Subtotal Splenectomy or Splenic Cyst Excision

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Indications and Benefits

- Indication 1: Hematologic disorders including hereditary hemolytic spherocytosis, sickle cell disease (with recurrent or life-threatening splenic sequestration, hypersplenism, and splenic abscess), thalassemia major (with frequent transfusion requirements or massive splenomegaly), and failure of medical management for idiopathic thrombocytopenic purpura.
- Indication 2: Splenic mass, cyst, and abscess.
- Indication 3: Symptomatic splenomegaly or hypersplenism in malignancy.
- Benefits: Treat symptoms of underlying disorder or removal of lesion with preservation of splenic function.

Risks and Alternatives

- Standard risks (bleeding, infection, need for additional procedures, and risks of anesthesia).
- Injury to adjacent structures (stomach, pancreas, and diaphragm).
- Need for total splenectomy: With risk of overwhelming postsplenectomy infection or chronic thromboembolic pulmonary hypertension. If possible, vaccinations of *Streptococcus pneumoniae*, *Neisseria meningitides*, and *Haemophilus influenzae* should be administered before the operation.
- Splenic vein thrombosis, pancreatitis, portal vein thrombosis, and abscess.

Alternatives: Medical management, total splenectomy

Essential Steps: Open

1. Entry into abdomen.
2. Explore the peritoneum.
3. Open the lesser sac through the gastrosplenic ligament and expose the splenic hilum.
4. Divide the lateral splenic attachments, splenocolic, and splenorenal ligaments to fully mobilize the spleen.
5. Identify the major splenic vessels.

Subsection 1: For Partial Splenectomy for Hematologic Disorder or Splenic Mass/Abscess Removal

1. Identify the segmental branches to the upper and lower pole.

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2. Ligate the blood supply to the area of planned resection (if upper pole, also ligate short gastric arteries).
3. Observe for line of demarcation. If for hemolytic disorder, goal is to leave 10–30% of spleen.
4. Divide parenchyma at the level of the demarcation with sealer/cautery/stapler device.
5. Obtain hemostasis of raw surface with argon beam coagulator, topical agents, suture ligatures, or mattress sutures.
6. Close without drains.

Subsection 2: For Splenic Cyst Excision

1. Drain the splenic cyst.
2. Circumferentially resect the roof of the cyst.
3. Cauterize or coagulate (argon beam coagulator) the base of the cyst.
4. Obtain hemostasis.
5. Close without drains.

Note These Variations

- Variation 1: Open versus laparoscopic access.
- Variation 2: Partial resections for hematologic disease or tumors requires full organ mobilization; cyst excision and fulguration may not demand full dissection depending on location.
- Variation 3: Differences in location and extent of partial resection based on spleen size and indication for operation.
  - For systemic disease such as hereditary spherocytosis, the goal is to near-total debulk, leaving only 10–30% of the spleen.
  - For benign tumors, the goal is to preserve as much parenchyma as possible.
  - Upper pole versus lower pole depending on tumor location or surgeon preference.

Template Operative Dictation

Preoperative Diagnosis *Hereditary hemolytic spherocytosis, sickle cell disease, thalassemia major, immune thrombocytopenic purpura (ITP), splenic mass, or cysts.*

Postoperative Diagnosis Same as preoperative diagnosis

Findings Same as postoperative diagnosis

Procedure(s) Performed Subtotal splenectomy or splenic cyst excision

Anesthesia *General/regional/procedural sedation*

Specimen Spleen, partial

Drains None

Implants None

Estimated Blood Loss ___

Indications This is a/an ___*-day/week/month/year*-old *male/female* presented with *hereditary hemolytic spherocytosis, sickle cell disease, thalassemia major, ITP, splenic tumors or cysts*. *He/she* was deemed to be a suitable candidate for *subtotal splenectomy or splenic cyst excision*

Procedure in Detail Following satisfactory induction of anesthesia, the patient was placed in supine position *with a bump placed under the left flank* and appropriately padded. Timeouts were performed using both preinduction and preincision safety checklists with participation of all present in the operative suite. These confirmed the correct patient, procedure, operative site, and additional critical information prior to the start of the procedure. *Specific lines/tubes (*i.e., *Foley catheter, OG/NG, SCDs, arterial line) were placed.* Preoperative antibiotics were given. The abdomen was then prepped and draped in the usual sterile fashion.

[Choose One:]

If open for hematologic disease or tumor: A left upper quadrant *transverse/subcostal* incision was made and electrocautery was used to divide the muscles in layers. The posterior sheath and peritoneum were opened sharply to enter the abdominal cavity. *A self-retaining retractor was placed to give adequate exposure and the abdominal cavity was explored.* The spleen was found to be *normal in size/enlarged. (List any other abnormalities found).* The lesser omental sac was opened and the short gastric vessels were divided using *cautery/energy sealing-dividing device.* The main splenic artery and vein with segmental branches were identified as they entered the splenic hilum. The splenocolic, splenorenal, and splenophrenic ligaments were divided by cautery and the spleen was medially rotated and delivered into the wound. *Control of the main splenic vessels was obtained using vessel loops/vascular clamps.* The *upper/lower* pole vessels were individually ligated, taking care to avoid injury to the pancreas. After ligating the segmental vessels supplying the *area/pole*, approximately *10–30%/ other %* of perfused spleen volume remained. The spleen was then divided along the line of demarcation, on the devascularized side, using a *cautery/stapler/sealing device*. The specimen was sent off for pathology.

If open for splenic cyst: A left upper quadrant *transverse/subcostal* incision was made and electrocautery was used to divide the muscles in layers. The posterior sheath and peritoneum were opened sharply to enter the abdominal cavity. *A self-retaining retractor was placed to give adequate exposure and the abdominal cavity was explored.* The splenic cyst was identified after *medial/lateral/inferior/superior* manipulation and aspirated, with *clear/cloudy/serous/bloody/ other* fluid removed. The roof of the cyst was then excised using *cautery/energy sealing-dividing device,* staying close to the spleen and working circumferentially to remove the outer portion of the cyst, and leaving the base within the spleen. The partial cyst wall was sent for pathology. The bed was *cauterized/coagulated/ fulgurated using method of choice.*

If laparoscopic for hematologic disease or tumor: Atraumatic entry into the peritoneum was achieved via *Hasson/Veress technique* and the entire peritoneum was insufflated with CO_2 to a pressure of 12–15 mmHg and visually inspected. Initial impression was [*state findings/spleen appearance*]. UNDER direct visualization, a *3/5/10*-mm port was introduced in the midclavicular line on the left side below the tip of the spleen. Another *3/5/10*-mm port was placed in the midline epigastric area. *An additional port was placed superiorly in the midline subxiphoid area.* The table was placed in reverse Trendelenburg with the left side up. The stomach was grasped and retracted medially to expose the short gastric vessels. These vessels were divided using an *energy sealer-divider device/clips/electrocautery* exposing the splenic hilum. The splenocolic ligaments were then divided using electrocautery allowing retraction of the colon inferiorly and the splenorenal ligaments were then identified and divided. The ligamentous attachments to the upper portion of the spleen were preserved to avoid postoperative volvulus of the remnant spleen.

The main splenic artery and vein were identified *and control was obtained using vessel loops*. The splenic hilum was carefully inspected identifying the segmental branches. The spleen was partially devascularized by ligating the segmental vessels to the *upper/lower* pole using *energy sealer device/ clips/ electrocautery.* The spleen was demarcated and the splenic parenchyma was divided approximately 1 cm away from the line of devascularization using an *energy sealer device/stapler*. Bleeding from the splenic bed was controlled using *argon beam/electrocautery/ topical hemostatic agents*. After hemostasis was achieved, the remnant was inspected and estimated that approximately *10–30%/other %* of perfused spleen volume remained. A laparoscopic retrieval bag was then inserted directly into the *umbilical/left lower quadrant* port site and deployed under direct vision. The resected spleen was then placed into the sac and the neck of the sac was exteriorized through the trocar site. *The port site was then enlarged to allow removal/*

morcellation of the spleen was carried out, breaking up with spleen within the bag using suction, finger fracture, and/or forceps. The bag was removed intact from the abdominal cavity and sent off as specimen.

If laparoscopic for cyst: Atraumatic entry into the peritoneum was achieved via *Hasson/Veress technique* and the entire peritoneum was insufflated with CO_2 to a pressure of 12–15 mmHg and visually inspected. Initial impression was [*state findings/spleen appearance*] under direct visualization, a *3/5/10*-mm port was introduced in the midclavicular line on the left side below the tip of the spleen. Another *3/5/10*-mm port was placed in the midline epigastric area. *An additional port was placed superiorly in the midline subxiphoid area.* The table was placed in reverse Trendelenburg with the left side up. The splenic cyst was identified after *medial/lateral/inferior/superior* manipulation and aspirated, with *clear/cloudy/serous/bloody/other* fluid removed. The roof of the cyst was then excised using *cautery/energy sealing-dividing device,* staying close to the spleen and working circumferentially to remove the outer portion of the cyst, and leaving the base within the spleen. The partial cyst wall was sent for pathology. The bed was *cauterized/coagulated/fulgurated using method of choice.*

Bleeding from any raw parenchymal surfaces was controlled using *argon beam coagulator/topic agents/capsular vertical mattress sutures using 2-0 monofilament suture with pledgets/omental buttress/other*. After satisfactory hemostasis, the remaining spleen was inspected and found to be *viable/other*. Abdominal wall fascia was closed with a *running suture using ____/interrupted ____*. The skin was closed with a *4/0 absorbable Monocryl* suture in a *running* subcuticular technique and was dressed with *surgical skin adhesive*.

Upon completion of the procedure, a debriefing checklist was completed to share information critical to the postoperative care of the patient. The patient tolerated the procedure well, *was extubated in the operating room*, and was transported to the postanesthesia care unit in stable condition thereafter.