Surgical Advances for Pancreas Cancer and Related Diseases

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If I have seen further it is by standing on the shoulders of giants.

Isaac Newton
Surgery at Jefferson, Late 19th Century
Scientific Discoveries Which Made Complex Pancreatic Surgery Possible

• 1922- Frederick Banting and Charles Best discovered Insulin, illuminating the function of the pancreas
Scientific Discoveries Which Made Complex Pancreatic Surgery Possible

• 1929- Dam discovered Vitamin K and Doisy synthesized it in 1939 allowing patients with obstructive jaundice to be operated upon without fear of excessive bleeding.
Scientific Discoveries Which Made Complex Pancreatic Surgery Possible

• 1930 - Karl Landsteiner discovered the human blood groups which made possible the development of blood banks and the ability to replace blood lost during surgery
Scientific Discoveries Which Made Complex Pancreatic Surgery Possible

• 1935 AO Whipple and colleagues report their experience with pancreato-duodenectomy initially as a two stage procedure later adapted to a one stage procedure
Early Results in Pancreatic Surgery

• Whipple reported a 33% mortality rate with the procedure.
• As late as the 1970’s, the operative mortality in the US was 32%, and some prominent surgeons advocated that the operation be stopped.
Minimally Invasive Pancreatic Surgery

• Same surgery on the inside, but with:
  • Smaller Incisions
  • Reduced Postoperative Pain
  • Reduced Hospital Stay
  • Rapid Return to Normal Daily Activities and Work
  • Reduced Wound Complications (Infections)
  • Improved Appearance
Robot Assisted Pancreatic Surgery
Tumor Located in Pancreatic Body
Ligate Inflow - Splenic Artery
Ligate Outflow - Splenic Vein
Divide the Pancreas
Positioning Robotic Arms
Robotic Arms Docked and Active
Surgeon at the Robotic Console
Bedside View
Surgical Specimen

- Pancreas
- Spleen
<table>
<thead>
<tr>
<th>Benefits of Minimally Invasive Pancreatic Surgery</th>
<th>Minimally Invasive Distal Pancreatectomy and Splenectomy</th>
<th>Open Distal Pancreatectomy and Splenectomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery Length</td>
<td>3 hours</td>
<td>3 hours</td>
</tr>
<tr>
<td>Incision Size</td>
<td>1 cm incisions</td>
<td>15 cm</td>
</tr>
<tr>
<td>Days in Hospital</td>
<td>2-3</td>
<td>4-5</td>
</tr>
<tr>
<td>Require Pain Meds</td>
<td>1 week</td>
<td>3-4 weeks</td>
</tr>
<tr>
<td>Return to Work</td>
<td>1-2 weeks</td>
<td>4-5 weeks</td>
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</table>
Robotic Surgeons at Jefferson
Thank You!