



ORIGINAL RESEARCH PAPER

Surgery

SUMMARY FOR PATIENTS ABOUT PANCREATODUODENECTOMY OR WHIPPLE

KEY WORDS:

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ABSTRACT

Patients undergoing pancreatoduodenectomy for pancreatic cancer have a high risk of major postoperative complications and a low survival rate. Pancreatoduodenectomy for malignant disease negatively influences QoL in the physical and social domains at short term. It will eventually recover to baseline values after 3–6 months. This information is valuable for counselling and expectation management of patients undergoing pancreatoduodenectomy. Long-term survival in patients with periampullary adenocarcinoma can be predicted by preoperative laboratory values, intraoperative factors, and pathologic findings.

INTRODUCTION

Pancreaticoduodenectomy (PD) has its origins in the late 1800s. Although William Halsted performed the first transduodenal local excision of a tumor of the ampulla of Vater in 1898, Alessandro Codivilla, in that same year, was the first to perform a PD, in Imola, Italy. In 1909 in Berlin, Walter Kausch performed the first successful 2-stage PD. Allen Whipple reported the first series of PDs in 1935, and since that time, the operation has been known as the "Whipple" operation.

Pancreaticoduodenectomy offers a chance of cure in patients with pancreatic cancer involving the head of the pancreas and other peri-ampullary malignancies and can improve quality of life.

Whipple procedure involves resecting the head of the pancreas, duodenum, gallbladder, and bile duct. However, when the surgical margin is positive for cancer (R1 resection); survival rates remain very poor, thus putting an emphasis on accurate preoperative diagnosis and surgical interventions that fully removes the disease. In order to achieve a negative margin (R0 resection), resection of vessels [superior mesenteric vein (SMV), portal vein (PV), and hepatic artery] may be deemed necessary.

Because the PV, SMA, and hepatic arteries may be involved a vascular resection during PD often requires secondary vascular reconstruction of the resected vessels.

The Whipple procedure involves two phases.

- Phase one of surgery: First, the surgeon removes the head and uncinate process (the part that bends backwards and under the pancreas) in order to remove the tumor.

Because the pancreas is so closely tied with other organs, the surgeon will remove other nearby organs, including:

- The first portion of the small intestine (duodenum)
- Part of the bile duct
- Gallbladder (which stores bile, a fluid, that helps digestion)
- Lymph nodes near the pancreas

The lower section of the stomach

- Phase two of surgery

The second part of the surgery is reconstruction.

The surgeon will first reattach the remaining portion of the pancreas to the small intestine, to allow digestive enzymes to enter the digestive tract.

Next, the surgeon will reattach the remaining portion of the bile duct to the small intestine to allow for the flow of bile.

Finally, the stomach is reattached to the small intestine so food can pass through the digestive tract.

Typically, the procedure is done through an incision in the stomach, known as an open procedure. The open procedure typically requires you to be hospitalized for a few days.

Another option may be to perform the procedure laparoscopically, also called keyhole surgery, which is a newer approach that is minimally invasive and offers faster recovery.

With the laparoscopic method, your surgeon needs only to

make several small cuts in the belly, rather than one large incision. Through these small cuts, the surgeon inserts a tiny camera and uses the images to guide each step. However, the operation is no less difficult.

Even after a successful pancreatic resection, prognosis is very poor with a 5-year survival of approximately 4–30% and a median survival of 18–29 months.

Pancreatoduodenectomy is a major abdominal operation, with a risk of major complications up to 57%.

In the last 20 years, the outcomes of PD have improved with better surgical techniques and optimal post-operative care of patients. However, offering this surgery to elderly patients is still a controversial issue.

Frequent postoperative complications include wound infection, delayed gastric emptying, pancreatic fistula and post-pancreatectomy, haemorrhage.

Patients should be carefully counselled on the impact on QoL before they undergo pancreatoduodenectomy.

Before the Procedure

In preparing for a Whipple procedure, you need to consider certain factors, including:

- **Weight loss**—If you have pancreatic cancer or another tumor in the digestive tract, you may find you are losing a lot of weight because the cancer makes it difficult to digest food properly.
- **Nutrition support**—You may consider working with a dietitian.
- **Strength**—If you are able to exercise, stick to your routine as much as possible. Set small targets to help build strength before surgery. Your care team will encourage you to walk as much as possible before surgery.
- **Additionally, you may need to:**
- **Stop smoking** before surgery.
- **Stop taking certain medications**, especially blood thinners and pain meds.
- **Speak with your care team** about your history with anesthesia.
- **Complete pre-op tests**, which may include blood count, blood sugar, and kidney and liver function, as well as a chest X-ray and electrocardiogram.

Lifestyle adjustments

After a Whipple procedure, there are some common medical complications that may occur, including:

- **Vitamin B12 and iron deficiencies** (B12 injections and iron supplements may be prescribed)
- **Low levels of pancreatic enzymes** (pancreatic enzyme supplements may be ordered) These supplemental enzymes can help to break down carbohydrates, fats and proteins in the food you eat, helping to improve digestion after a Whipple procedure.
- **Diabetes may occur**, either temporarily or permanently (patients must know the symptoms of diabetes and must contact their healthcare provider if symptoms occur; medication and diet regime for diabetes may be ordered)

Digestive Enzymes

After a Whipple procedure, some people have a shortage of digestive enzymes (normally produced by the pancreas) and must take supplements with each meal to properly digest their food.

The body's pancreatic enzymes include:

- **Pancreatic proteases** (such as trypsin and chymotrypsin): Assist in the digestion of proteins
- **Pancreatic amylase**: Assists in the digestion of sugars (carbohydrates).

- **Pancreatic lipase**: Assists in the digestion of fat

Diet

Diet is one of the most common lifestyle changes required for people who have undergone a Whipple procedure. Some general long-term post-surgical nutritional guidelines from the Pancreatic Cancer Action Network include.

- **Limit fried, greasy, high-fat foods.**
- **If you can tolerate healthy sources of fats**, those should be substituted for unhealthy saturated and trans fatty foods.
- **Attempt to eat at least 2.5 cups of vegetables and fruits each day.**
- **If you are having digestive problems**, ask your healthcare provider about pancreatic enzymes.
- **Take medications to reduce stomach acid** as ordered by your surgeon or other healthcare provider.
- **Get active; plan to engage in physical activity** for at least 30 minutes every day.

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