



Pancreas Transplantation

SHAMSAEEFAR AR
HPB & TRANSPLANT SURGEON
SHIRAZ TRANSPLANT CENTER

- In December 1966, the first pancreas transplant ever was performed at the University of Minnesota. R. Lillehei and W. Kelly, transplanted a kidney and a pancreas in a diabetic patient on dialysis, getting function of both organs.

Table 1 First Successful Transplantation of Human Allografts (Survival ≥ 1 Year)

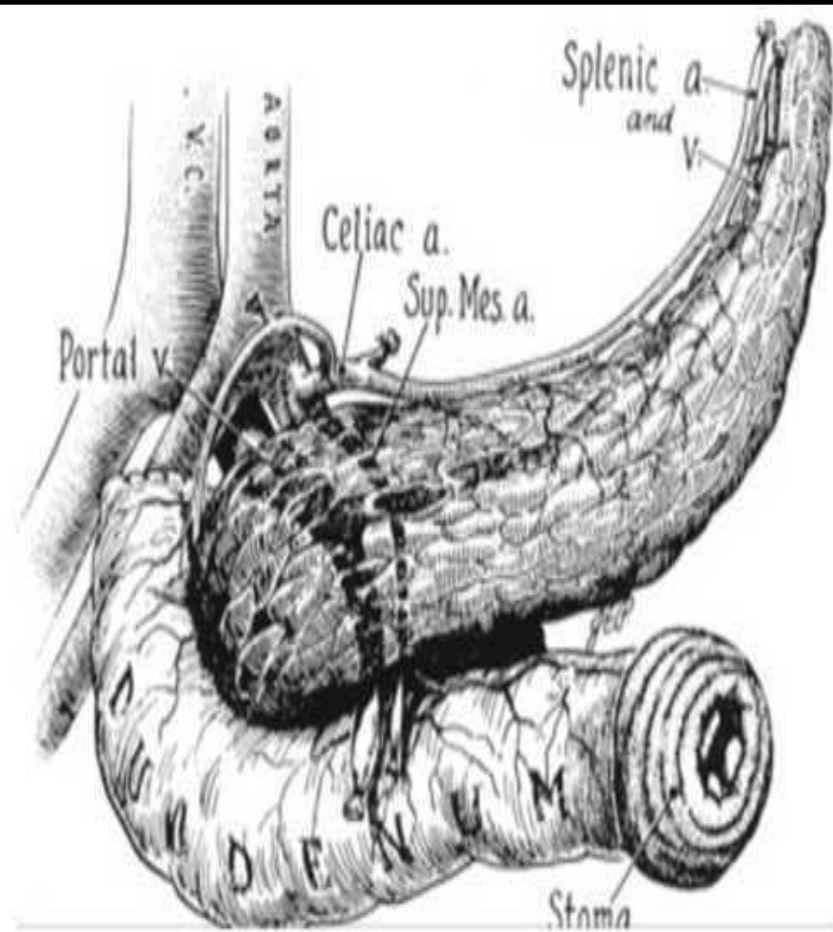
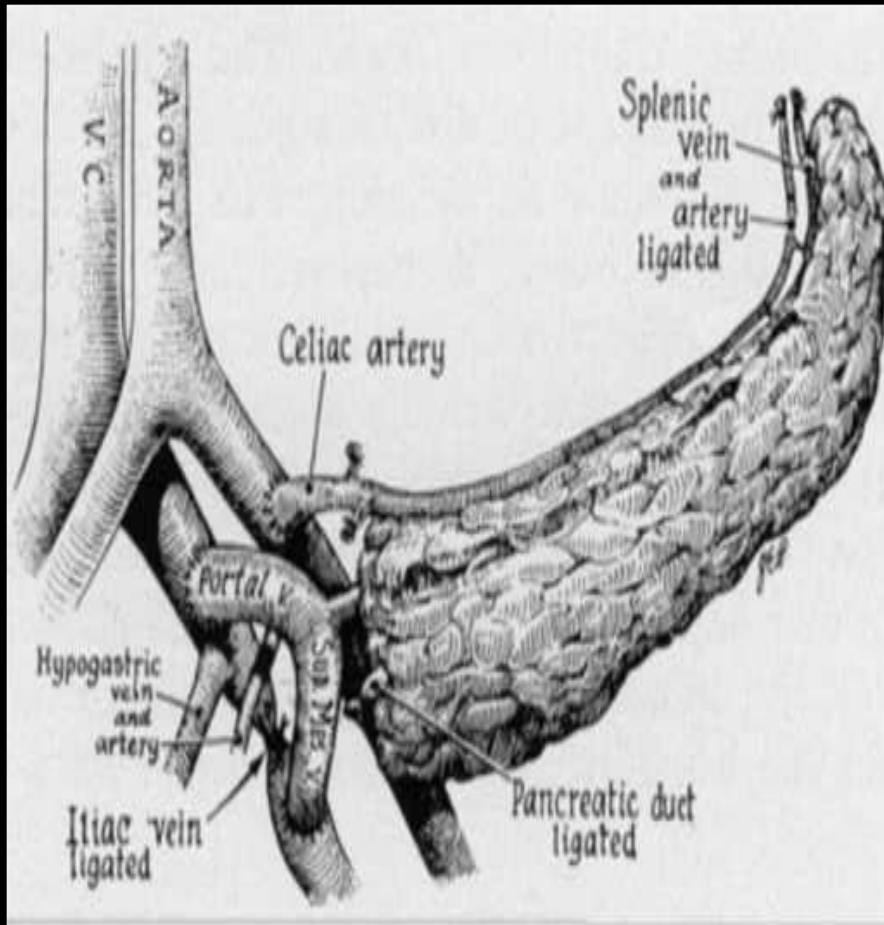
| Organ | City (Ref.) | Date | Physician/surgeon |
|-----------------------|------------------|---------|-------------------|
| Kidney | Boston (9,10) | 1/24/59 | Merrill/Murray |
| Liver | Denver (11) | 7/23/67 | Starzl/Groth |
| Heart | Cape Town (12) | 1/2/68 | Barnard |
| Bone marrow | Minneapolis (13) | 8/24/68 | Gatti/Good |
| Pancreas ^a | Minneapolis (8) | 6/3/69 | Lillehei/Kelly |

THE FIRST

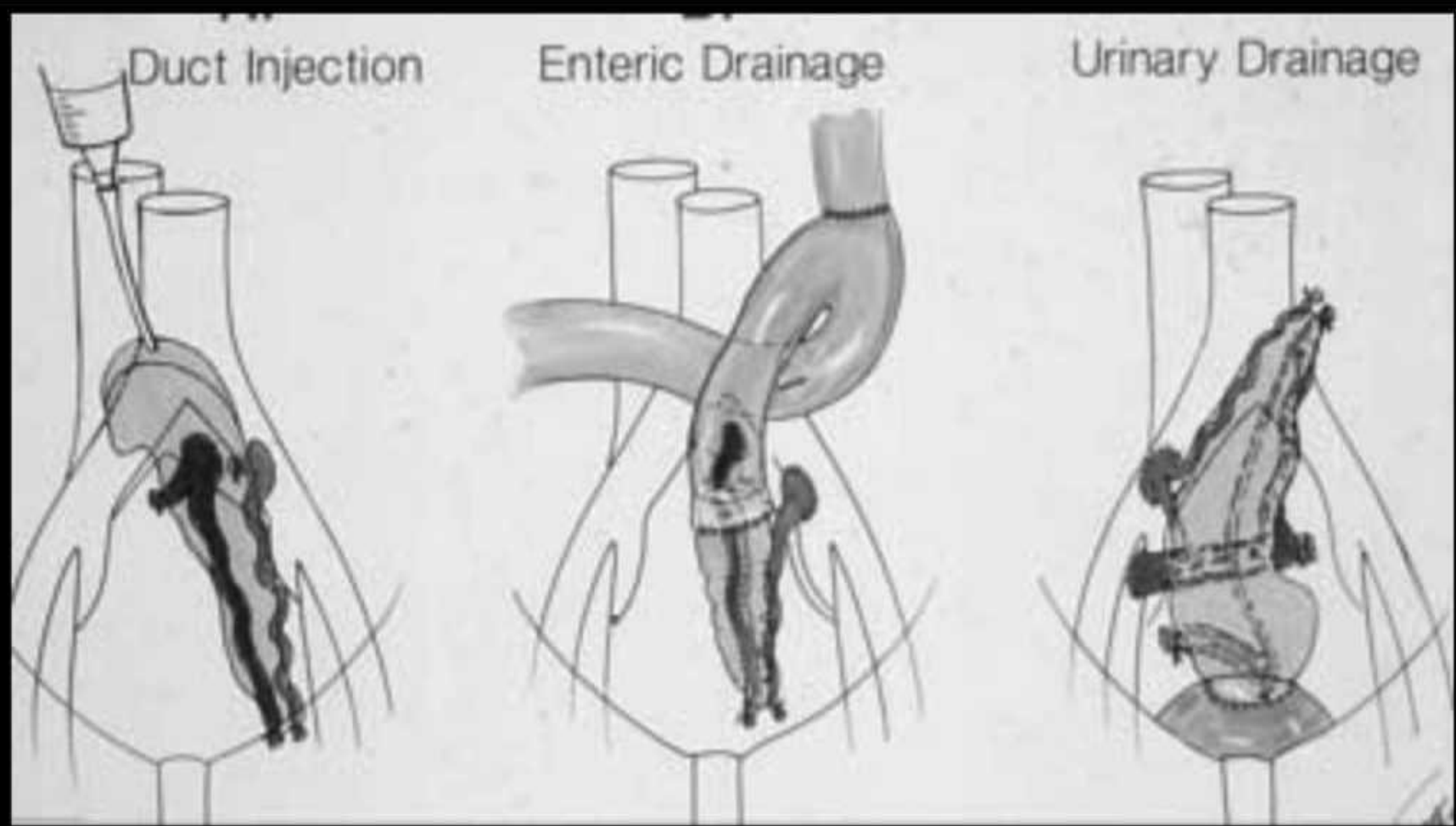
- **Lillehei and Kelly**, 2 surgeons with independent laboratories and research fellows, joined forces and, together with the diabetologist Goetz, made the unheard of decision to simultaneously perform kidney and pancreas transplantations in a **28-year-old patient who had been diabetic since the age of 9 and who presented end-stage renal disease.**
- This transplantation, led by Kelly and assisted by Lillehei and Merkel, was done at the Mayo Memorial Hospital in Minneapolis, by the prestigious Surgery Department headed by Wangenstein.

Lillehei and Kelly





Cir Esp. 2017;95:254-60



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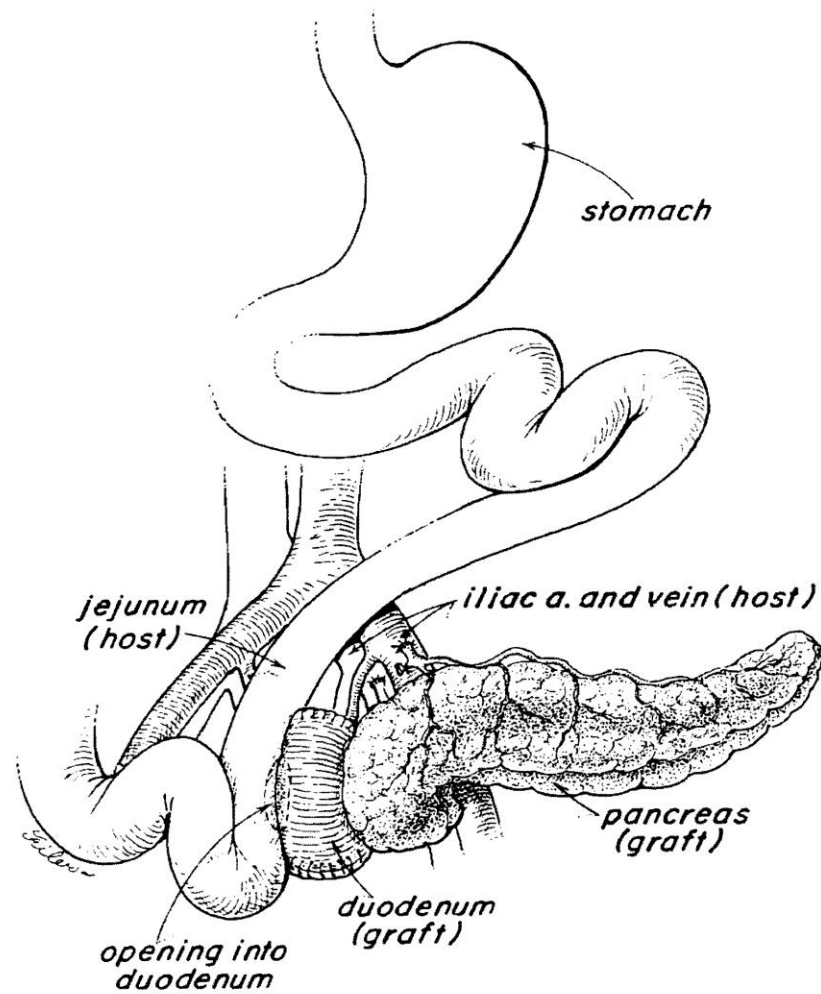


Figure 3 Use of donor “duodenal bubble” for exocrine pancreatic drainage introduced in Pittsburgh in 1983.

- The first whole-organ pancreaticoduodenal transplant drained via the portal circulation was reported by Mühlbacher from the University of Vienna, Austria, in 1989.
- In 1992, **Rosenlof et al.** from the University of Virginia and **Shokou-Amri** et al. from the University of Tennessee described the use of portal drainage at the junction of the recipient's superior and splenic veins in recipients of enteric-drained whole-organ pancreaticoduodenal transplants.
- **As the 20th century came to an end, enteric and systemic venous drainage were the most commonly used techniques worldwide.**

INDICATIONS

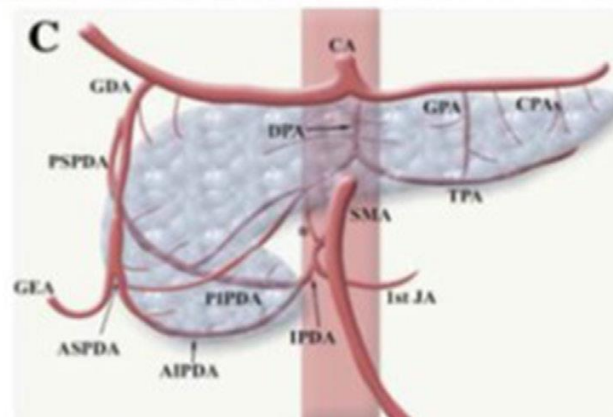
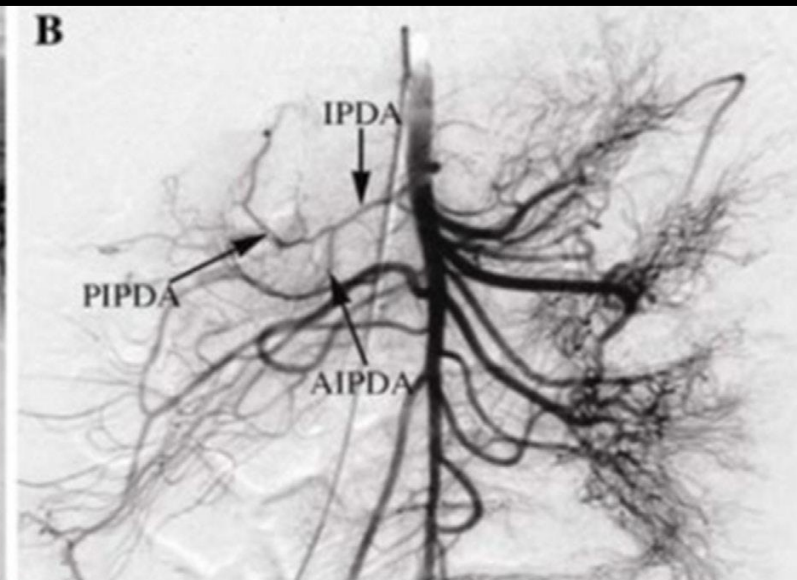
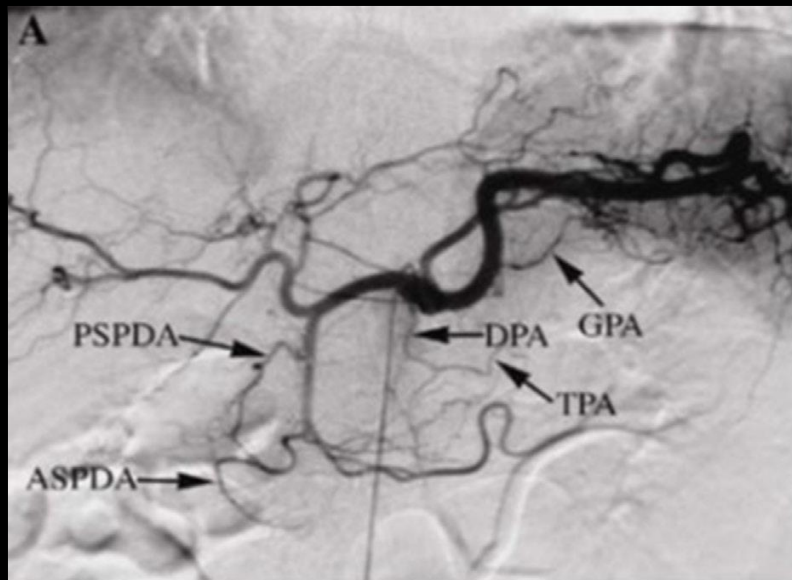
- DM requiring insulin (c-peptide $<0.6\text{ng.ml}$ signifies type 1)*
- Frequent/severe hypoglycemic episodes
- Recurrent hospitalizations for hypoglycemia
- Early development of secondary diabetic complications (relative)
- Inability to manage DM by standard insulin regimens

Types of Pancreas Transplantation

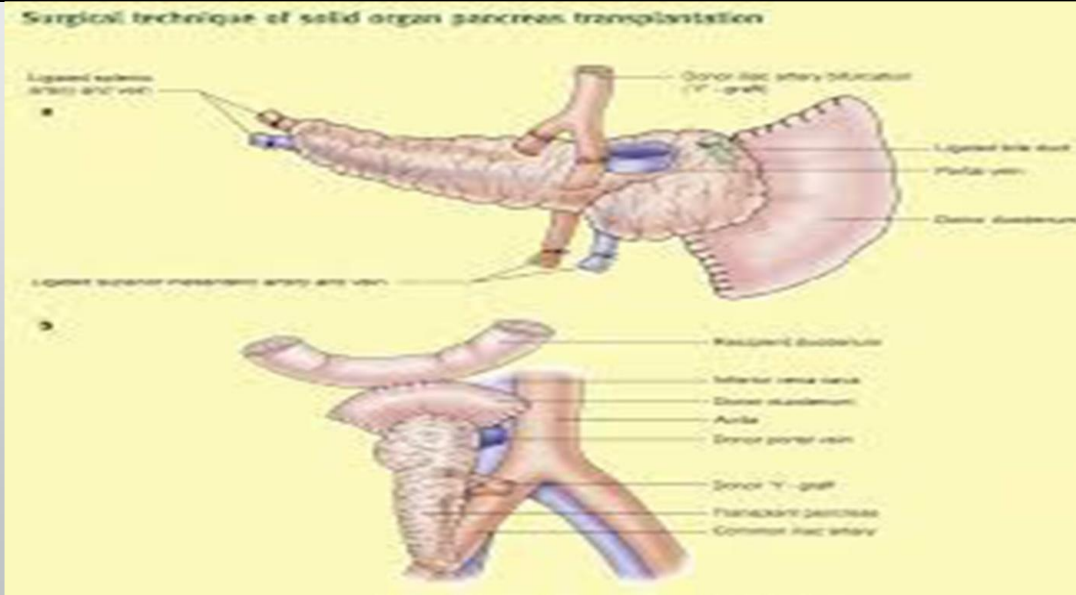
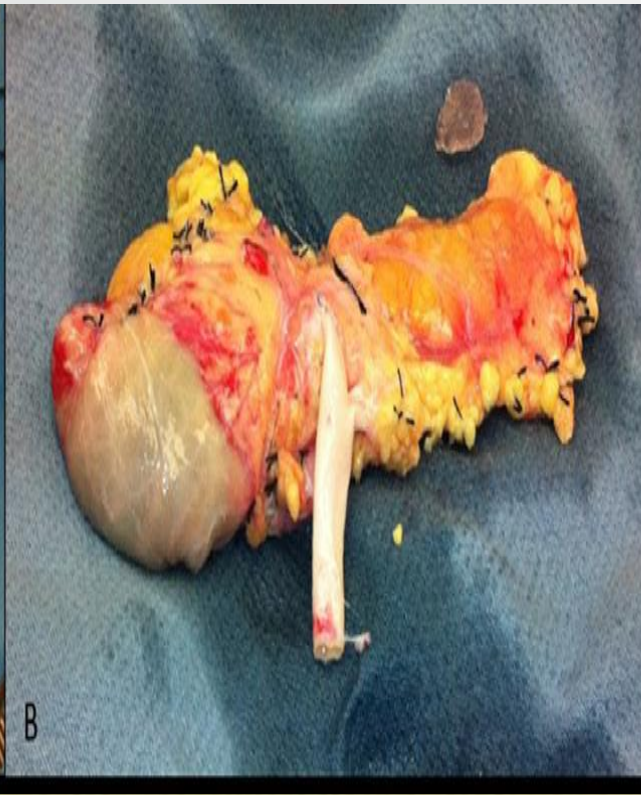
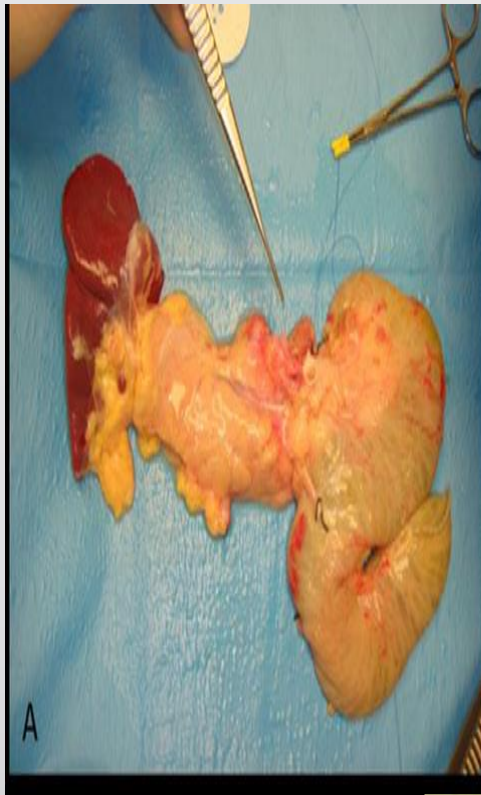
- Simultaneous Pancreas and Kidney transplant (SPK)
- Pancreas after Kidney (PAK)
- Pancreas Tx Alone (PTA)

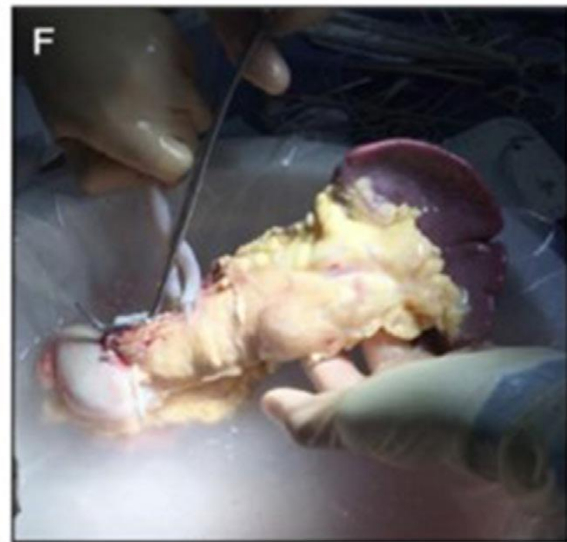
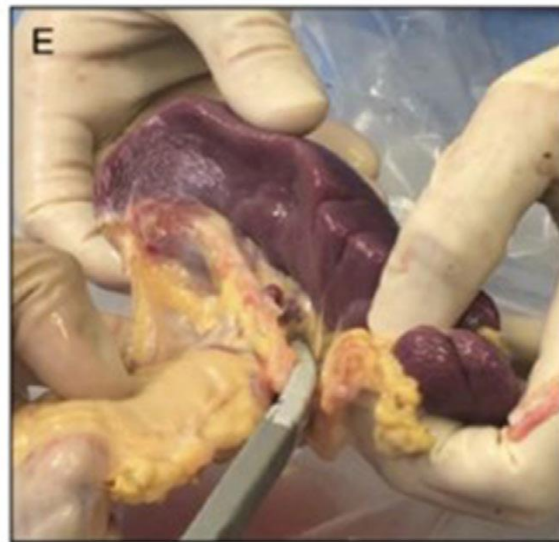
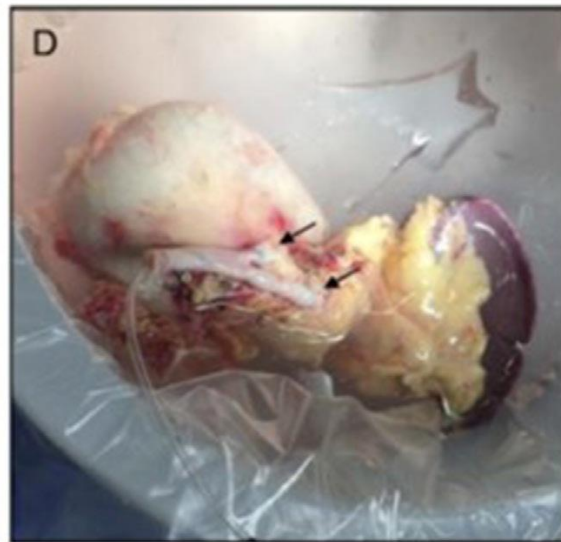
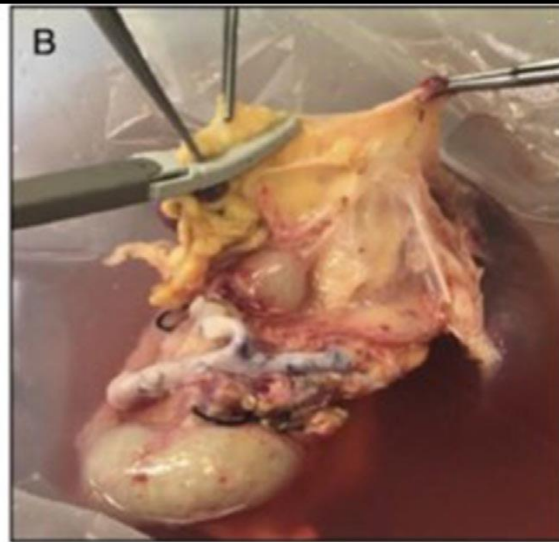
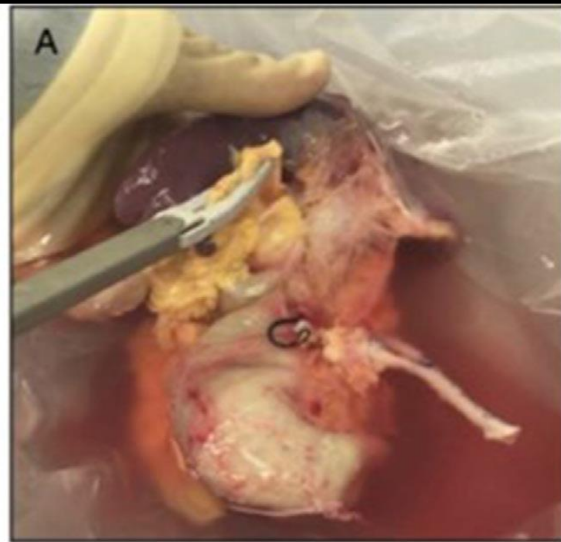


PANCREAS BACK-TABLE





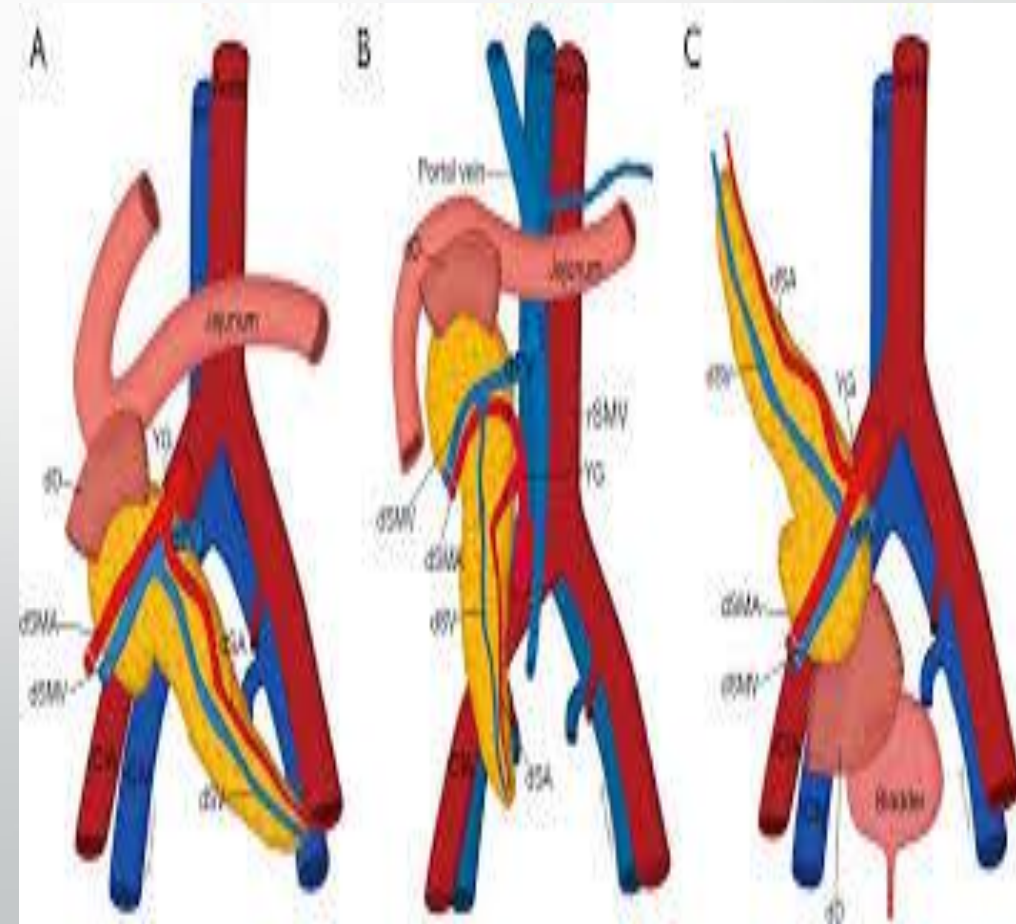
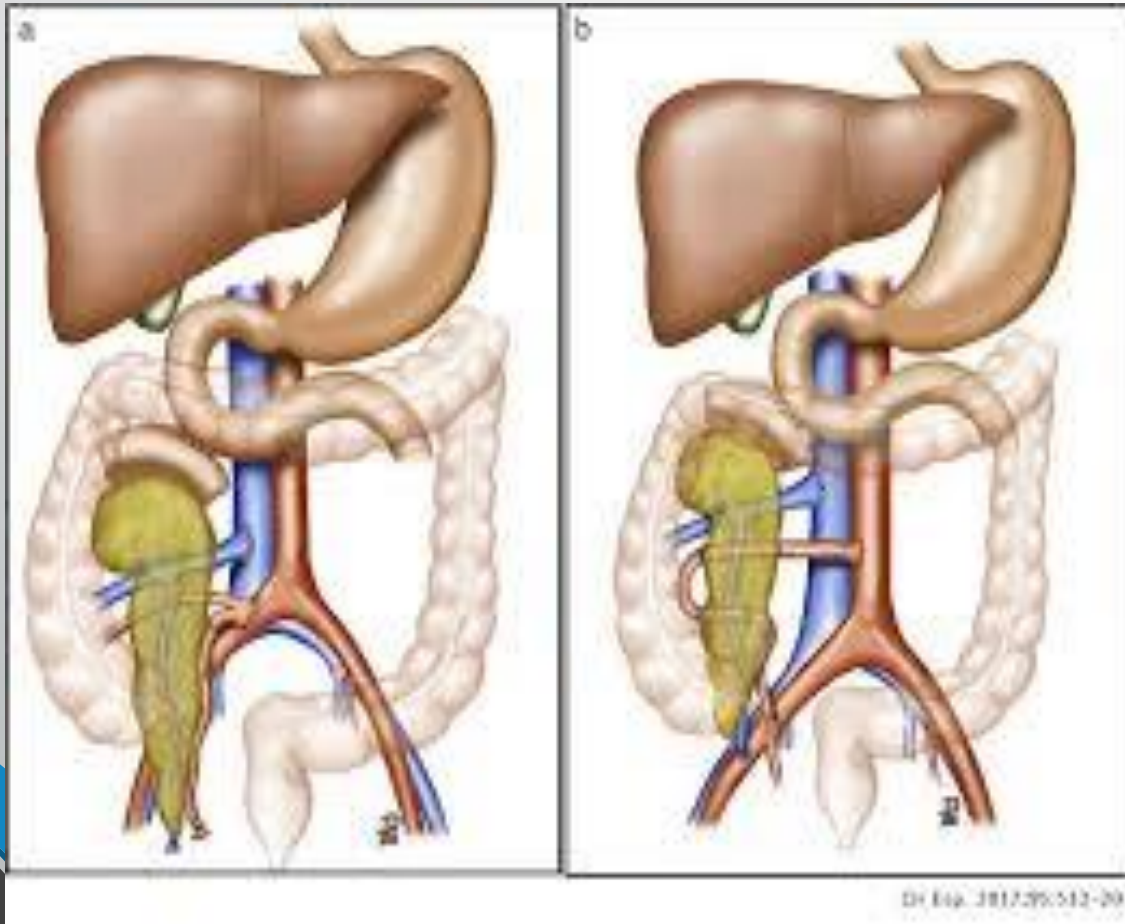




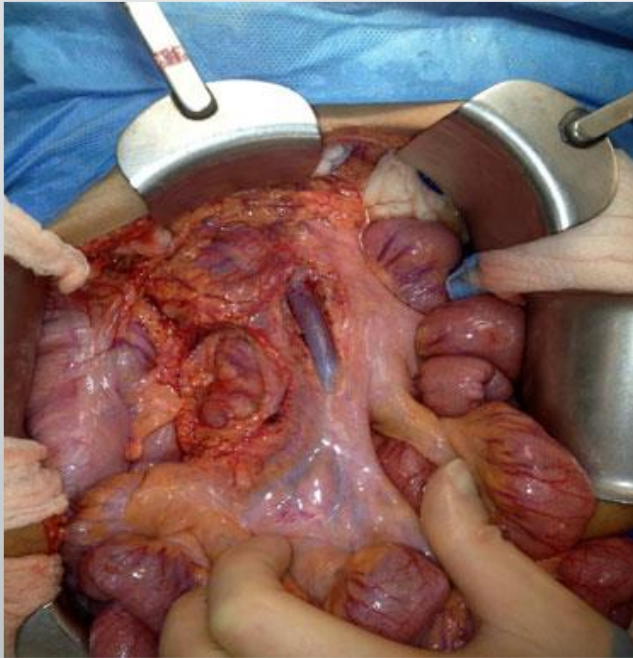
VANOUS DRAINAGE

- Systemic Drainage
- Portal Drainage

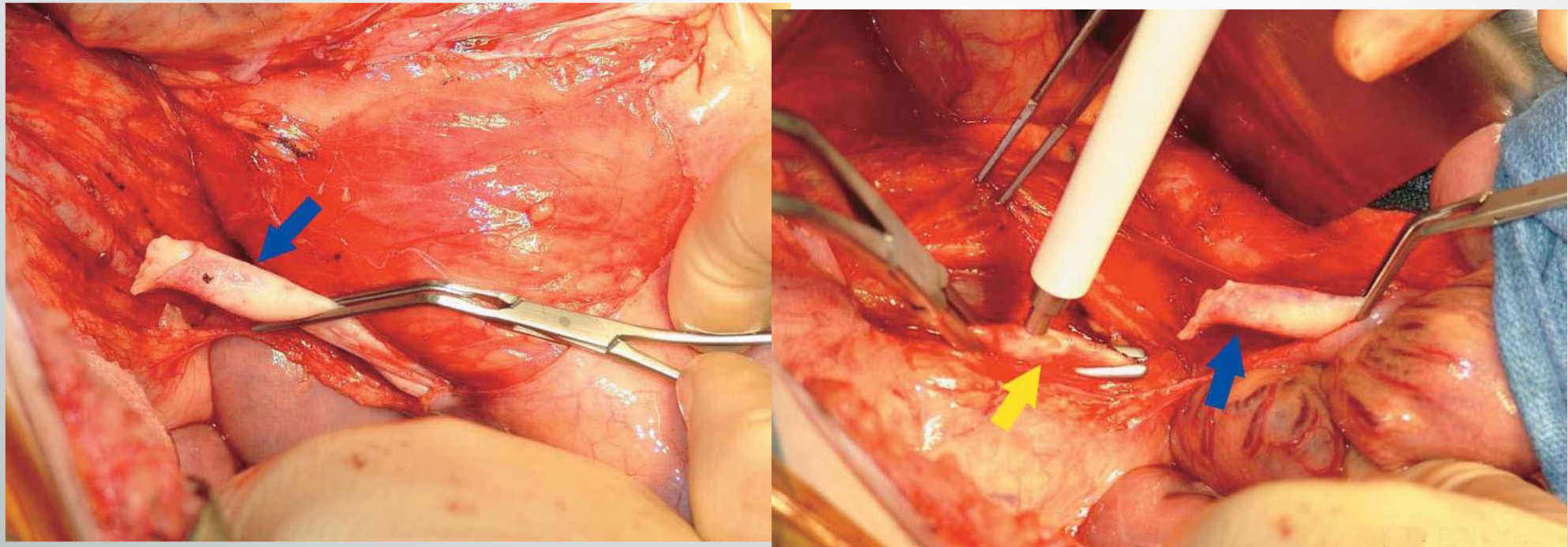
Systemic Drainage



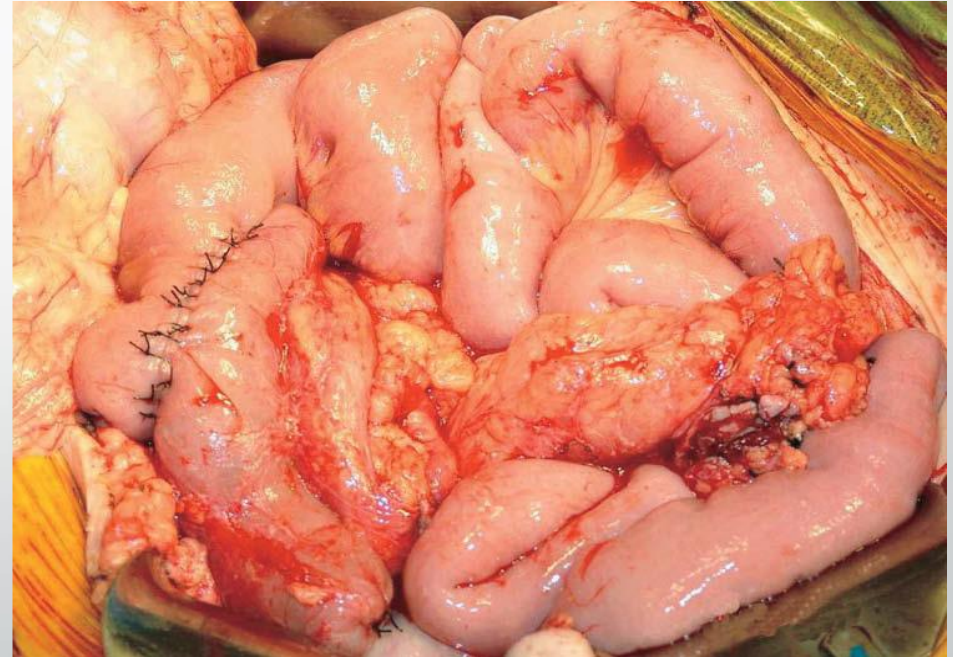
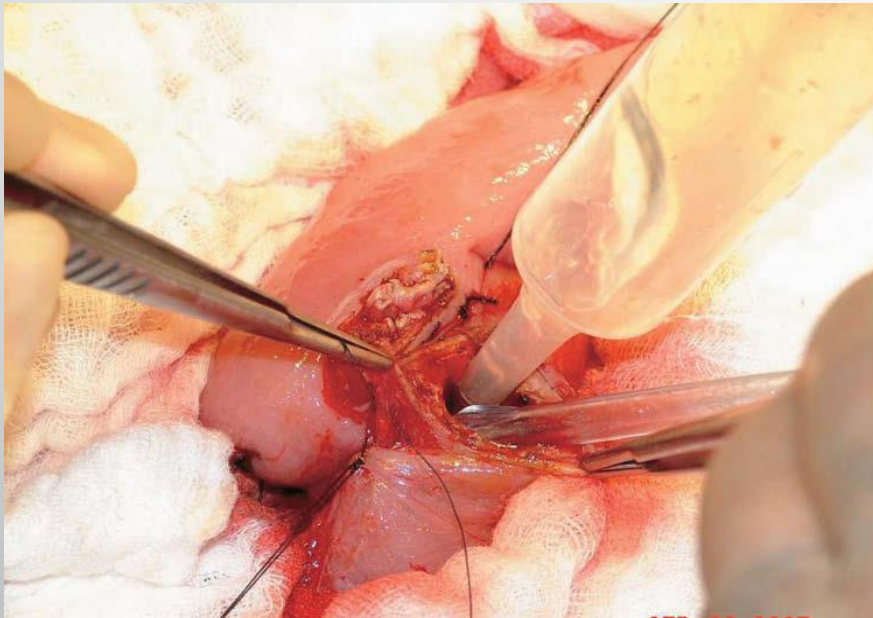
Portal Drainage



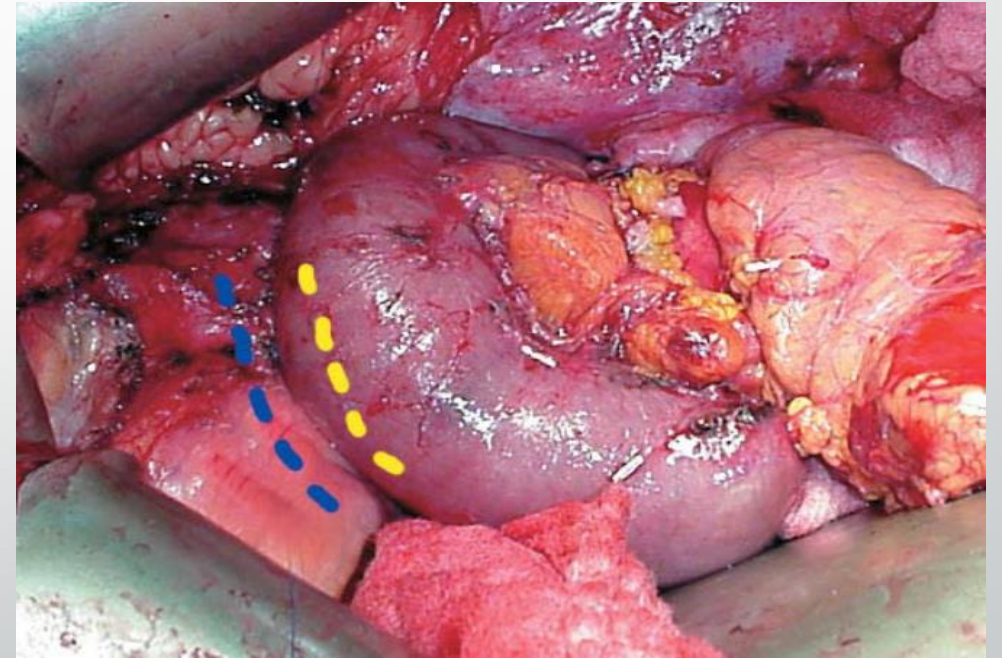
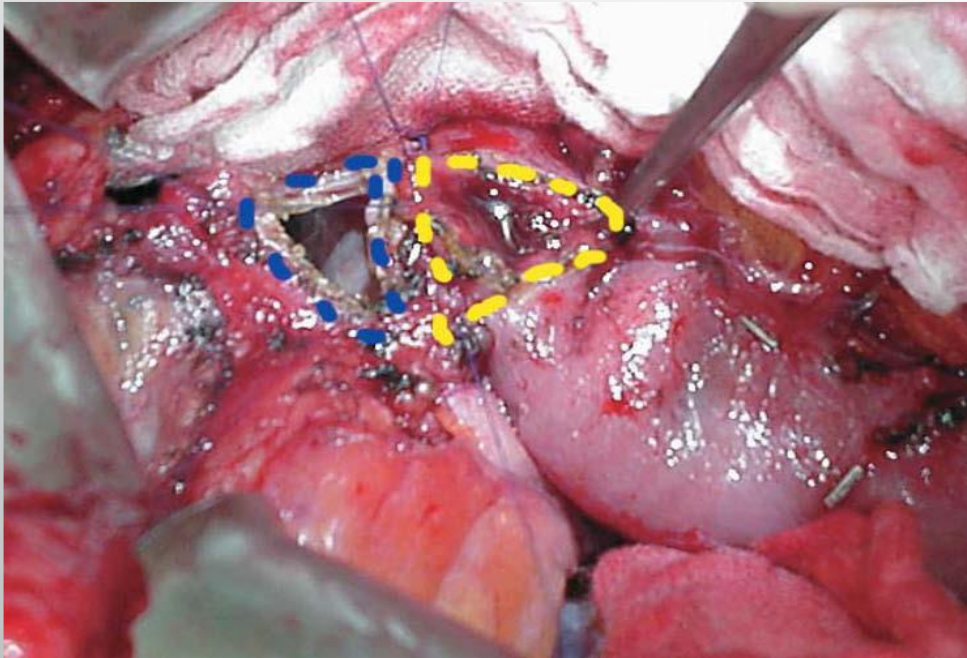
ARTERIAL SYSTEM



Enteric Drainage



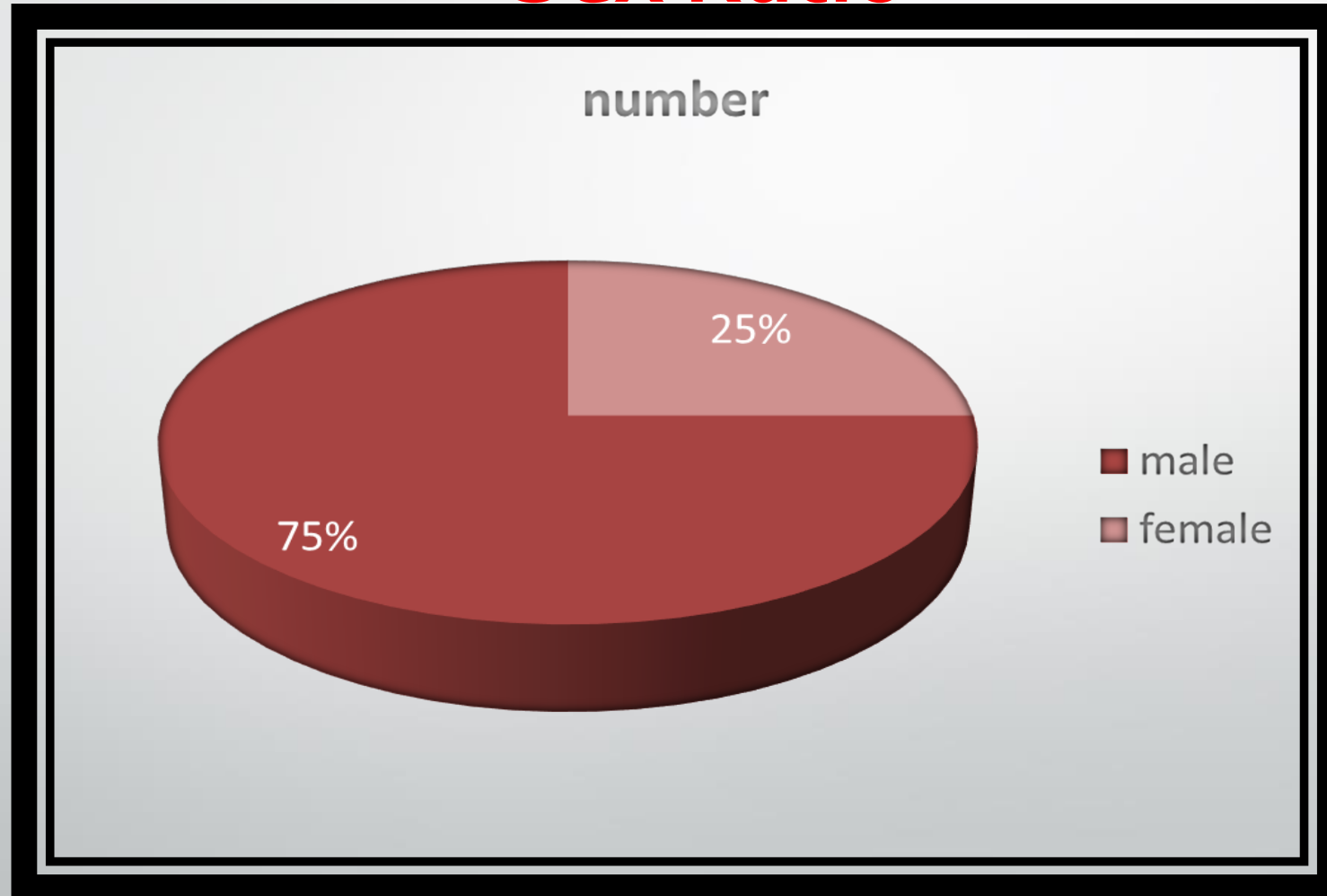
Bladder Drainage



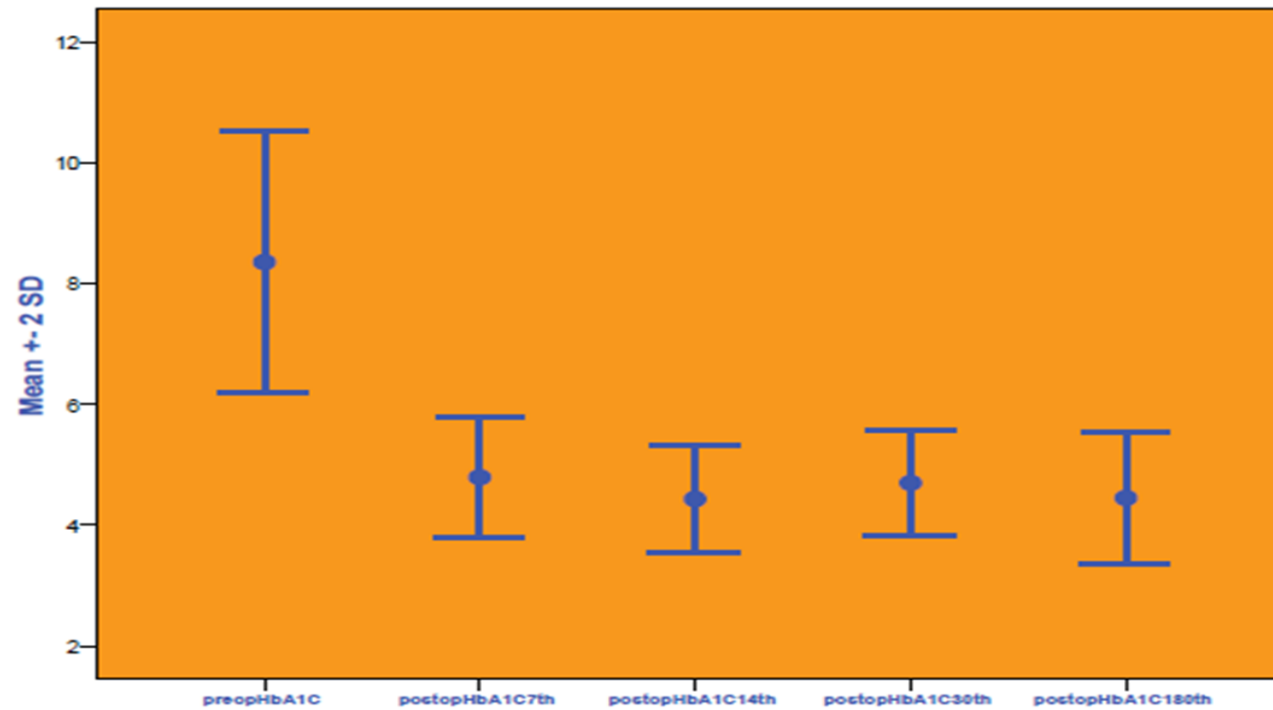
SHIRAZ TRANSPLANT CENTER

- Founded in 1987 by Prof S.A. MalekHosseini
- Outstanding efforts in establishing transplant activity in Iran
- 1st kidney Tx: 1974, Dr Sanadizade
- 1st liver Tx: 1992, Dr MalekHosseini
- 1st successful heart Tx: 1992, Dr Sandjarian
- 1st LDLT: 1997, Dr MalekHosseini
- 1st *ex situ* liver splitting: 2004, Dr MalekHosseini
- 1st pancreas Tx: 2006, Dr Nikeghbalian
- 1st *in situ* liver splitting: 2007, Dr Nikeghbalian

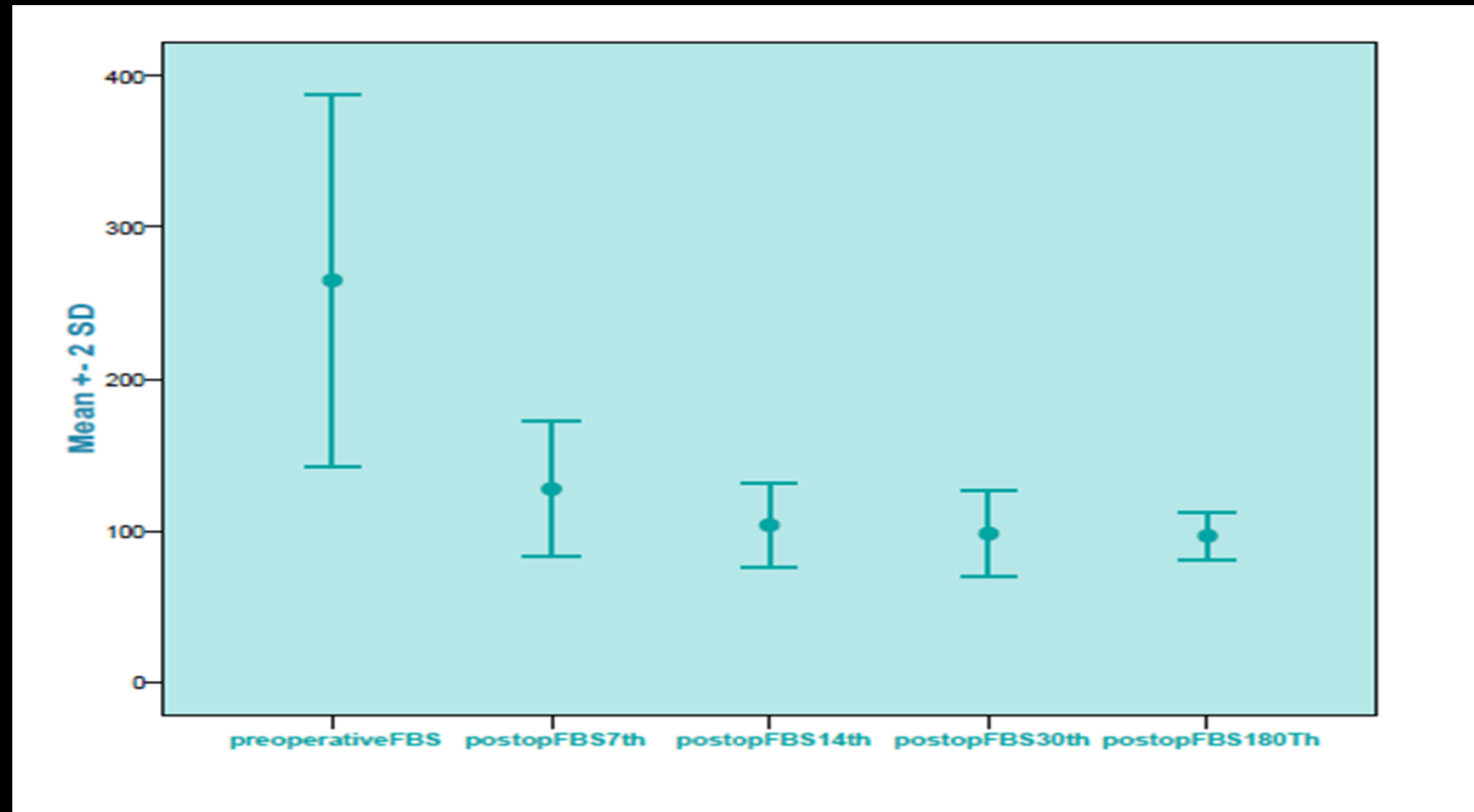
Sex Ratio



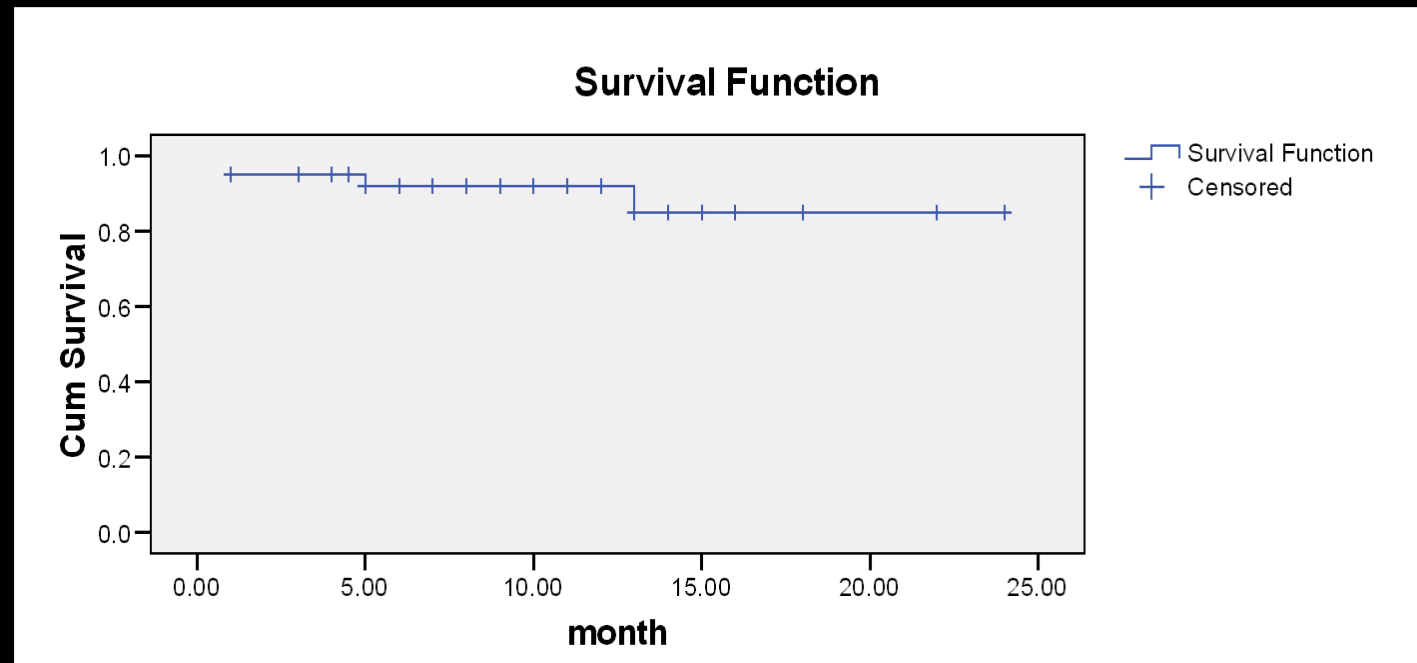
HbA₁C after PTx



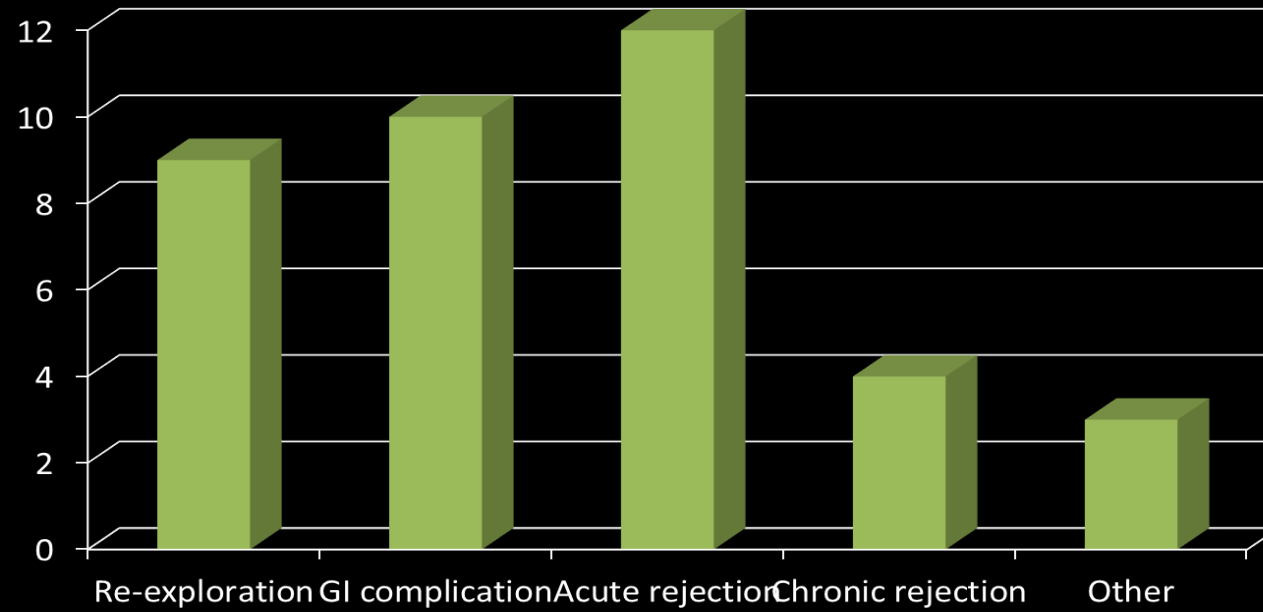
Achieving euglycemia after PTx

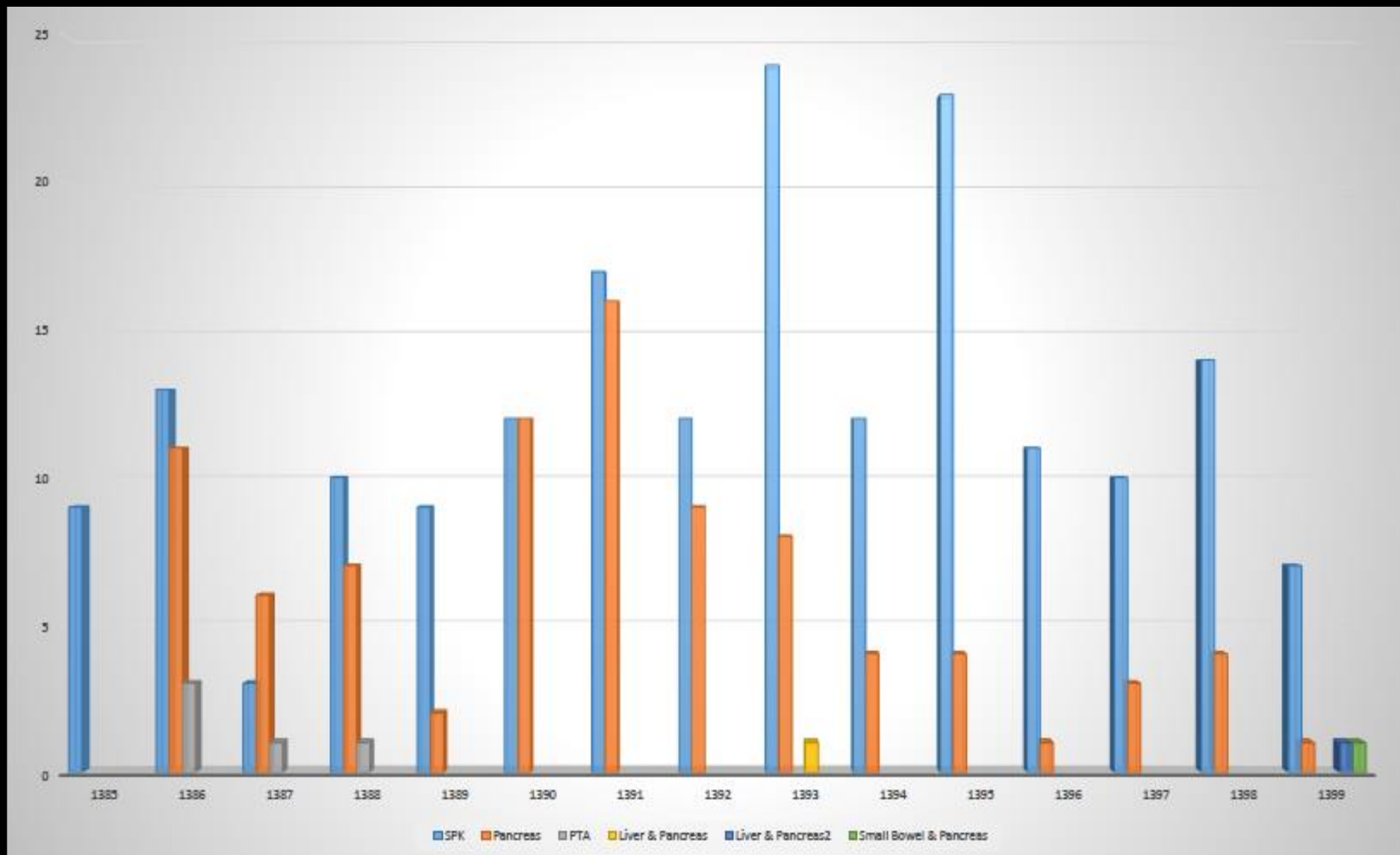


84.9% / 2 years Graft Survival



Complications







THANKS