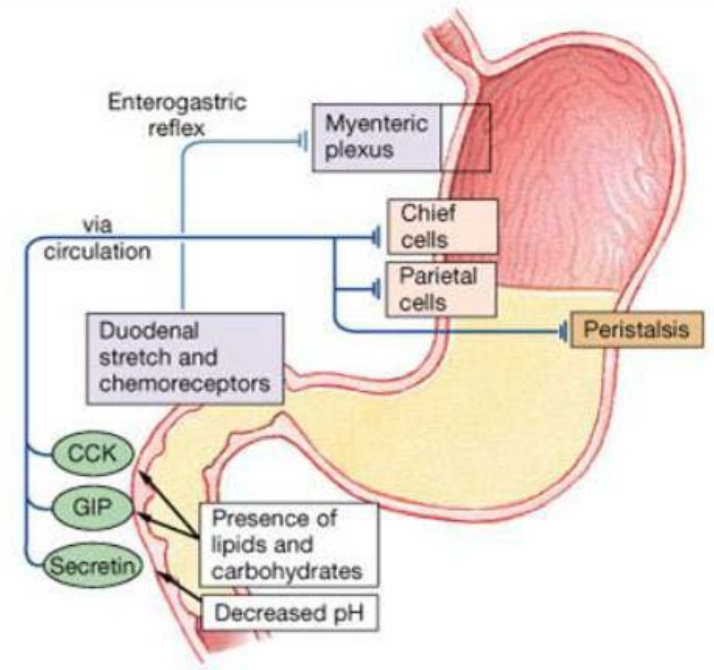
- 20 % of patients
- Wound opened, pus or redness
- Edema, redness, fever, septic
- Duration operation, diabetes, BMI
- Day 3-14 postoperative
- Vital signs
- Observations, sometimes open the wound, or give antibiotics
- In this patient case we started with Augmentin

Pugalenthi, A. Et Al. (2016). Postoperative complications and overall survival after pancreaticoduodenectomy of pancreatic ductal adenocarcinoma. Journal of surgical Oncology. 113:188-1993

Patient 2: Mr. B 70 Year old (4)

Delayed gastric emptying (DGE) 1

- 24.2% of patients
- Nausea, vomiting, burping, hiccups, tachycardia
- Build up gastric acid and saliva
- Duodenal control of the stomach disappeared
- Spasm of the pylorus due to ischemia
- DGE is usually related to an abdominal problem: for example leakage anastomose
- Day 3-14 postoperative. Can take 2 to 6 weeks
- Vital signs



Pugalenthi, A. Et Al. (2016). Postoperative complications and overall survival after pancreaticoduodenectomy of pancreatic ductal adenocarcinoma. Journal of surgical Oncology. 113:188-1993

Patient 2: Mr. B 70 Year old (5)

Delayed gastric emptying (DGE) 2

Grade	Tube feeding	Oral intake
Grade A	Until day 4-7 or relocate after day 3 postoperative	From day 7 until day 14
Grade B	Until day 8-14 or relocate after day 7 postoperative	From day 14 until day 21
Grade C	Until day 14 or relocate after day 14 postoperative	From day 21

- Stimulated oral food in portions, small and frequent
- When oral intake is inadequate: start tube feeding: electrolyte supplementation, anti emetics, prokinetics
- In this patient case we placed a Nasogastric tube for excessive stomach secretion and gave a Nasojejunal tube with the Cortrak system

Yong Hoon. 2012. Management and prevention of delayed gastric emptying after pancreaticoduodenectomy. J Hepatobiliary Pancreat Surg 2012;16:1-2

Electromagnetic- Guided tube (Cortrak)

Photo team Maastricht UMC+

ORIGINAL ARTICLE

Electromagnetic-Guided Versus Endoscopic Placement of Nasojejunal Feeding Tubes After Pancreatoduodenectomy

A Prospective Pilot Study

Arja Gerritsen, MD, Ann Duflou, RN,† Max Ramali, RN,† Olivier R.C. Busch, MD, PhD,* Dirk J. Gouma, MD, PhD,* Thomas M. van Gulik, MD, PhD,* Els J.M. Nieveen van Dijkum, MD, PhD,* Elisabeth M.H. Mathus-Vliegen, MD, PhD,† and Marc G.H. Besselink, MD, MSc, PhD**

Gerritsen A. Et Al. 2016. Electromagnetic-Guided Versus Endoscopic Placement of Nasojejunal Feeding Tubes After PPPD: Prospective Pilot Study. Feb;45(2):254-9.doi: 10. 1097/MPA

Patient 2: Mr. B 70 Year old (6)

POD 4+

- Decrease CRP 210 (360)
- Production nasogastric tube : 1350cc

POD 5+

- Remove abdominal drain: <15cc

POD 6+

- Production nasogastric tube: 500cc

POD 7+

- CRP 11

POD 8+

- Production nasogastric tube: 0cc. Remove tube
- No nausea or vomiting
- Stop tube feeding: start oral feeding

POD 11+

- Discharged from hospital
- Advice small frequent meals
- Stop antibiotics

Case 3

Patient 3: Mrs. C 71 Year old (1)

Outpatient clinic (preoperatively)

- Hypertension
- BMI 30
- Referred to Maastricht: icterus, discolored defecation
- Diagnosis: Suspicion pancreatic head carcinoma
- Performance score: WHO 0
- Bilirubin 250: ERCP + stenting

Operation

- PPPD:uncomplicated

Patient 3: Mrs. C 71 Year old (2)

POD 1+

- Abdominal drain: 100cc production
- No pain
- Mobilization is going well

POD 2+

- Abdominal drain: 120cc production
- No fever (37.3)

POD 3+

- Fever (39,2), CRP 196
- Abdominal drain: 120cc (Amylase 3x higher than normal serum level)
- CT: intra abdominal abscess collection, caused pancreatic leakage. Placing drain

Pulvirenti A. Et Al. 2017. Modifications in the International Study Group for Pancreatic Surgery definition of postoperative pancreatic fistula. Doi: 10.21037/tgh.2017.11.14

Patient 3: Mrs. C 71 Year old (3)

Pancreatic leakage

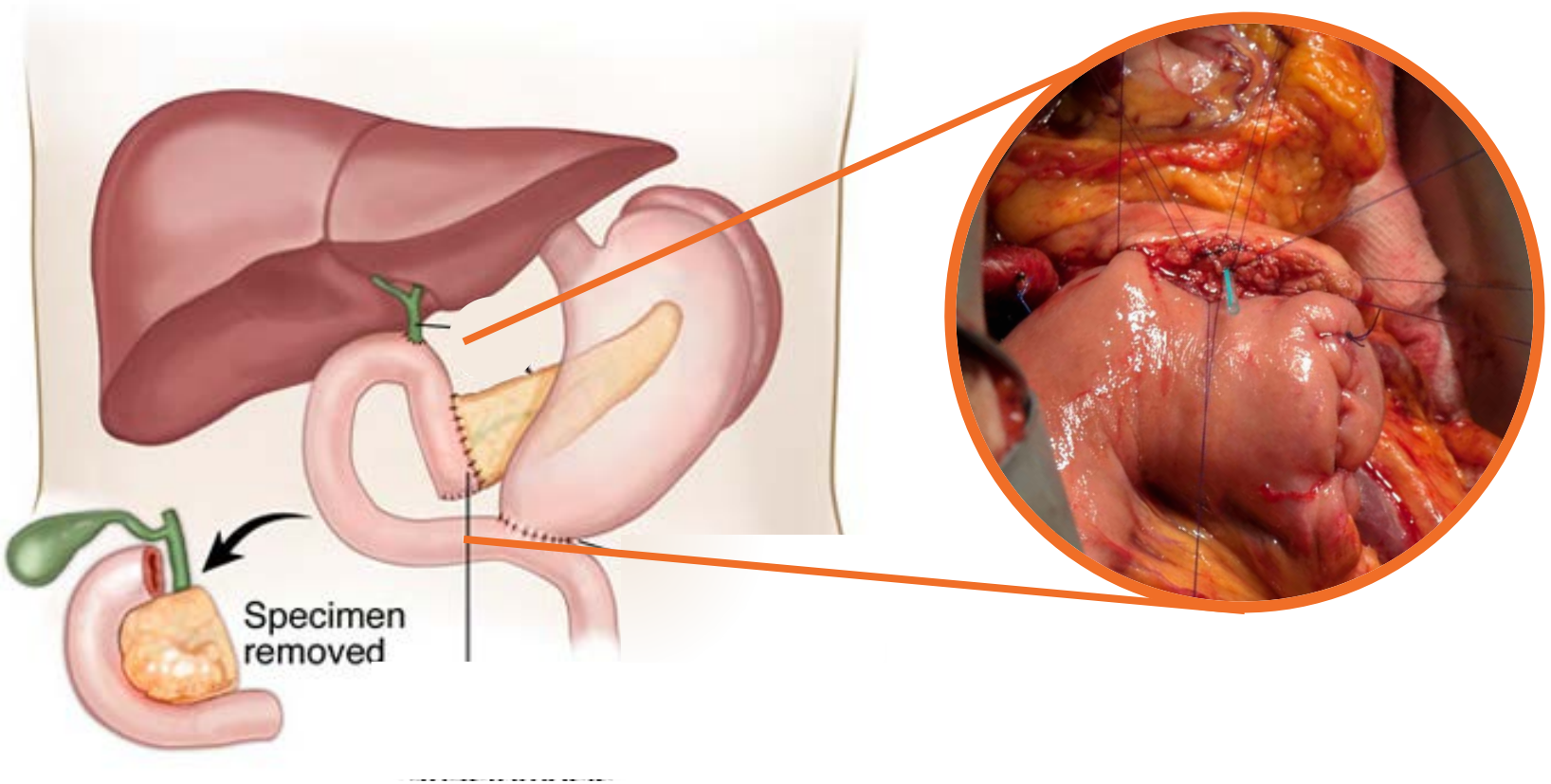
- 20% of patients
- Amylase drain >3x serum level (normally 0-220, then increased to > 660)
- Pain, sepsis, bleeding, DGE, abscess
- Soft pancreas, high BMI
- Day 3-14 postoperative
- Vital signs, drain fluid
- Consider CT
- Drain in situ, electrolyte supplementation, drainage abscess, treat sepsis
- Observe drain fluid
- In this patient case we see that an abscess can be a sign of a pancreatic leakage

Grade	Definition
Grade A	Amylase leakage without clinical consequence
Grade B	Persistent drainage >3 weeks with drain. Signs of infection without organ failure Angiography for bleeding
Grade C	Reoperation Organ failure

Pulvirenti A. Et Al. 2017. Modifications in the International Study Group for Pancreatic Surgery definition of postoperative pancreatic fistula. Doi: 10.21037/tgh.2017.11.14

Dush N.Et Al. 2017. International study group of pancreatic surgery definitions for postpancreatectomy complications: applicability at a high-volume center. J of Surgery vol. 106(3)216-223

Patient 3: Mrs. C 71 Year old (4)



DPCA dates

Patient 3: Mrs. C 71 Year old (5)

POD 8+

- Nausea and vomiting
- Nasogastric tube for excessive stomach secretion (Delayed Gastric Emptying (DGE)) Grade B
- Start tube feeding

POD 21+

- Discharge from hospital
- Stop tube feeding
- With abdominal drain: persistent drainage >3 weeks (grade B leakage)

Pulvirenti A. Et Al. 2017. Modifications in the International Study Group for Pancreatic Surgery definition of postoperative pancreatic fistula. Doi: 10.21037/tgh.2017.11.14

Concluding remarks

- Be aware of patient characteristics before surgery
- Always ask for the medical history and profession
- Recognizing complications after surgery for timely intervention
- Describe what you see: the nurse sees the patient several times a day and the doctor once a day
- Educate nurses: bedside teaching to recognizing symptoms

Teamwork is essential in the care of our patients

Maastricht UMC+

Thank you for your attention

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