HERNIA ULTRASOUND PROTOCOL

BILING CODES TO BE USED:

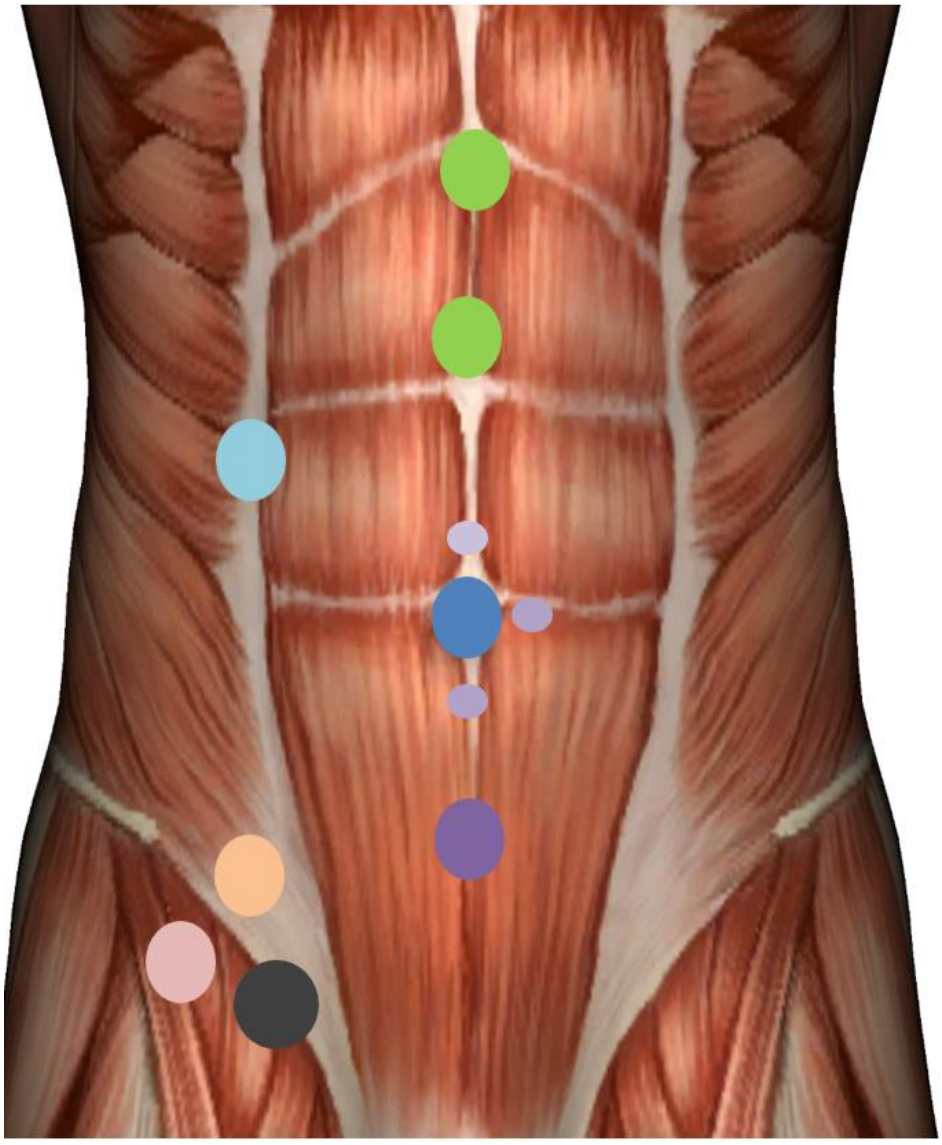
UHERNIA – To be used for inguinal and femoral hernias only. These are charged as an extremity. If bilateral sides are done, two UHERNIA exams should be charged.

UABDL – To be used for non-inguinal hernias - ventral, umbilical, and spigelian etc. These are charged as an abdomen limited. Only one UABDL per exam can be charged.

THIS IS A LIMITED ABDOMINAL EXAM OF THE GROIN OR ABDOMEN TO EVALUATE THE AREA OF CONCERN FOR ABDOMINAL WALL DEFECTS

PATIENT PREP: No prep

TYPES OF ABDOMINAL HERNIAS:



VENTRAL HERNIAS:

Ventral hernias include all hernias in the anterior and lateral abdominal wall.

UMBILICAL – within umbilical stalk
PARAUMBILICAL –adjacent to umbilicus
EPIGASTRIC – midline superior to umbilicus
HYPOGASTRIC – midline inferior to umbilicus
SPIGELIAN -lateral to rectus muscle

DIASTASIS RECTI- Separation of rectus muscles and stretching of linea alba.

GROIN HERNIAS:

DIRECT – superficial inguinal ring
INDIRECT – deep inguinal ring
FEMORAL – femoral canal

DOCUMENTATION OF VENTRAL HERNIAS

VENTRAL HERNIAS

- Ventral hernias include all hernias in the anterior and lateral abdominal wall. Midline defects include umbilical, paraumbilical, epigastric, and hypogastric hernias. Spigelian and incisional hernias are also considered ventral hernias.
- Ventral hernia ultrasounds are focused exams and should be limited to document the symptomatic area of the adnominal wall.
- Images should be labeled with a description of the anatomic area of concern being scanned.
- Standing images are not needed for ventral hernias.

TRANSVERSE IMAGES TO OBTAIN:

1. At least 1 still image of area of concern.
2. At least one cine clip of the area of concern in transverse from superior to inferior.
3. At least one cine clip with Valsalva.
4. Measure the neck of any hernia seen.

SAGITTAL IMAGES TO OBTAIN:

1. At least 1 still images of area of concern.
2. At least one cine clip of the area of concern in sagittal from right to left or medial to lateral
3. At least one cine clip with Valsalva.
4. Measure the neck of any hernia seen.

DIASTASIS RECTI

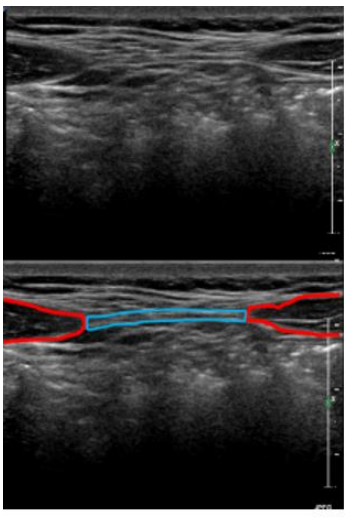
- Diastasis recti is the midline stretching and thinning of the linea alba fascia caused by increased intrabdominal pressure such as in pregnancy. It can occur above and/or below the umbilicus.
- Diastasis recti can exist with or without ventral hernia. Diastasis recti is the separation of the muscles, but it is not considered a hernia unless there is a defect in the fascia.
- Evaluate the entire length of linea alba fascia for small defects.
- Both epigastric (above umbilicus) and hypogastric (below umbilicus) areas should be evaluated.

TRANSVERSE IMAGES TO OBTAIN: At Epigastric and Hypogastric areas

1. At least one cine clip of the midline from superior to inferior showing the linea alba and both recti.
2. Measure the distance between the recti muscles at multiple areas along midline. If necessary, use panoramic imaging.
3. Measure any defect in the linea alba fascia.
4. At least one cine clip with Valsalva at any area of concern.

SAGITTAL IMAGES TO OBTAIN: At Epigastric and Hypogastric areas

1. At least one cine clip with Valsalva at any area of concern.
2. Measure any defect in fascia seen.



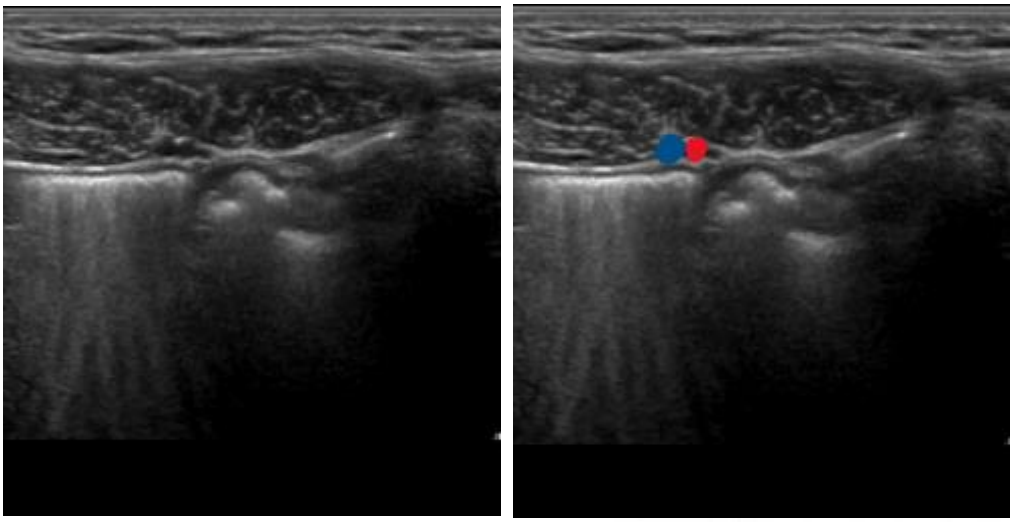
Linea alba – blue

Rectus muscles - red

DOCUMENTATION OF GROIN HERNIAS

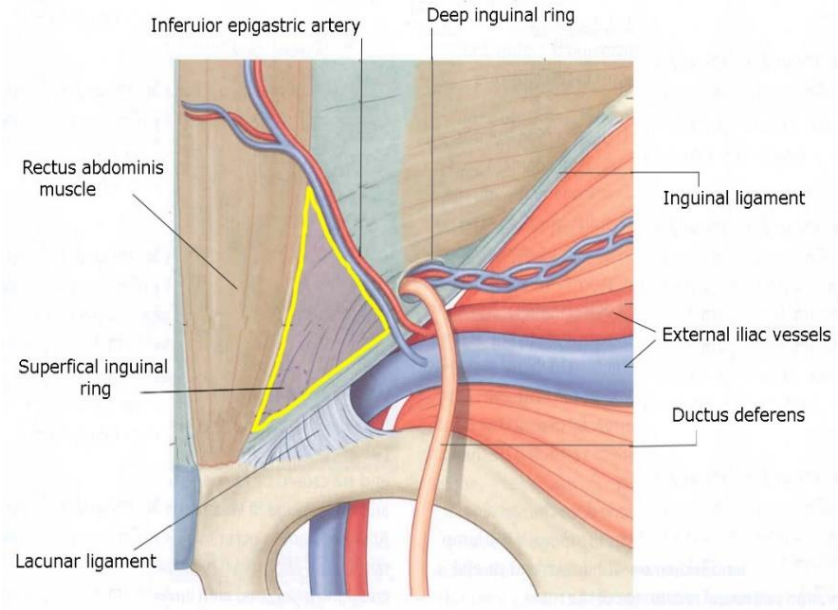
LOCATING THE INGUINAL RING:

1. Identify the inferior epigastric vessels along the posterior aspect of the rectus muscle.

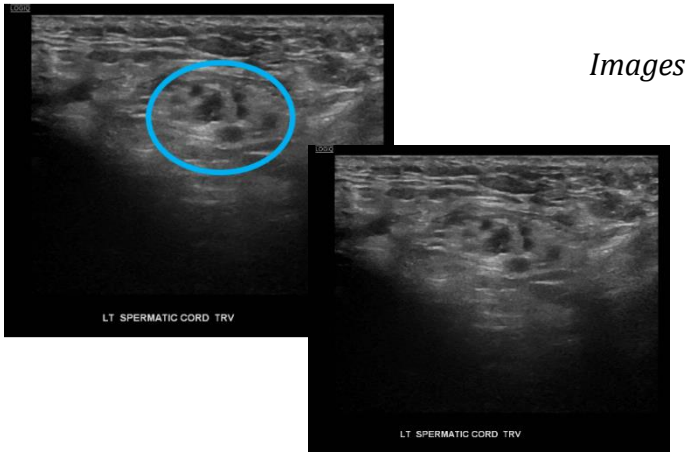


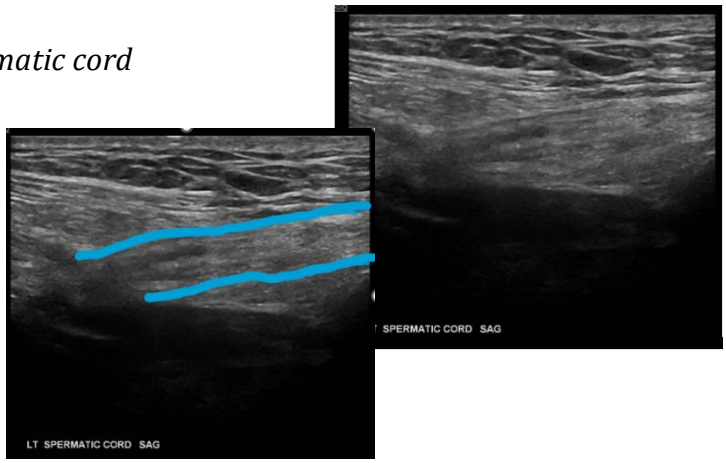
Epigastric vessels sitting posterior to rectus muscle

2. Follow the epigastric vessels to where they connect with the iliac vessels. This is the inguinal ring.
3. In this plane you will be in a transverse axis to the inguinal ring. A sagittal plane will run along the crease of the groin, not a true sagittal to the patient's body.
4. In males, you can also find the inguinal ring by following the spermatic cord/ductus deferens. It can be followed in transverse from just superior to the testicle to where it enters the abdomen and the deep inguinal ring. It appears as a round collection of vessels with a slightly hyperechoic surrounding.

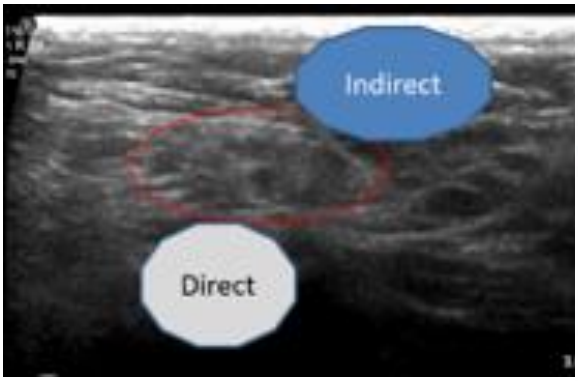


Images of spermatic cord

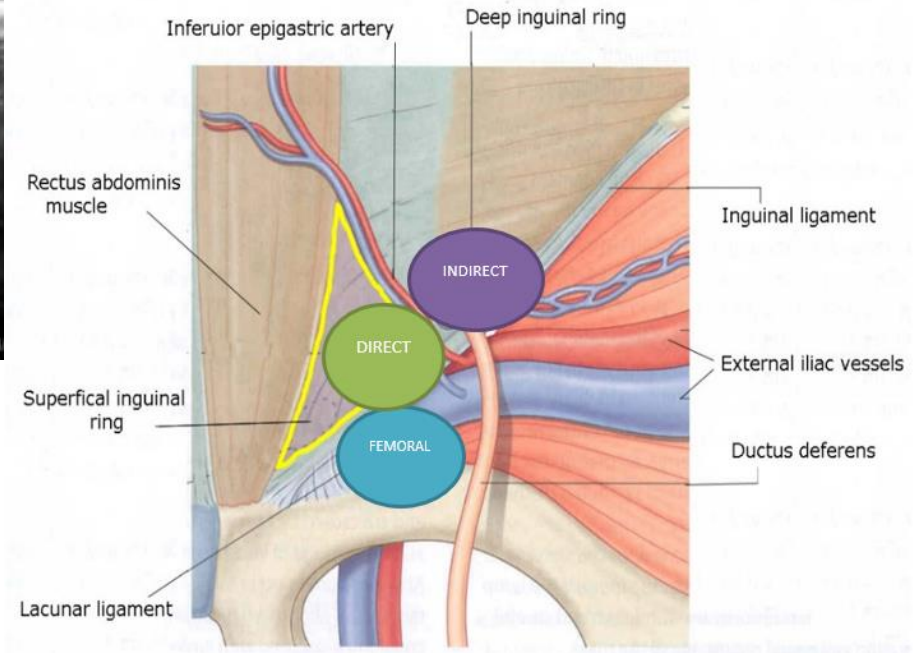


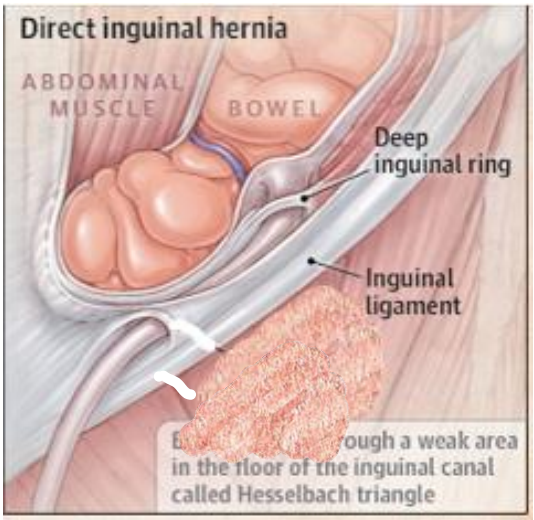


DETERMINING INDIRECT VS DIRECT HERNIAS



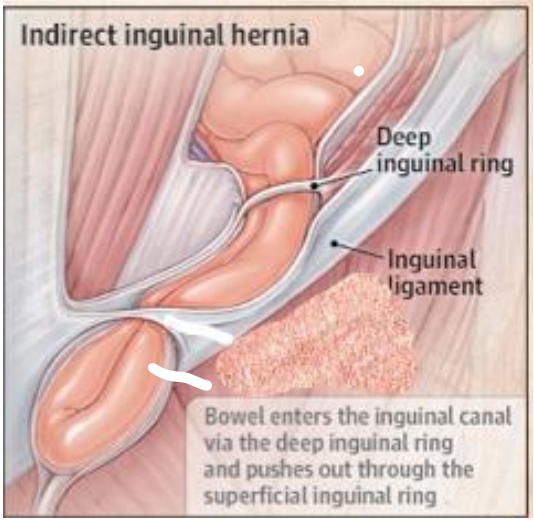
Hernia locations in a left groin in relation to epigastric vessels (red outline)





DIRECT INGUINAL HERNIA *A hernia protruding through the abdominal wall via the superficial inguinal ring (Hesselbach's triangle)*

-Located medial and posterior to the epigastric vessels and spermatic cord.
-Direct hernias are inferior to the deep inguinal ring and occur through the conjoined tendon.
-Located lateral to the rectus muscle



INDIRECT INGUINAL HERNIA *A hernia protruding through the abdominal wall via the deep inguinal ring and passes down the inguinal canal lateral to the inferior epigastric artery. In male patients, the spermatic cord also runs within the inguinal. In female patients, this is the round ligament.*

-Located lateral and anterior to the epigastric vessels, hernia courses up and over the vessels
-In males, indirect hernias are anterior to the spermatic cord and may communicate with the scrotum.

DOCUMENTATION OF GROIN HERNIAS

- **Provide imaging to rule out indirect, direct, and femoral hernias on the indicated side of the lower abdomen. Only the indicated side needs to be evaluated.**
- **Images should be labeled with the specific groin area being evaluated - Indirect, Direct or Femoral.**
- **All inguinal hernia evaluations should include a repeat of images in standing position even if the hernia has already been identified. Evaluate whether the defect changes in size or reducibility while standing.**

INDIRECT HERNIA DOCUMENTATION:

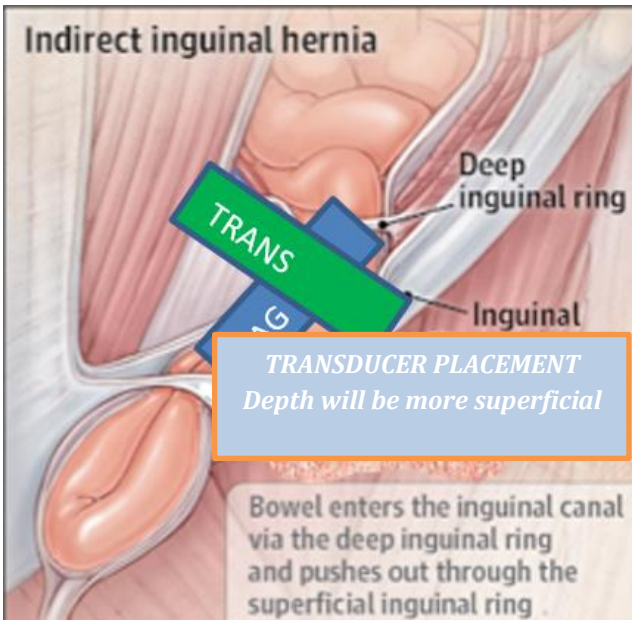
An **INDIRECT HERNIA** is located **LATERAL AND ANTERIOR** to the inferior epigastric artery and travels through the inguinal canal. In males, this is where the spermatic cord enters the abdomen; in females, it is the round ligament.

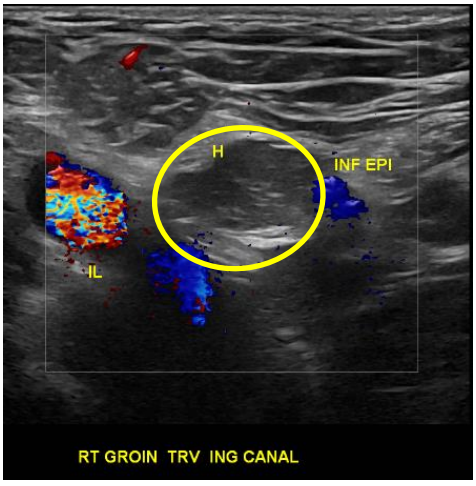
TRANSVERSE IMAGES TO OBTAIN:

1. At least one cine clip with Valsalva.
2. Measure the neck of any hernia seen.
3. Document location of epigastric vessels with color and its relationship to the defect.

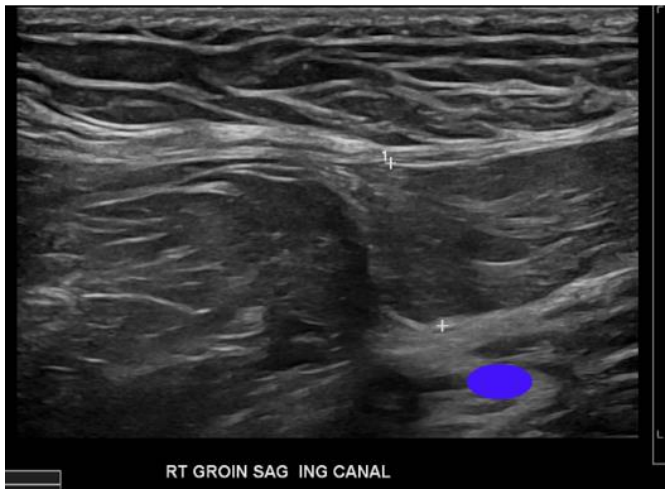
SAGITTAL IMAGES TO OBTAIN: show the length of the canal and spermatic cord in males.

1. At least one cine clip with Valsalva.
2. Measure the neck of any hernia seen.
3. Document location of epigastric vessels with color and its relationship to the defect.





*The indirect inguinal hernia (yellow outline) is located **anterior and lateral** to the inferior epigastric vessels in transverse.*



*Sagittal view of an indirect inguinal hernia during Valsalva. Hernia is seen exiting the abdominal cavity through the deep inguinal ring. It is **anterior** to the inferior epigastric vessels (blue circle).*

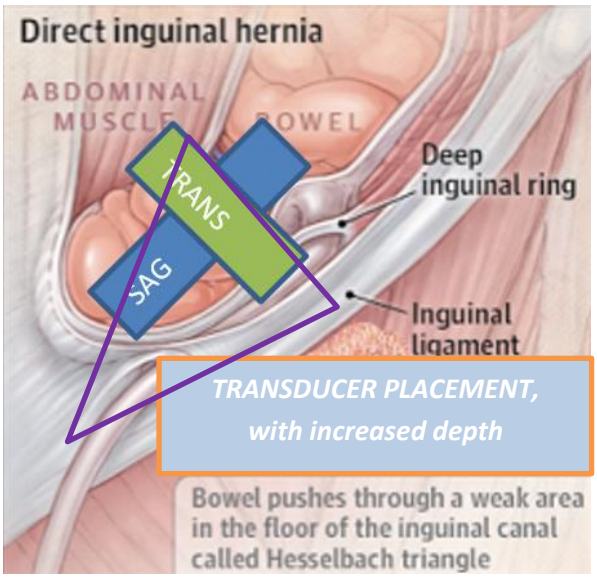
DOCUMENTATION OF GROIN HERNIAS continued

DIRECT HERNIA DOCUMENTATION:

A **DIRECT HERNIA** is located **MEDIAL AND POSTERIOR** to the inferior epigastric artery and occurs through the Hasselbach Triangle.

HASSELBACH TRIANGLE (purple outline) is defined by the following structures:

- Medial border: Lateral edge of the rectus muscle.
- Superolateral border: Inferior epigastric vessels.
- Inferior border: Inguinal ligament.

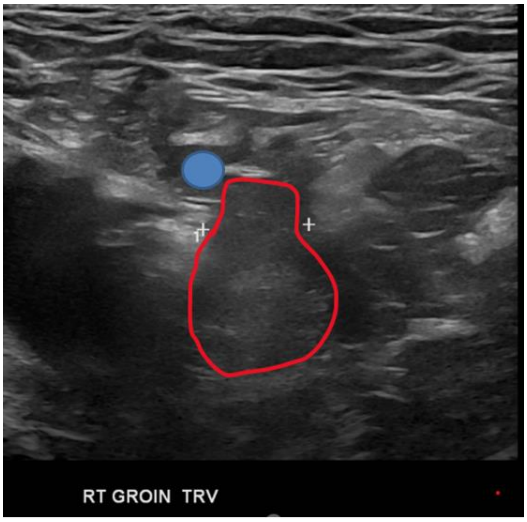


TRANSVERSE IMAGES TO OBTAIN:

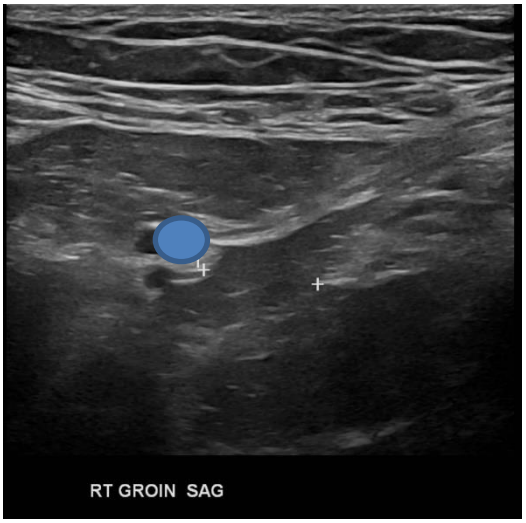
1. At least one cine clip with Valsalva.
2. Measure the neck of any hernia seen.
3. Document location of epigastric vessels with color and its relationship to the defect.

SAGITTAL IMAGES TO OBTAIN:

1. At least one cine clip with Valsalva.
2. Measure the neck of any hernia seen.
3. Document location of epigastric vessels with color and its relationship to the defect.



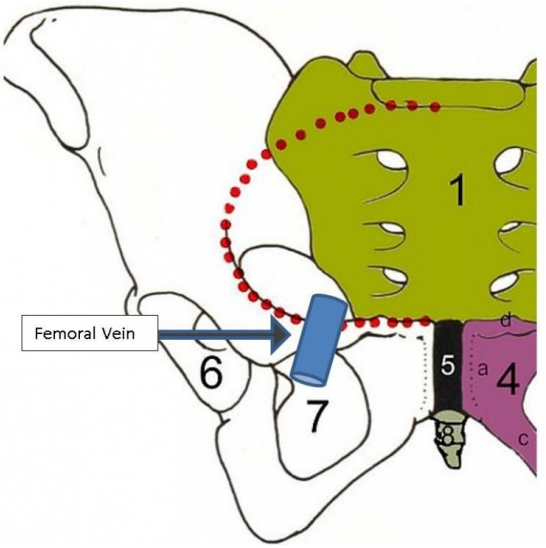
*The direct inguinal hernia (red outline) is located **medial and posterior** to the inferior epigastric vessels in transverse.*



*Sagittal view of neck of direct inguinal hernia during Valsalva. It is **posterior** to the inferior epigastric vessels (blue circle).*

In this image, both an indirect and direct hernias can be seen together in a sagittal view. Indirect (yellow outline) is anterior to the epigastric vessels, direct hernia (red outline) is posterior to the epigastric vessels.

FEMORAL HERNIA DOCUMENTATION:



- A hernia through the femoral canal. Extends at least half way over the superior pubic ramus compressing the femoral vein in the cross sectional view.
- The femoral vein will become compressed on Valsalva if hernia present, it will engorge if no hernia present.

TRANSVERSE IMAGES TO OBTAIN:

1. At least one cine clip with Valsalva.
2. Measure the neck of any hernia seen.

SAGITTAL IMAGES TO OBTAIN: Scan parallel to the medial margin of the femoral vein

1. At least one cine clip with Valsalva.
2. Measure the neck of any hernia seen.

REPEAT ALL GROIN IMAGES IN STANDING POSITION

All inguinal hernia evaluations should include a repeat of images in standing position even if the hernia has already been identified. Evaluate whether the defect changes in size or reducibility while standing.

VENTRAL HERNIA U/S IMAGE LIST

IMAGE	MODE
VENTRAL HERNIAS *Umbilical, epigastric, hypogastric, Spigelian, incisional*	
Transverse 2D area of concern	2D
Transverse cine S-I @ area of concern	Cine
Transverse cine w Valsalva	Cine
Sagittal 2D area of concern	2D
Sagittal cine L-M @ area of concern	Cine
Sagittal cine w Valsalva	Cine
Measure neck of any defect seen	2D+
DIATASIS RECTI	
Transverse cine S-I showing recti and linea alba	Cine
In transverse, measure distance between recti at multiple locations	2D+
Measure any defect in fascia	2D+
Transverse cine clip with Valsalva at any area of concern	Cine
Sagittal cine clip with Valsalva at any area of concern	Cine

GROIN HERNIA U/S IMAGE LIST

IMAGE	MODE
GROIN HERNIAS *Indirect, direct or femoral*	
Transverse cine w Valsalva at inguinal canal	Cine
Sagittal cine w Valsalva at inguinal canal	Cine
Transverse cine clips w Valsalva at inguinal canal with depth increased	Cine
Sagittal cine clips w Valsalva at inguinal canal with depth increased	Cine
Measure the neck of any hernia seen	2D+
Document location of epigastric vessels with color and relationship to the defect	Color
Transverse cine clip w Valsalva at femoral canal	Cine
Sagittal cine w Valsalva at femoral canal	Cine
REPEAT IMAGES IN STANDING POSITION	

HERNIA PROTOCOL HISTORY

	Date	Changes made	By whom
Updated	09/2017	Only indicated side needed on groin hernia evaluation Standing images needed on all groin imaging	Becky Marion
Updated	2/2022	Added measure NECK of hernia, not overall size	Renee Betit Fitzgerald
Updated	8/1/2022	Format changed Images added for better visual No standing needed for ventral hernias	Renee Betit Fitzgerald
Added	11/7/2022	Billing code section added for clarification: UHERNIA is for inguinal and femoral only, it is charged as an extremity, and two should be charged for bilateral. UABDL is for everything else and is an abdomen limited, only one can be charged per exam	Renee Betit Fitzgerald
Reviewed	3/28/2024	Still images removed except for one AOC image for ventral hernias or if obtaining measurements	Protocol Meeting Attendees Dighe, Dhyani, Bornemeier, Marion, Edden, Fitzgerald