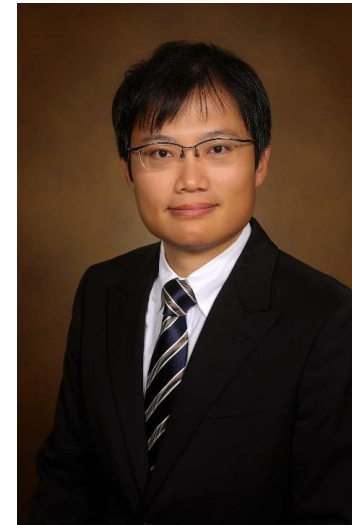


Liver and Pancreatic Cancer



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Office of International Affairs
University of Colorado
Denver | Anschutz Medical Campus

ISCORE FA22
February 3rd, 2023
Anschutz Health Science Building



ISCORE FA22 Report

By: Michael Migut
Scholar: Dr. Toshitaka Sugawara





To discuss what I learned during iSCORE, it is important to give a background

INTRODUCTION

Background of Toshi and Michael

City and Country: Westminster, Colorado

Family Background: Born in US, but family all from Poland

Education:

- Highschool
- Graduating with Bachelor in Biology and Chemistry minor this spring



City and Country: Tokyo, Japan

Family Background: Wife, Son, and Daughter

Career:

- HPB Surgeon in Japan (MD, PhD)
- Visiting researcher of Surgical Oncology since 2021

Research:

- Clinical research mostly focused on pancreatic cancer



Cultural Differences in Healthcare Education

United States:

High School - **4 years**

School starts in August ends in May~
Summer Break 2 Months
SAT/ACT exam

University - **4 years***

MCAT / Volunteer/ Shadow/ P&S
application/etc.
... hopefully get interview and proceed
with education

Medical School - **4 years**

Years 1 and 2 traditional curriculum
Take STEP 1 exam in year 2
Years 3 and 4 are clinical rotations
Take STEP 2 exam in year 4

Residency - **6 years***

Japan:

High School - **3 years**

School starts in April and end in March
Break is from February to April
National exam like SAT/ACT
Can go straight into medical school

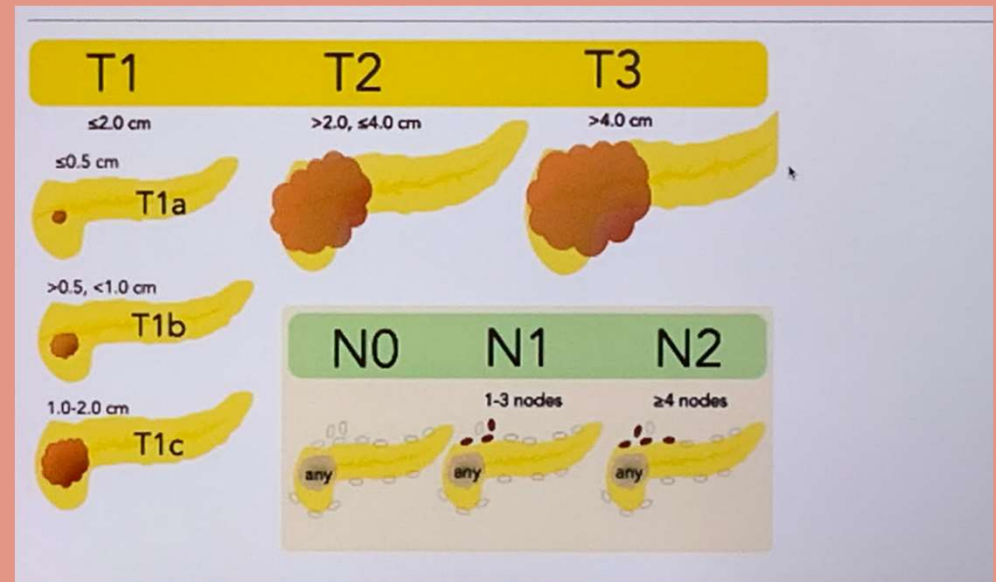
Medical School - **6 years**

Year 1 and 2 are like traditional
university in US
Year 3 medical courses
Years 4 and 5 = clinical
rotations/shadowing residence
Year 6 is 'exam' year ; 2 months of exams
2-3 exams peer week

Residency - **6 years***

Topics Discussed Throughout the Programm

1. Fundamental basics of cancer research
 - a. Clinical research vs basic science
2. Cultural differences in healthcare education; US vs Japan
 - a. The timing of medical education differs drastically
 - b. Medical school differences
3. General Understanding of Cancer
 - a. **TNM classification**, cancer cells, metastases, and anatomy of affected organ
4. Liver Cancer:
 - a. Disease, Anatomy, and Treatment
5. Pancreatic Cancer:
 - a. Disease, Anatomy, and Treatment
6. Bile Duct Cancer:
 - a. Disease, Anatomy, and Treatment
7. Gastric Cancer:
 - a. Disease, Anatomy, and Treatment
8. Colon Cancer:
 - a. Disease, Anatomy, and Treatment



Pancreatic Cancer



01

General Knowledge, Disease , and Treatments

Understanding the Basics Before Disease and Treatment

Pancreas Location?

Transversely located in the upper abdomen
Lies behind the belly

Why is the Pancreas Important

Neuroendocrine cells release important hormones here

Produces Insulin for B.S. regulation

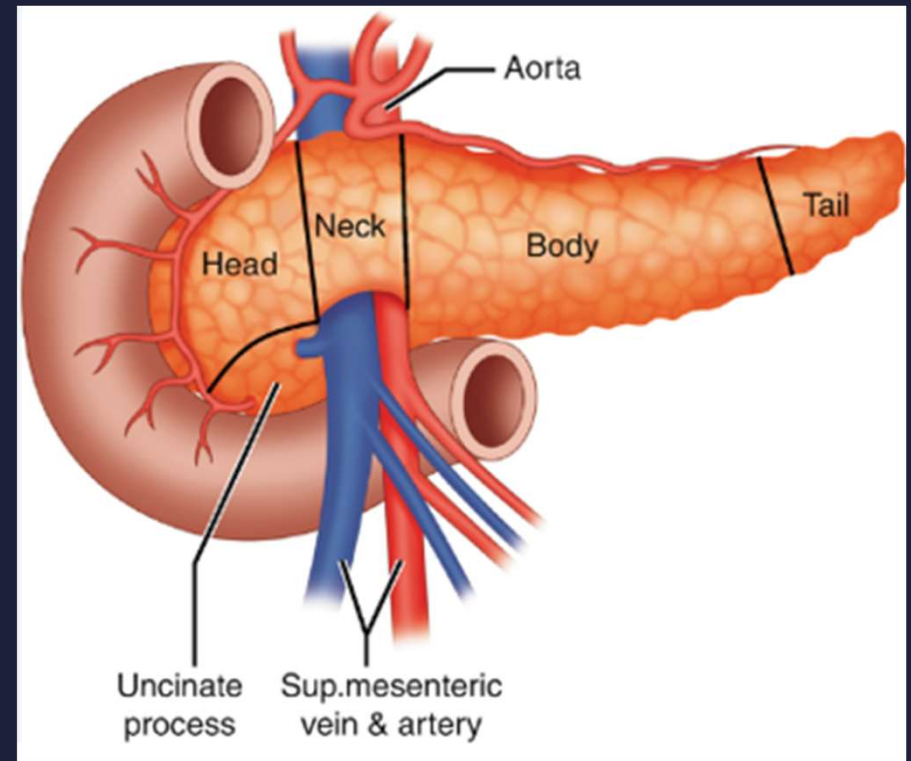
Produces Lipase for fatty food break down

Produces Pancreatic Enzymes for food break down

01

02

03 Anatomy



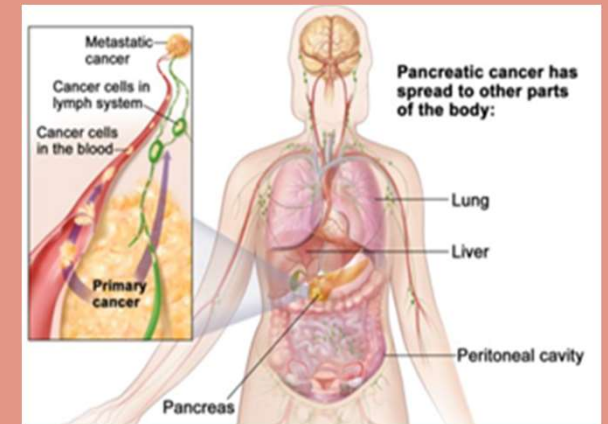
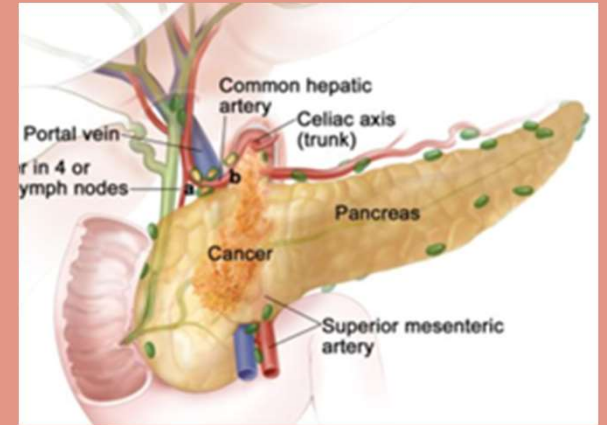
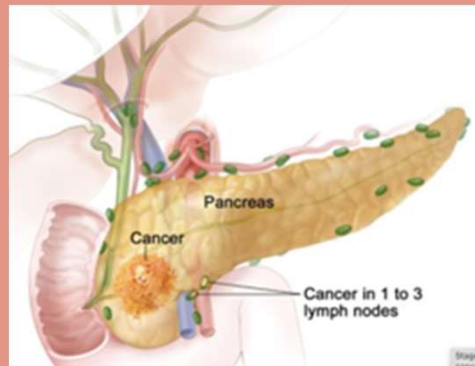
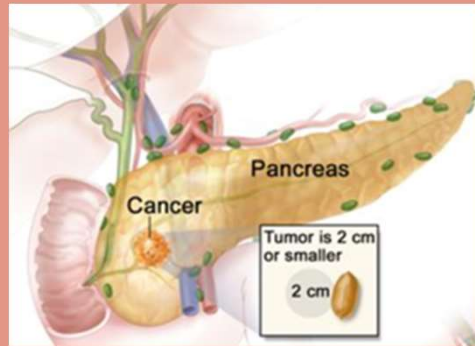
Pancreatic Cancer

01

TNM Classification

Impacts how cancer treatment is approached

Size? Lymph Nodes? Metastasis?



In this case... cancer is malignant

N1 node classification

Treatments for Pancreatic Cancer

01 Surgery

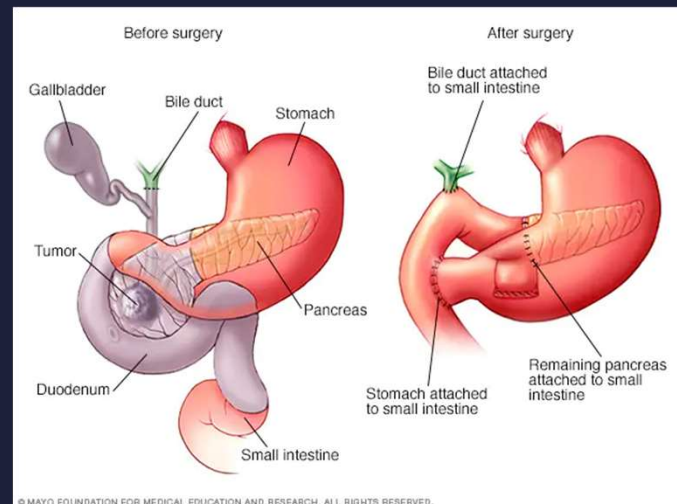
Whipple procedure
(*pancreaticoduodenectomy*)
Laparoscopic or Robotic
Surgery

02 Chemotherapy

Local therapy used in
combination with
surgery

03 Immunotherapy

Systemic therapy -
circulates in the blood

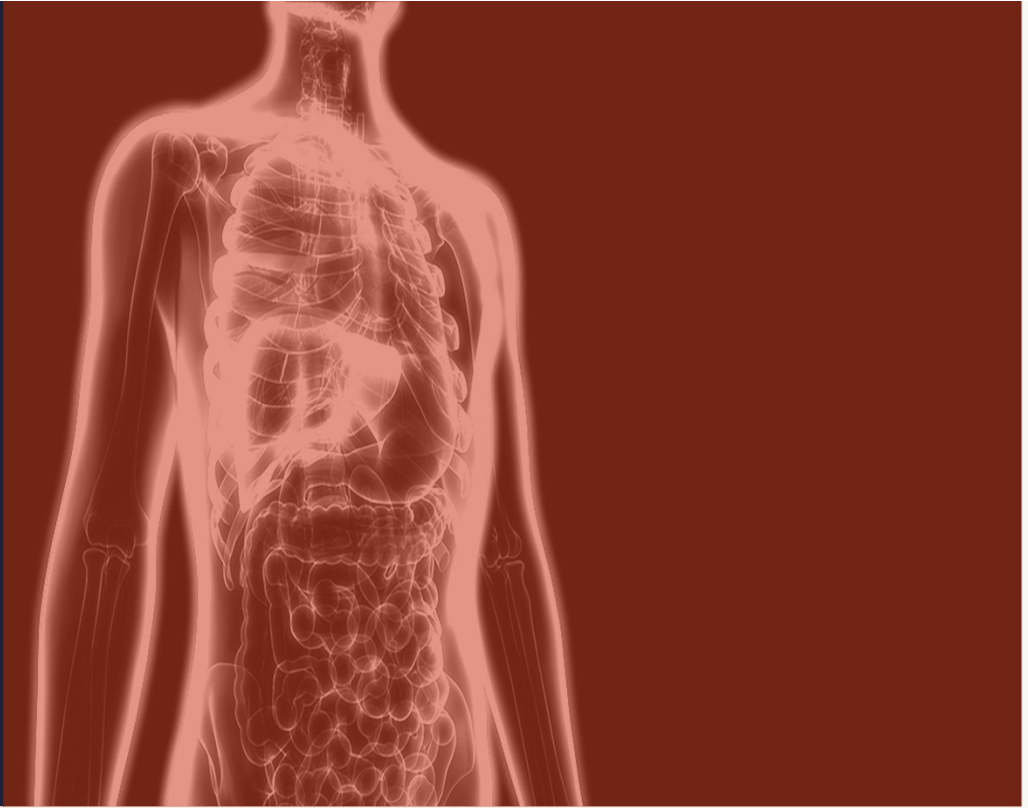


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Clinic, M. (2022, November 30). *Whipple procedure*. Mayo Clinic. Retrieved February 2, 2023, from <https://www.mayoclinic.org/tests-procedures/whipple-procedure/about/pac-20385054>



Liver Cancer



02

General Knowledge, Disease , and Treatments

Understanding the Basics Before Disease and Treatment

Liver Location?

01

Located under the diaphragm
Located on the top of the stomach

Why is the Liver Important?

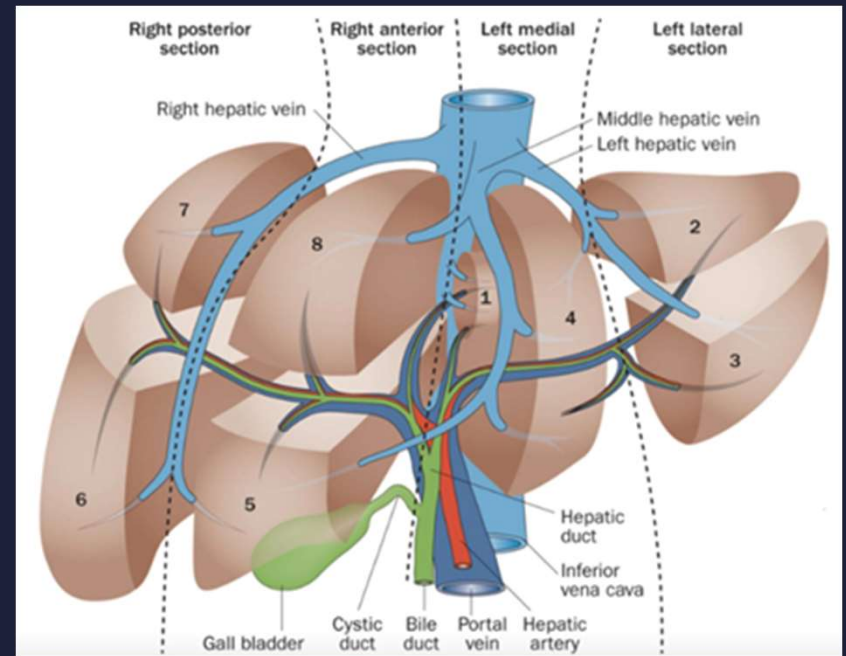
02

This is the waste management center of body

Filters nutrients and waste out of blood

Makes important proteins for body

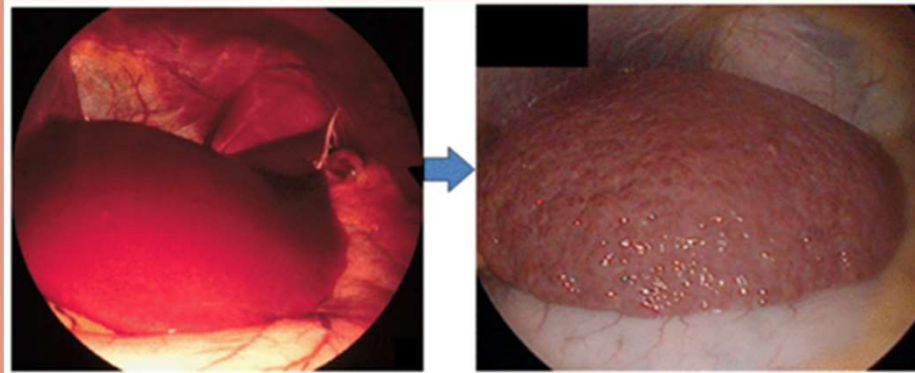
03 Anatomy



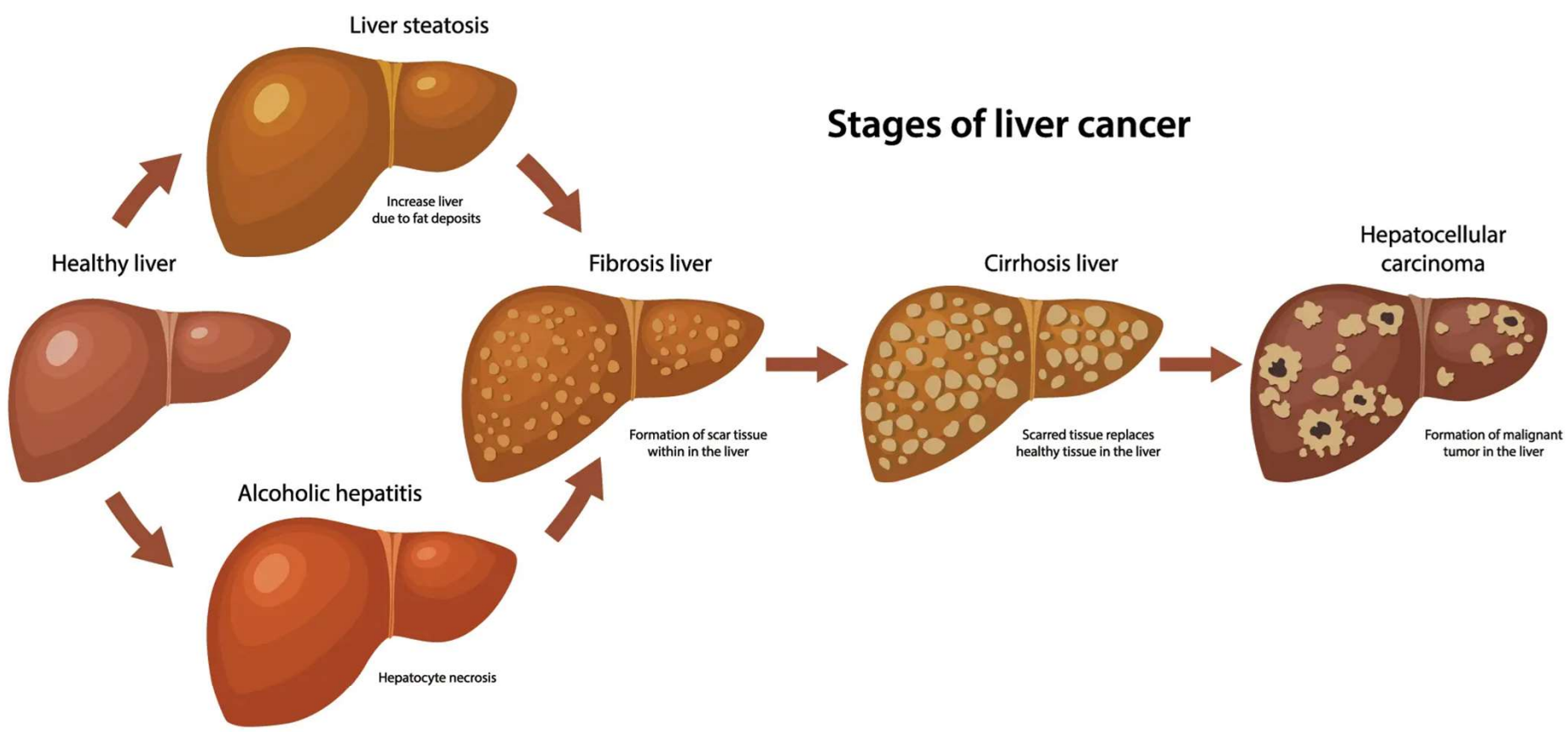
Liver Disease - Cancer

One of the most common causes of liver cancer is **Cirrhosis**

- Visually, healthy liver looks smooth with no rough surface
- If liver sustains long term damage it can become **cirrhotic**
 - Causes of long term liver damage include:
 - Fatty build up in liver
 - Excessive alcohol consumption
 - Hepatitis ; B Virus (HBV/Vaccine) or C Virus (HCV/No Vaccine)
- When a liver become cirrhotic, large amounts of scar tissue began to build up
 - Eventually tissue can become cancerous
 - Cirrhotic liver also can reduce/block blood through the **portal vein** (blood may take undesired route...very dangerous)
- Cancerous liver with cirrhosis is very severe as treatment options become very limited
 - Surgical operation is extremely dangerous as Cirrotic livers put the liver at high risk of bleeding -> patient bleeds out



Stages of liver cancer



Portera, C. (2021, January 12). *Liver cancer treatment in Anchorage - alaska surgical oncology - alaska breast cancer oncologists in Anchorage*. Alaska Surgical Oncology. Retrieved February 2, 2023, from <https://alaskasurgicaloncology.com/treatment/liver-cancer-treatment-in-anchorage/>

Treatments for Liver Cancer

01 Surgery

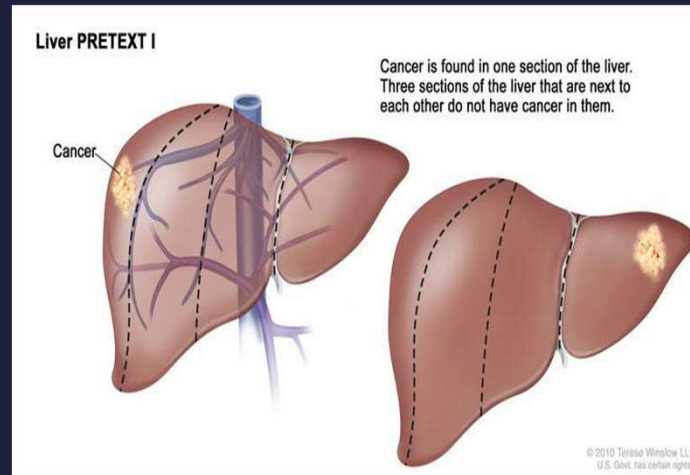
Partial Liver Resection
Only some lobes removed
Liver can regrow itself!!
Extend Right/left ectomy
Extreme surgery
removing left/right side

02 Chemotherapy

One example of liver chemo
is the **TACE** operation

03 Radiofrequency Ablation

Cirrhotic liver operation
Needle vibrates ->
heat -> cancer



November 15, 2022, November 2, 2022, & October 6, 2022. (n.d.). *Less chemo for some children with liver cancer*. National Cancer Institute. Retrieved February 2, 2023, from <https://www.cancer.gov/news-events/cancer-currents-blog/2019/liver-cancer-hepatoblastoma-less-chemotherapy>



Concluding on the Mountain of Knowledge Learnt



**Fundamental Aspects of
Research + Healthcare
Differences Between Two
Counties**

**What goes into
understanding the constant
battle against Cancer...**

- 1) **Analyzing the condition**
- 2) **Approaching with the
right treatments**

**Learned About Many Forms
of Cancer...**

- 1) **Liver Cancer**
- 2) **Pancreatic Cancer**
- 3) **Bile Duct Cancer**
- 4) **Gastric Cancer**
- 5) **Colon Cancer**



Thank you Toshi!

Do you have any questions?

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CREDITS: This presentation template was created by Slidesgo, including icons by Flaticon, and infographics & images by Freepik.

RESOURCES

KNOWLEDGE/PHOTOS:

- Dr. Toshitaka Sugawara

PHOTOS

- Working with medical app
- Radiography with pen
- Pills in blister packs
- Scientist making test in laboratory
- Doctor analyzing with a microscope
- Doctors analyzing a radiograph
- Side view of a male doctor looking at x-ray
- Doctors analyzing a radiograph

November 15, 2022, November 2, 2022, & October 6, 2022. (n.d.). *Less chemo for some children with liver cancer*. National Cancer Institute. Retrieved February 2, 2023, from <https://www.cancer.gov/news-events/cancer-currents-blog/2019/liver-cancer-hepatoblastoma-less-chemotherapy>

- Clinic, M. (2022, November 30). *Whipple procedure*. Mayo Clinic. Retrieved February 2, 2023, from <https://www.mayoclinic.org/tests-procedures/whipple-procedure/about/pac-20385054>