# HOW TO DO: LAPAROSCOPIC SPLENECTOMY

Liverpool Hospital

Monday Morning Registrar Teaching Session

Dr Gratian Punch

13 April 2015

# SCOPE OF THE SESSION

**PLEASE NOTE:**

THIS SESSION IS FOR ELECTIVE LAPAROSCOPIC SPLENECTOMY ONLY.

THERE IS LITTLE TO NO PLACE FOR LAP SPLEEN IN TRAUMA.

PLEASE REVIEW OPEN SPLENECTOMY IN YOUR OWN TIME.

REMEMBER – ALWAYS MORE THAN ONE WAY TO SKIN A CAT

**LAP SPLENECTOMY**

- Suggested reading and references
- Indications
- Contraindications
- Informed Consent
- Pre-operative Vaccination
- The Procedure in 4 steps
- Post Operative Care + Potential Complications
- Tips
- Final Questions

# SUGGESTED READING AND REFERENCES


- RACS – GSA NSW Presentation:

  Spleen, Lymphatic and Hypertension

  Author: Dr Marthe Chehade

  Date: 06 Sep 2014

  Presented at Johnson & Johnson, Macquarie Park NSW, September 6 2014.

  (found at www.generalsurgeons.com.au, educational webcast, 2014, NSW.
- Sabiston Textbook of Surgery, 19th Ed, Townsend *et al.* Copyright © 2012
- Current Procedures: Surgery. Rebecca M. Minter, Gerard M. Doherty. Copyright © 2010 by The McGraw-Hill Companies, Inc. All rights reserved.
- The Australian Immunisation Handbook 10th Edition 2013 (updated January 2014)

# LAP SPLENECTOMY - INDICATIONS

- Splenic cysts or splenic mass
- Splenic abscess
- Hematologic disorders:
  - Idiopathic thrombocytopenic purpura.
  - Hemolytic anemia.
  - Hereditary spherocytosis.
  - Other hereditary or autoimmune anemias.
- Severe hypersplenism.
- Perisplenic malignancy.
- Splenic artery aneurysm.
- Splenic vein thrombosis with left-sided portal hypertension.

# CONTRAINDICATIONS

- Portal hypertension due to liver disease.
- Thrombocytopenia is not a contraindication of splenectomy.
  - Although preoperative transfusion is not recommended, intraoperative transfusion may be required should coagulopathic bleeding occur.

# INFORMED CONSENT

- **Expected Benefits**
  - Cessation or prevention of life-threatening hemorrhage.
  - Treatment of hematologic disorders, malignancy, or symptomatic mass or hypersplenism.
- **Potential Risks**
  - Post-splenectomy sepsis.
  - Bleeding.
  - Infection (wound or intra-abdominal abscess).
  - Pancreatitis or pancreatic leak.
  - Damage to surrounding structures (stomach, diaphragm, colon, etc).
  - Recurrence of primary disease (thrombocytopenia, etc).

# PRE OPERATIVE VACCINATION

- **Suggested reference :**
- Australian Immunisation Handbook 10th edition 2013 – can be found free: http://www.health.gov.au/internet/immunise/publishing.nsf/Content/Handbook10-home
  - Pages 161-164 – Guidelines for Asplenic Patients
- Sabistons:

**Table 57-1 Centers for Disease Control and Prevention Vaccine Recommendations for Asplenic Patients**

| VACCINE | RECOMMENDATION |
|---|---|
| Tetanus (Td/Tdap) | One dose every 10 years |
| Human papilloma virus (HPV) | Three doses for women through age 26 (0, 2, 6 mo) |
| Measles, mumps, rubella (MMR) | One or two doses |
| Varicella | Two doses (0, 4-8 wk) |
| Zoster | One dose |
| Influenza | One dose annually |
| Pneumococcal polysaccharide | One or two doses |
| Hepatitis A | Two doses (0, 6-12 mo or 0, 6-18 mo) |
| Hepatitis B | Three doses (0, 1-2 mo, 4-6 mo) |
| Meningococcal | One dose |

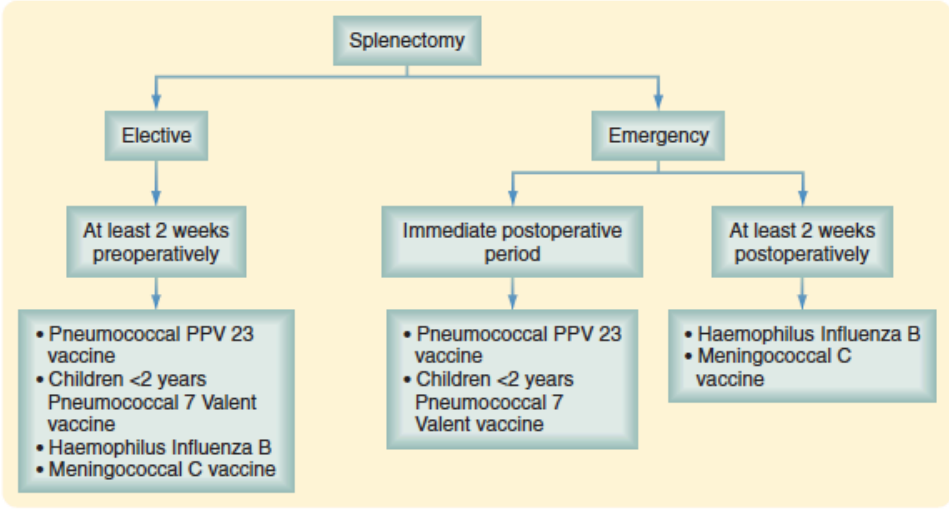



**FIGURE 57-7** Splenectomy immunoprophylaxis flow chart. (From Harji DP, Jaunoo SS, Mistry P, Nesargikar PN: Immunoprophylaxis in asplenic patients. Int J Surg 7:421–423, 2009.)

# PATIENT POSITIONING (1/2)

- Laparoscopic splenectomy:
  - Preferentially performed in the right lateral decubitus position
    - Screen behind patient
    - Faces towards surgeon
    - Strapped + taped
    - Pillow between legs to offload pressure
  - May also be performed with the patient supine.

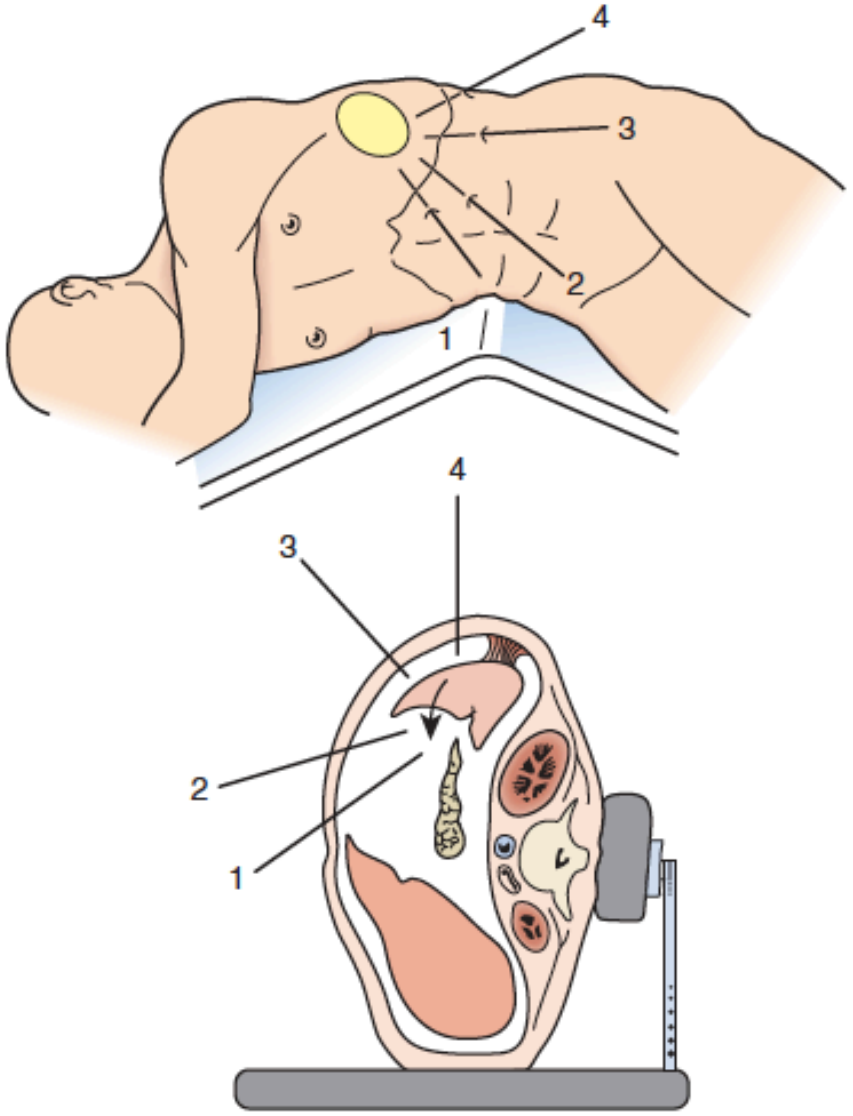
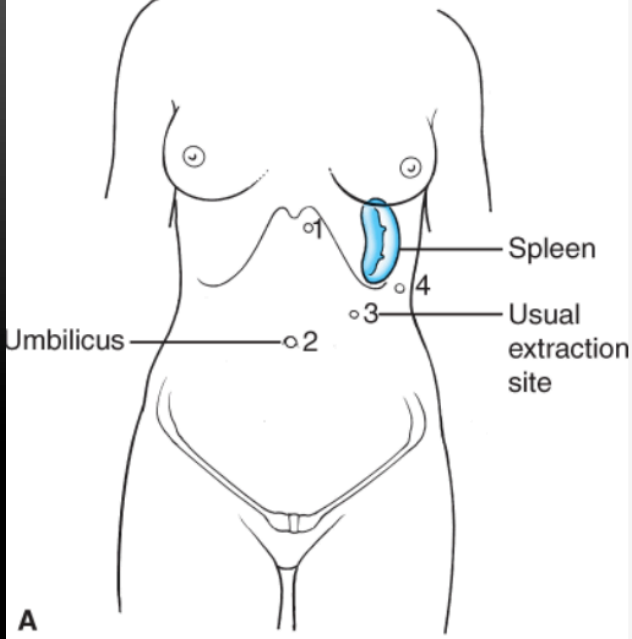



**FIGURE 57-4** Strict lateral position of the patient for laparoscopic splenectomy. The table is angulated, giving forced lateral flexion of the patient to open the costophrenic space. Trocars are inserted along the left costal margin more posteriorly. The spleen is hanged by its peritoneal attachments. The numbered lines show the position of laparoscopic ports. (From Gigot JF, Lengele B, Gianello P, et al: Present status of laparoscopic splenectomy for hematologic diseases: Certitudes and unresolved issues. Semin Laparosc Surg 5:147–167, 1998.)

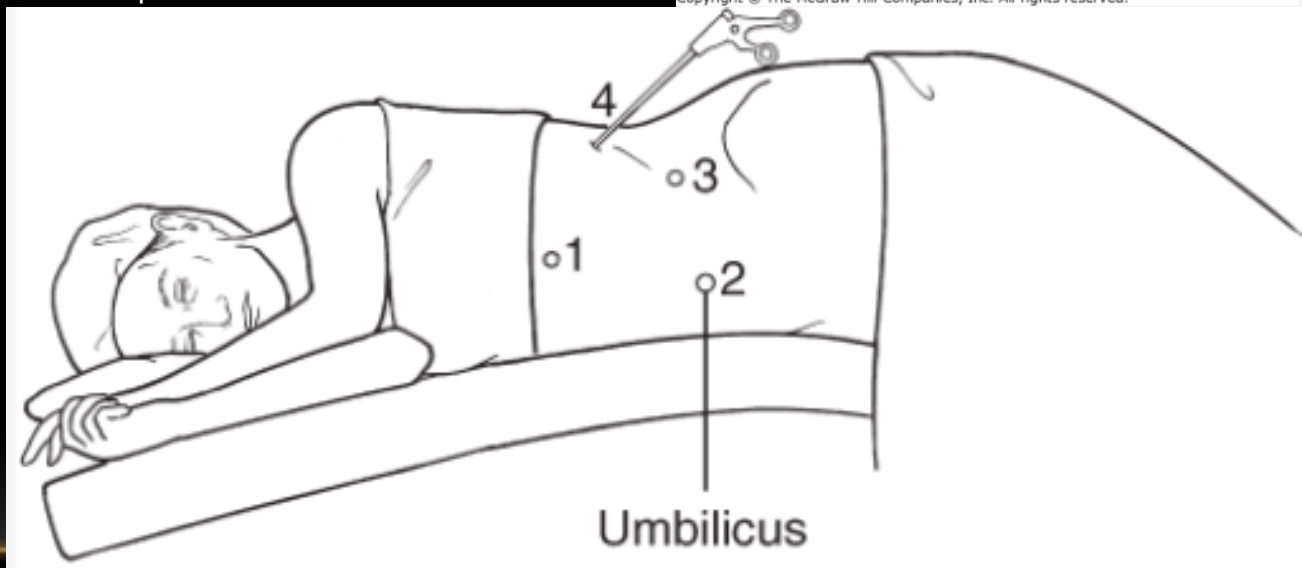
# PATIENT POSITIONING (2/2)

- Laparoscopic splenectomy:
  - Preferentially performed in the right lateral decubitus position
    - Screen behind patient
    - Faces towards surgeon
    - Strapped + taped
    - Pillow between legs to offload pressure
  - May also be performed with the patient supine.




Source: Minter RM, Doherty GM: *Current Procedures: Surgery:* http://www.accesssurgery.com



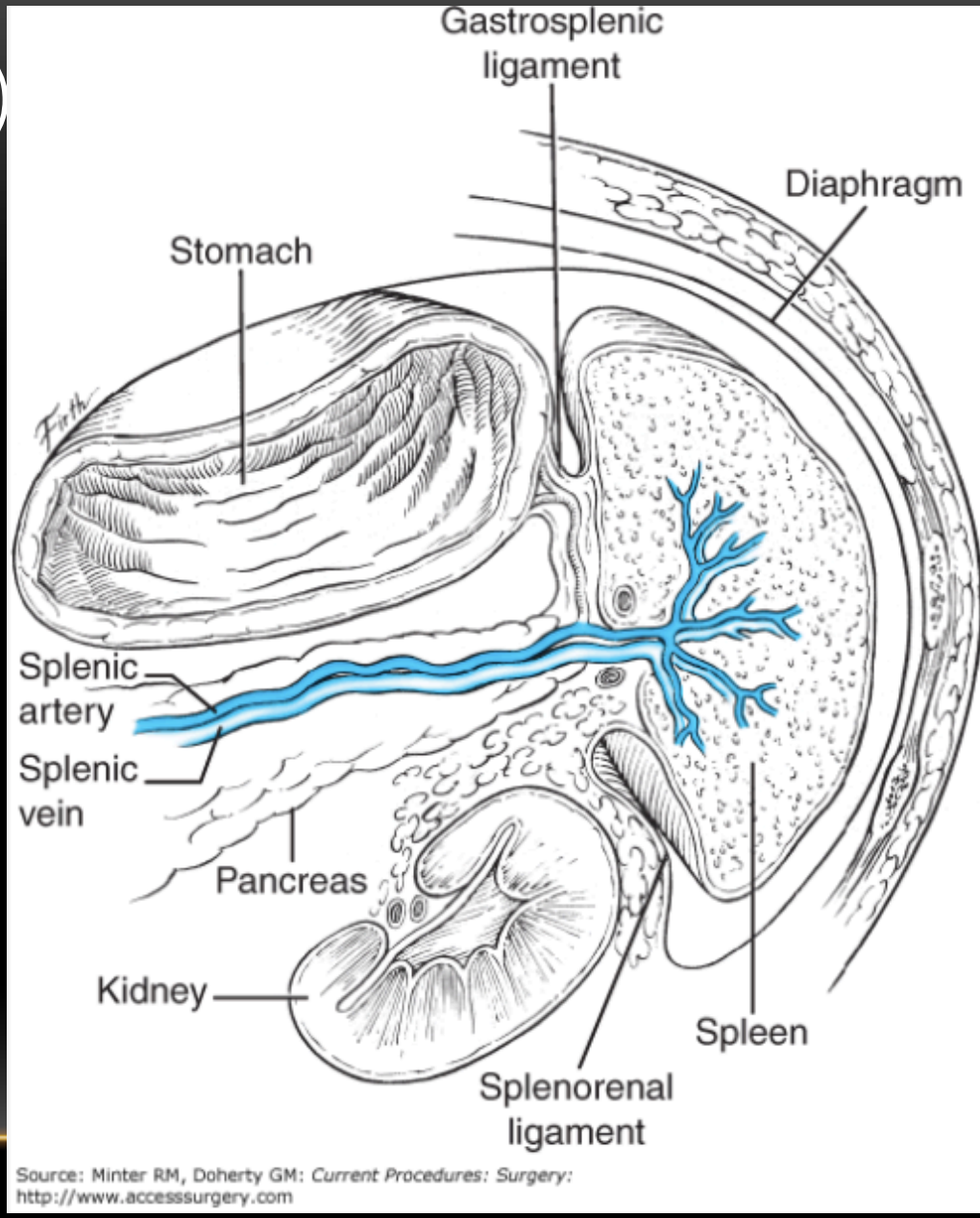



Source: Minter RM, Doherty GM: *Current Procedures: Surgery:* http://www.accesssurgery.com

# LAP SPLEEN STEPS (1A/4)

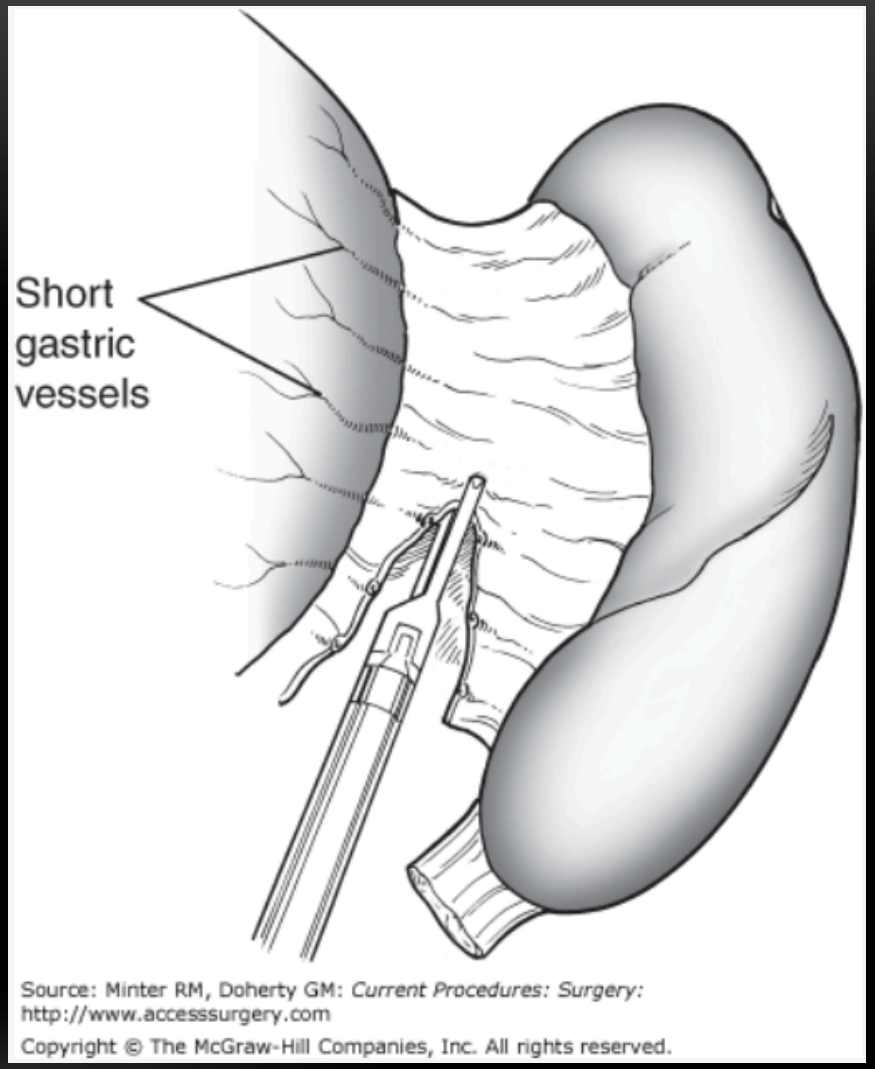
- Gastrosplenic ligament containing short gastric vessels divided to access the splenic vessels

- Note: Spleen Ligament anatomy:
  - 2 vascular ligaments
    - Gastrosplenic = short gastrics
    - Lieonorenal = Spl A. + V.
  - 2 avascular ligaments
    - Splenophrenic
    - Splenocolic



# LAP SPLEEN STEPS (1B/4)

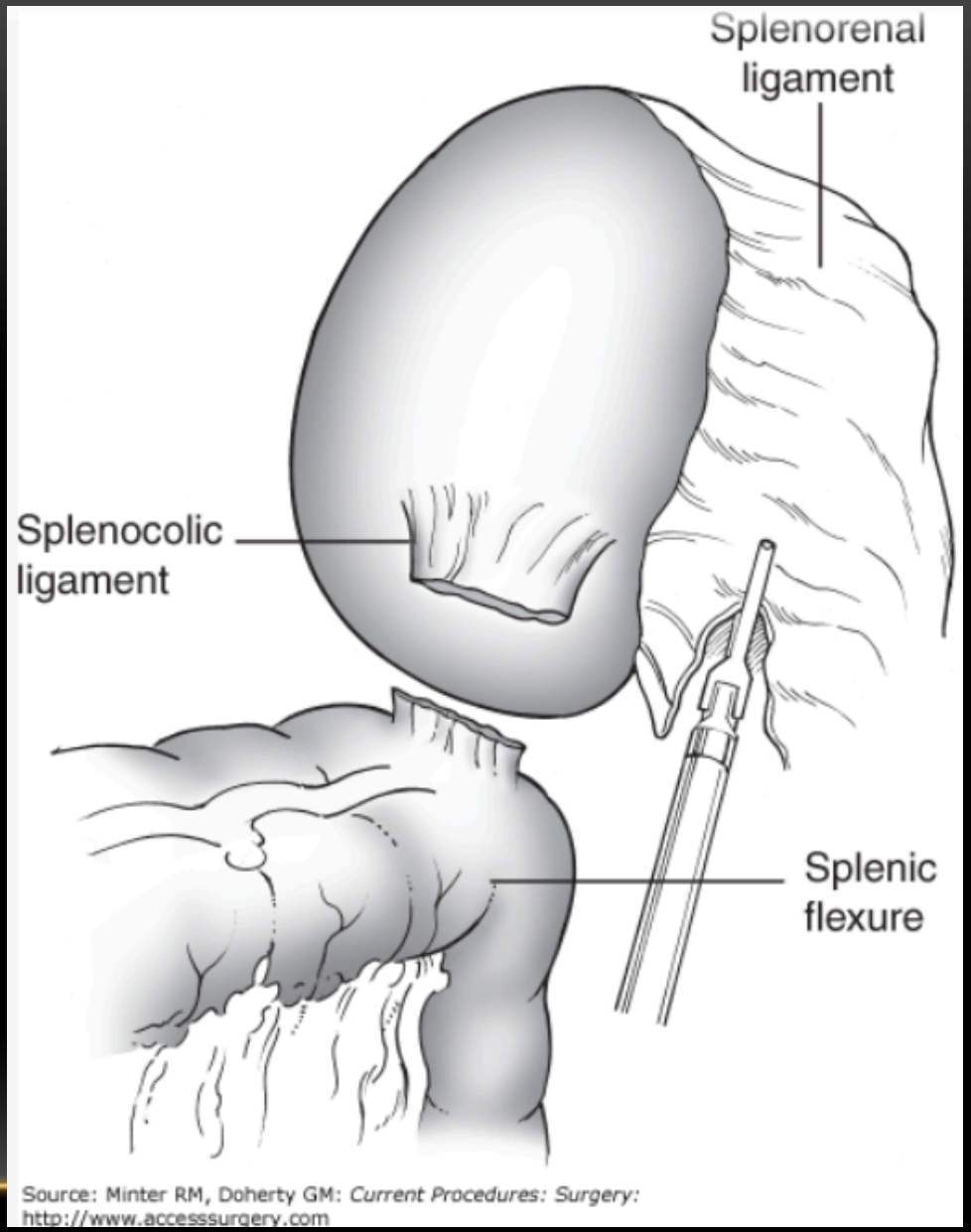
- The gastrosplenic ligament is transected using advanced energy device of choice
- So next on view are the splenic vessels.
- But first the dissection will be focused to the other ligaments




Source: Minter RM, Doherty GM: *Current Procedures: Surgery:* http://www.accesssurgery.com

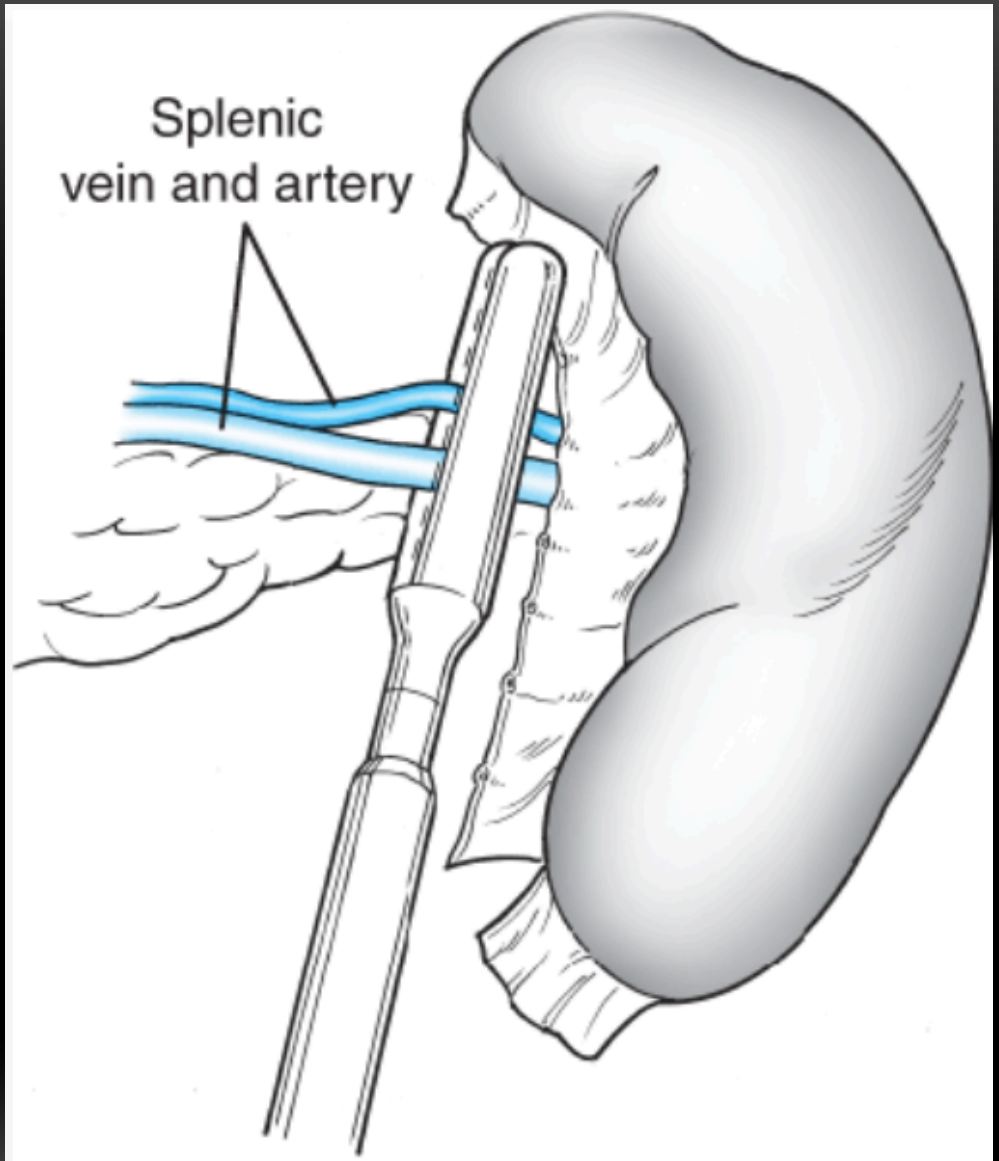
# LAP SPLEEN STEPS 2/4

- The relatively avascular splenocolic and splenorenal ligaments are divided along with the other attachments, freeing the spleen.



# LAP SPLEEN STEPS 3/4

- Taking the splenic artery and vein:
  - A vascular stapler is used to divide the splenic artery and vein.
  - The artery is always divided before the vein.




Source: Minter RM, Doherty GM: *Current Procedures: Surgery:*
http://www.accesssurgery.com

# LAP SPLEEN STEPS 4/4

- Retrieve the specimen is placed into an endoscopic retrieval bag.
- Depending on its size, the spleen may require maceration with a ring forceps or finger before it can be removed from the body.
- Decide Drain v. no drain
- Then closure of the ports

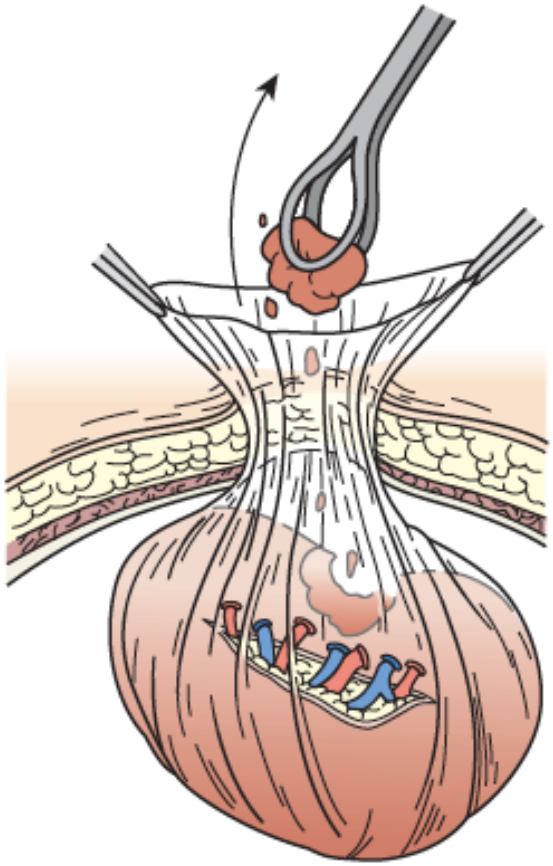


**FIGURE 57-6** Extraction of the spleen within a heavy plastic bag, with instrumental morcellation of the organ with forceps. (From Gigot JF, Lengele B, Gianello P, et al: Present status of laparoscopic splenectomy for hematologic diseases: Certitudes and unresolved issues. Semin Laparosc Surg 5:147–167, 1998.)

# POST OP MANAGEMENT

- Nasogastric decompression – surgeon preference
  - For 12–36 hours after open splenectomy.
  - Optional for laparoscopic splenectomy.
- Diet is advanced as tolerated after removal of the nasogastric tube.
- If the patient has not been vaccinated preoperatively (eg, in cases of splenectomy for trauma or iatrogenic injury), this should be done promptly.

# POTENTIAL COMPLICATIONS

- Postoperative bleeding or hemorrhage.
- Gastric injury or leak.
- Pancreatic injury resulting in pancreatitis or pancreatic leak or fistula.
- Thrombocytosis – Aspirinif PLT>1000
- Splenic vein thrombosis.
- Left lower lobe atelectasis or pneumonia.
- Superficial or deep space surgical site infection.
- Recurrence of disease (if splenectomy is performed for hematologic disease).

# TIPS

- Pre op embolise:
  - patients with severe hypersplenism - This may reduce intraoperative blood loss.
- ? Drain:
  - Difficult/traumatic dissection
- Test the drain (Lipse -? Pancreatic Leak)
  - after the patient resumes a normal diet and before removing the drain.
- Educate patient + write to GP
  - prompt medical evaluation for signs of infection
  - OPSI etc…
- Beware:
  - the wandering spleen /splenunculus
  - Don't leave pieces of spleen  inside

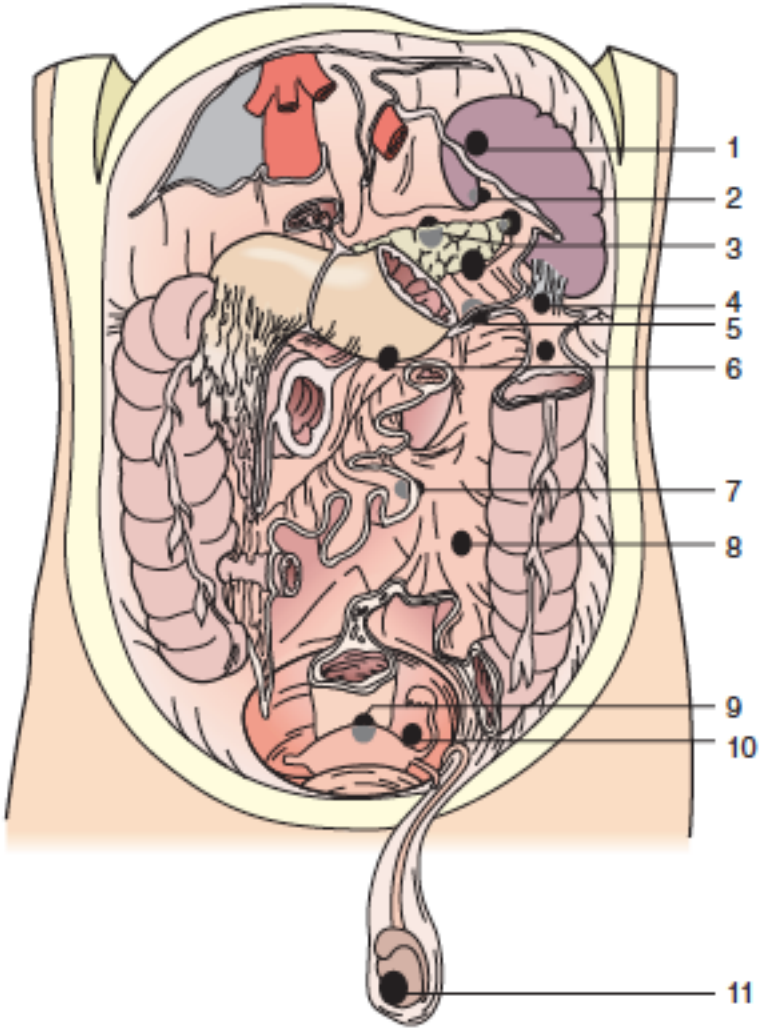



**FIGURE 57-5** Usual location of accessory spleens. (1) Gastrosplenic ligament, (2) splenic hilum, (3) tail of the pancreas, (4) splenocolic ligament, (5) left transverse mesocolon, (6) greater omentum along the greater curvature of the stomach, (7) mesentery, (8) left mesocolon, (9) left ovary, (10) Douglas pouch, (11) left testis. (From Gigot JF, Lengele B, Gianello P, et al: Present status of laparoscopic splenectomy for hematologic diseases: Certitudes and unresolved issues. Semin Laparosc Surg 5:147–167, 1998.)

# FINAL QUESTIONS

# AUST. IMM. HANDBOOK:

- Pneumococcal, meningococcal, Hib and influenza vaccination are particularly recommended for all persons with asplenia (functional or anatomical)
- Other vaccinations should be up todate.
- Elective splenectomy - vaccination should be completed 2 weeks before the scheduled operation date.
- Children with splenic dysfunction should also be given antibiotic prophylaxis to prevent bacterial infection, until at least 5 years of age.
- Asplenic persons + Carers should also be educated about fever (emerg Abx + early review)
- Recommended to wear a medical alert.