# Laparoscopic & Robotic Surgery in Pancreas Disease

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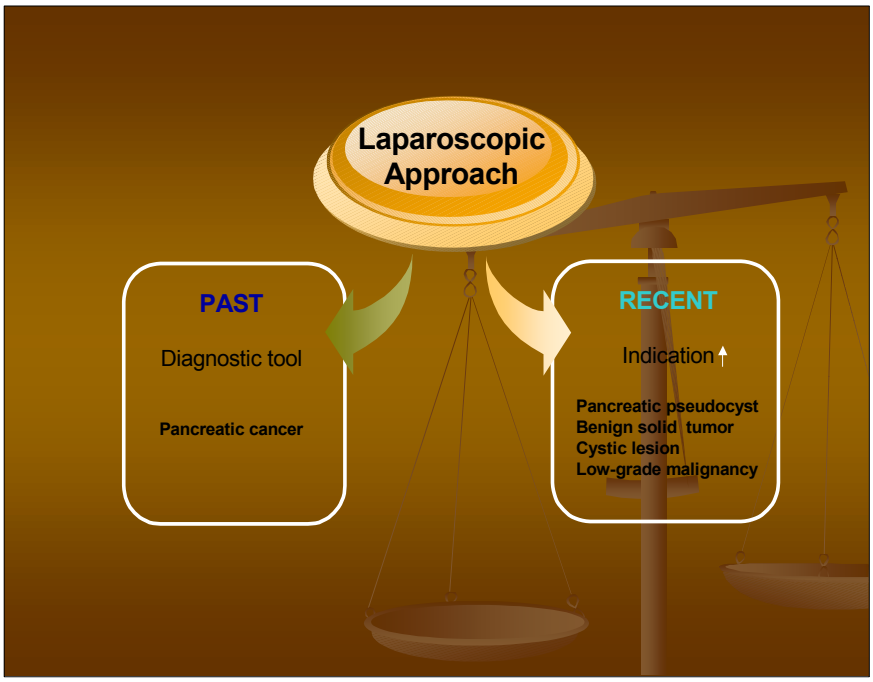


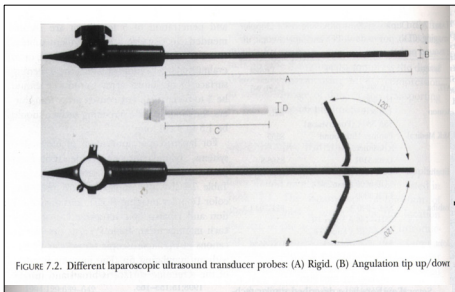


FIGURE 7.2. Different laparoscopic ultrasound transducer probes: (A) Rigid. (B) Angulation tip up/dowr

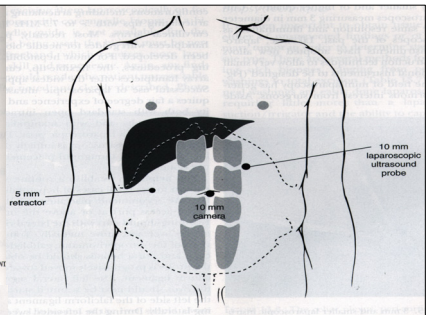



FIGURE 13.4. Typical port placement for laparoscopic ultrasound.

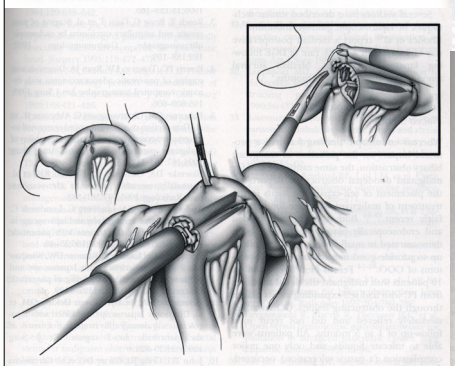


FIGURE 11.5. Laparoscopic gastroenterostomy. Insert: anastomosis stapled, enterotomy and gastrotomy sutured closed.

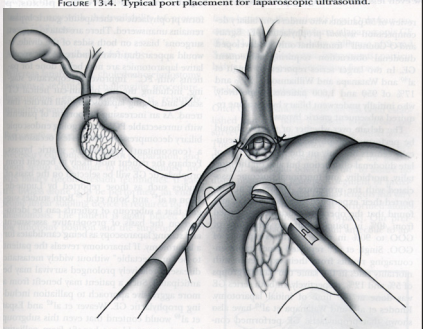


FIGURE 11.4. Laparoscopic choledochoenterostomy.

## Common procedures in Hepato-Biliary-Pancreatic surgery

- Cholecystectomy (gallbladder stone & cholecystitis)
- Common bile duct stone & IHD stone disease
- Diagnostic laparoscopy in HBP disease
- Bilio-enteric & Gastro-jejunostomy
- Malignant gallbladder disease
- Liver cyst
- Benign liver tumor resection & liver resection
- Malignant liver tumor resection
- Radio-Frequency Ablation & Cryosurgery for liver tumors
- Splenectomy
- Adrenalectomy
- Acute & chronic pancreatitis
- Pancreatic tumors (cystic & solid tumors)
- Thoracoscopic splanchnicectomy for intractable abdominal pain

## Background

- We reviewed our preliminary experiences and results of laparoscopic surgery in pancreatic disorder
- With the aim of assessing the safety and feasibility of such procedures

## Materials & Methods

- Observed periods: Laparoscopic surgery 26 cases
  1st January, 2004 ~ 31th July, 2007
- Study group
  Objective group : Laparoscopic surgery
  – 26 patients (daVinci Robot surgery 1 case)
  Control group : Open Surgery for SPN – 22 patients
- Review
  General characteristics
  Surgical outcomes

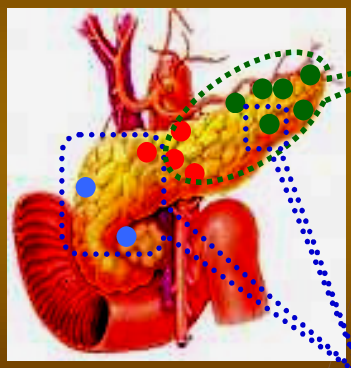
## Results (I)

- General Characteristics

| | | mean (range), frequency |
|---|---|---|
| Age (years) | | 46.5 (25-76) |
| Gender | Male | 8 |
| | Female | 18 |
| Symptoms | Incidental Detection | 16 |
| | Abdominal discomfort | 7 |
| | Neuroglycopenic | 3 |

## Results (II)

- Tumor Location & Surgery type



Distal Pancreatectomy
: 17 cases

- Head : 4 cases
- Body : 11 cases
- Tail : 11 cases

Enucleation : 9 cases

## Results (III)

### - Pathologic Characteristics

| | | Mean (range), frequency |
|---|---|---|
| Tumor size (mean, cm) | | 3.1 (0.9-7.5) |
| Pathology | Lymphoepithelial cyst | 2 |
| | Mucinous cystic tumor | 3 |
| | Serous cystic tumor | 6 |
| | Solid pseudopapillary neoplasm | 5 |
| | IPMT | 2 |
| | Benign stricture duct d/t pancreatitis | 1 |
| | Pseudocyst | 2 |
| | Non-functioning endocrine tumor | 2 |
| | Insulinoma | 1 |
| | Ductal adenocarinoma | 1 |
| | No pathologic diagnosis ( insulinoma?) | 1 |

## Results (IV)

### - Surgical Outcomes

| | | Mean (range), frequency |
|---|---|---|
| Surgery Type | Enucleation | 9 |
| | Distal pancreatectomy | 17 |
| | Spleen preserving | 4 |
| | Laparoscopic adrenalectomy | 1 |
| Operation Time (min.) | | 252 (110-565) |
| Bleeding (ml) | | 115 (trivial-500) |
| Transfusion | | None |
| Complication | | 9 |
| Mortality | | None |

## Results (V)

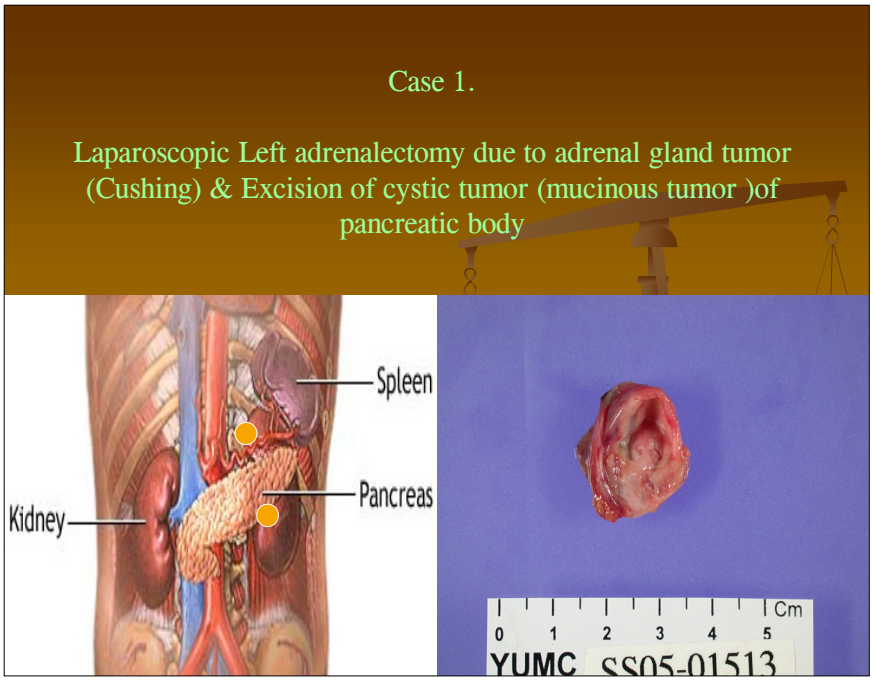
### - Complications

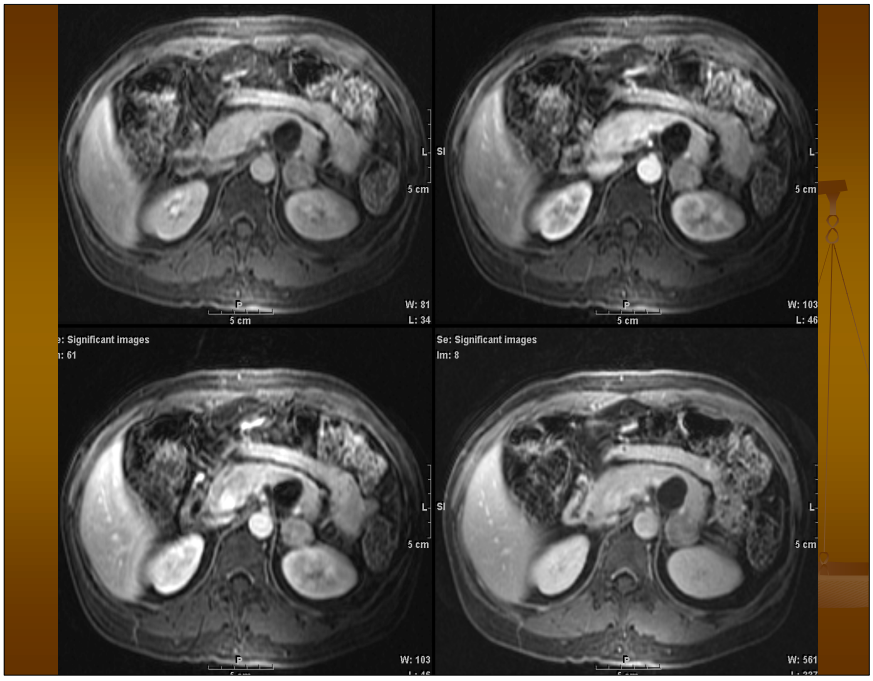
| | | Mean (range), frequency |
|---|---|---|
| Mortality | | None |
| Variety | Pancreatic leak | 4 |
| | Fluid collection around surgical site | 3 |
| | Herniation through Mesenteric Defect | 1 |
| | Abdominal abscess | 1 |

## Results (VI)

### - Open vs. Laparoscopic Surgery

| | | Open | Lapa | P-value |
|---|---|---|---|---|
| Gender | Male : Female | 4 : 18 | 8 : 18 | NS |
| Age | | 30.2 ±10.2 | 46.5 ±15.8 | < 0.001 |
| Tumor size | | 6.1 ±3.6 | 3.1 ±1.6 | 0.001 |
| Operation Type | Distal pancreatectomy | 17 | 18 | NS |
| | Enucleation | 5 | 8 | |
| Operation time | | 166.0 ±41.2 | 252.2 ±139.2 | 0.006 |
| Bleeding | | 585.0 ±364.1 | 115.4 ±183.8 | 0.002 |
| Diet start | | 6.5 ±3.7 | 1.7 ±0.9 | 0.001 |
| Hospital stay | | 13.6 ±9.6 | 9.4 ±4.8 | 0.055 |
| Complication | Yes / No | 6 / 16 | 9 / 17 | NS |


Case 1.
Laparoscopic Left adrenalectomy due to adrenal gland tumor (Cushing) & Excision of cystic tumor (mucinous tumor )of pancreatic body
Spleen
Pancreas
Kidney
Cm
0 1 2 3 4 5
YUMC SS05-01513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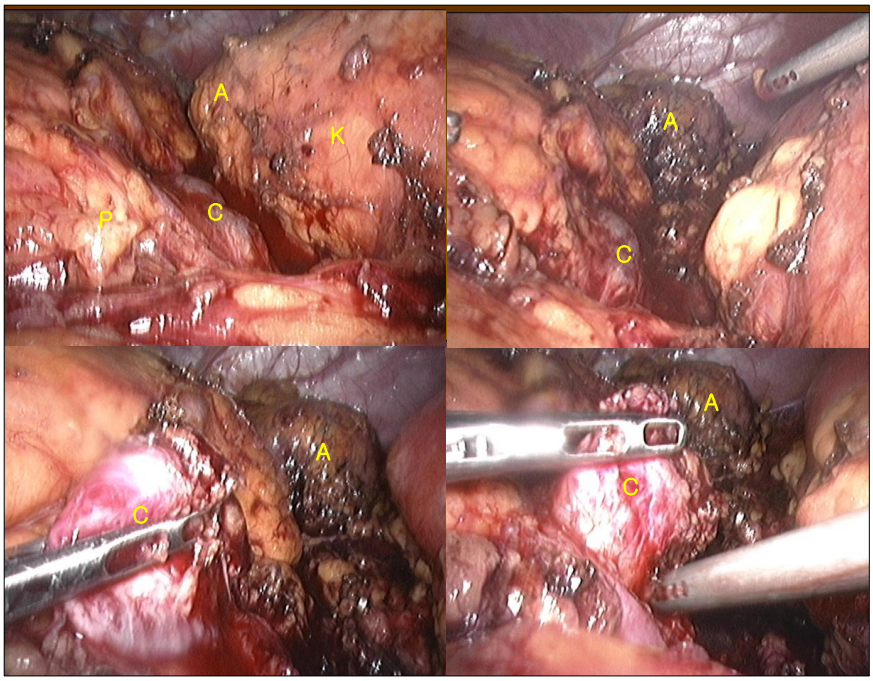
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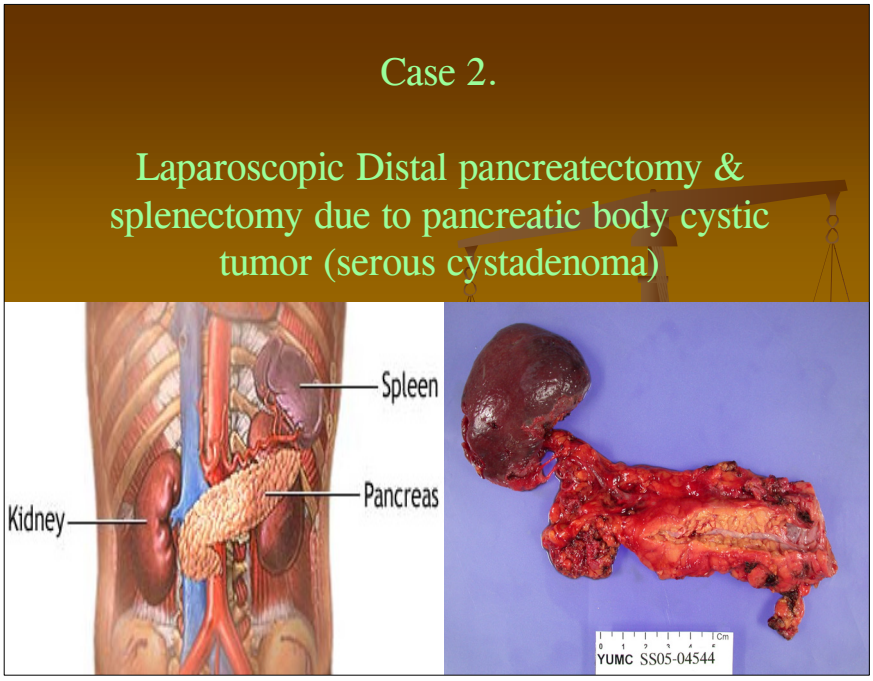
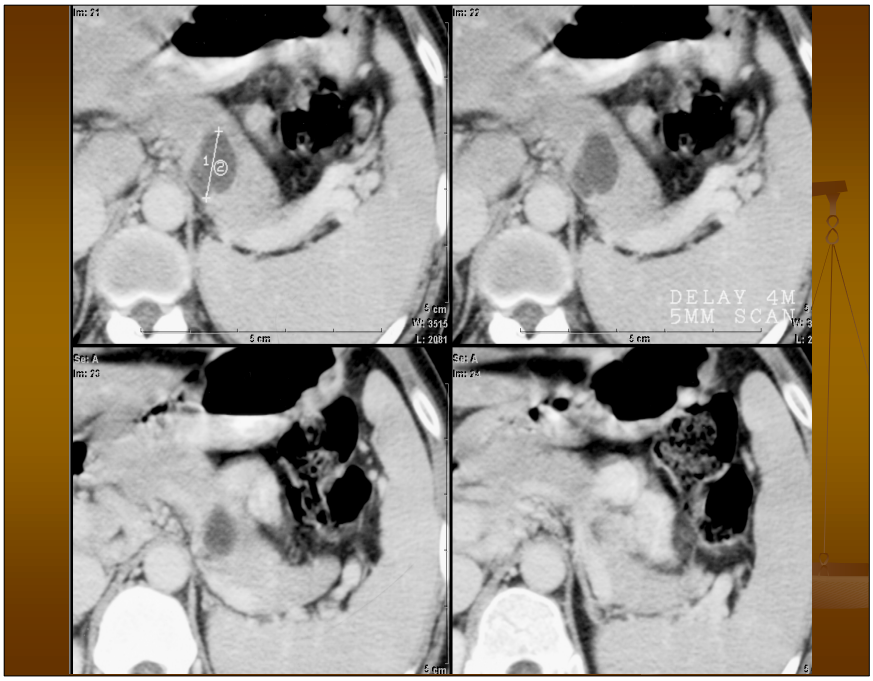
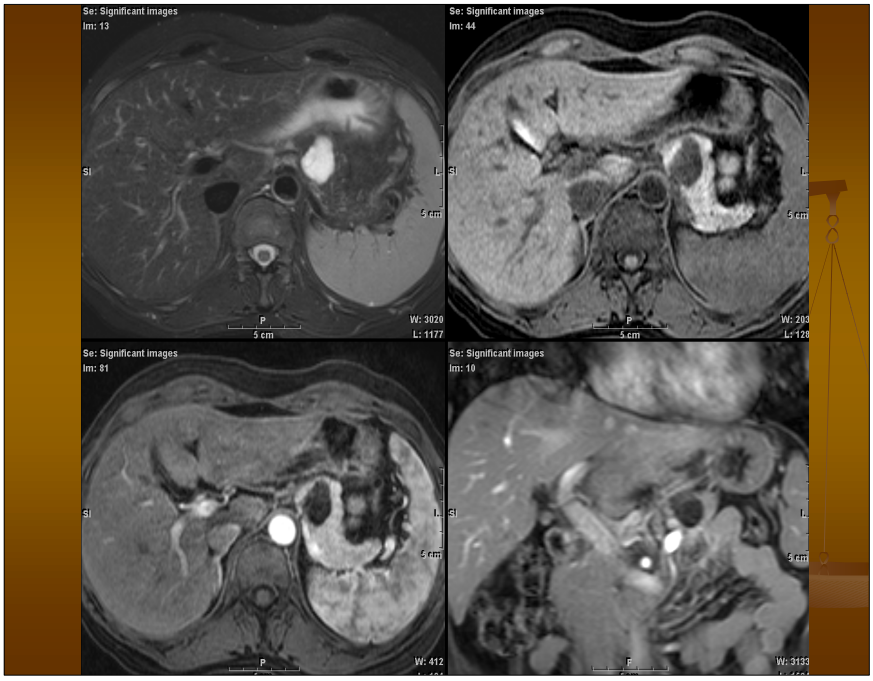

Case 2.
Laparoscopic Distal pancreatectomy & splenectomy due to pancreatic body cystic tumor (serous cystadenoma)
Spleen
Pancreas
Kidney
YUMC SS05-04544


Im: 21
Im: 22
DELAY 4M
5MM SCAN
Se: A
Im: 23
Se: A
Im: 24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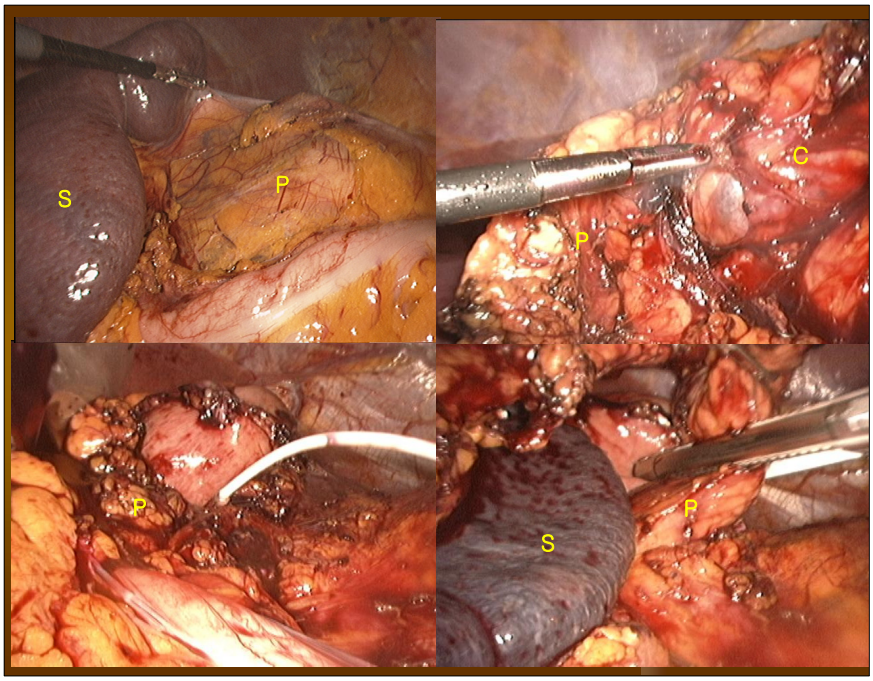
Im: 44
Se: Significant images
Im: 81
Se: Significant images
Im: 10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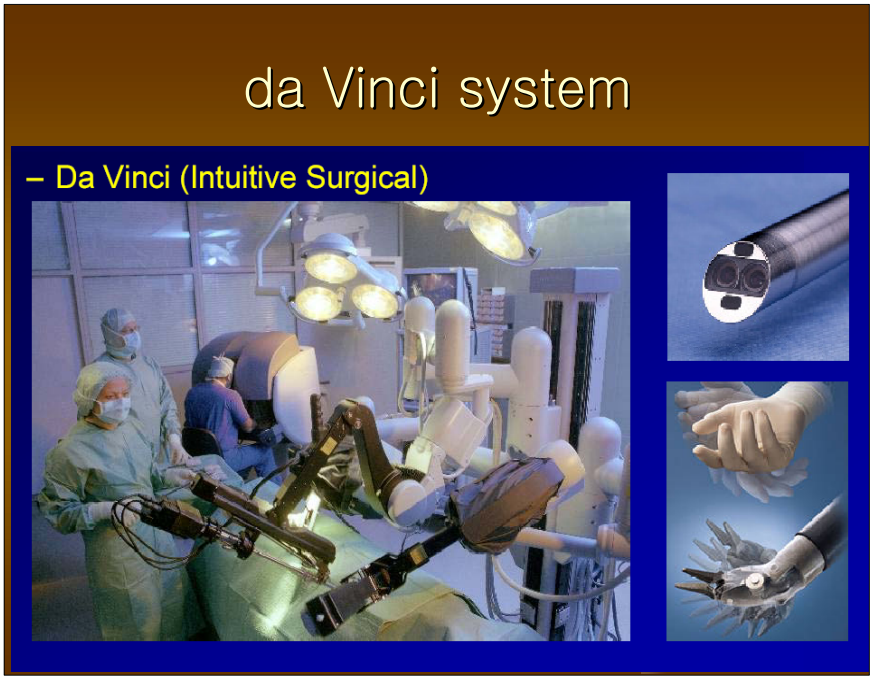
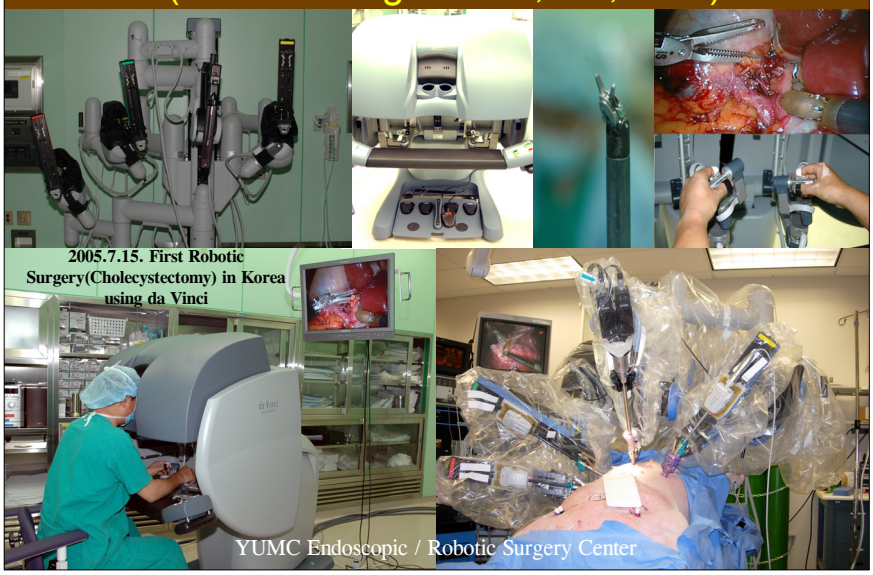

da Vinci system
– Da Vinci (Intuitive Surgical)

## Master-slave manipulator "da Vinci™" (Intuitive Surgical Inc., CA, USA)

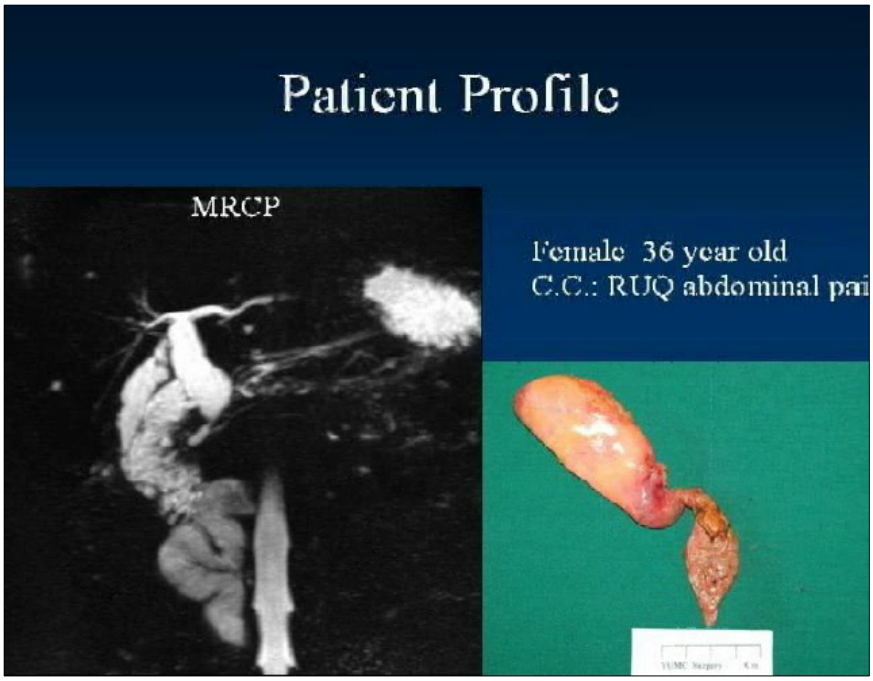



## Severance experience of da Vinci System

From July 15th, 2005 –July 3, 2007

400 da Vinci Tele-operative Surgery

| | |
|---|---|
| 2 | Cholecystectomy |
| 4 | Choledochal cyst operation |
| 1 | Pancreatic cystic tumor excision |
| 1 | Lt. Lateral segmentectomy of liver(HCC) |
| 39 | Rectal & Sigmoid colon cancer |
| 3 | Mediastinal tumor excision |
| 10 | Esophageal surgery |
| 16 | Heart surgery (2 ASD & 14 MR) |
| 204 | Prostatectomy (Prostate cancer) |
| 87 | Gastrectomy (Stomach cancer) |
| 28 | Gynecologic surgery(TAH) |


Patient Profile
MRCP
Female 36 year old
C.C.: RUQ abdominal pai


Conclusion
Result
Feasible & Safe
More Cosmetic & Less Pain
Demand
More Experience in Surgery
Long Term Follow-up
Proposal
Practice for Excellence in Skill
Robot-assisted : fine movement & 3-D image