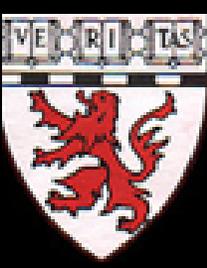




Ventral Abdominal Wall Hernias: What the Surgeon Wants to Know



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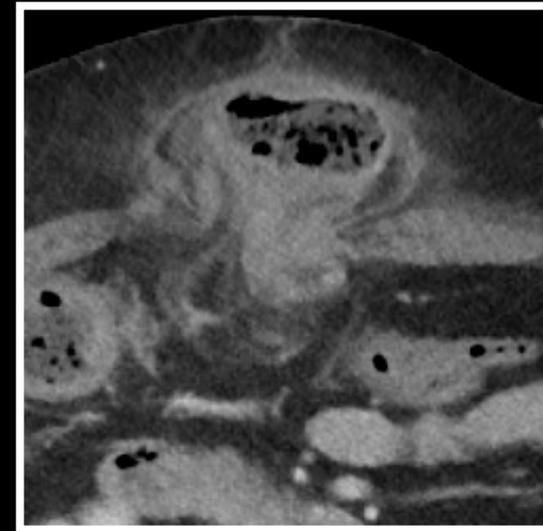
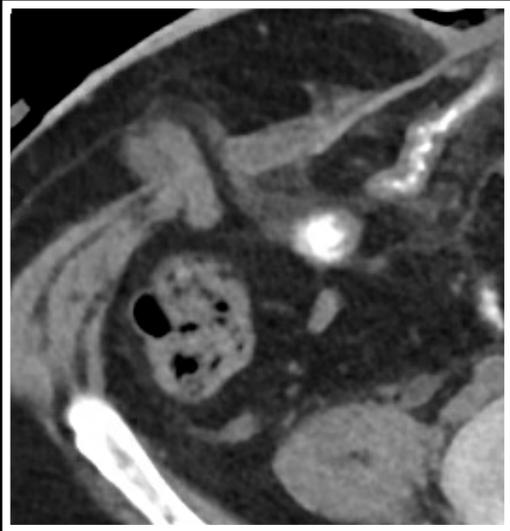
Brigham and Women's Hospital

Target Audience:

Any radiologist or radiology trainee interpreting abdominal CTs

Goals:

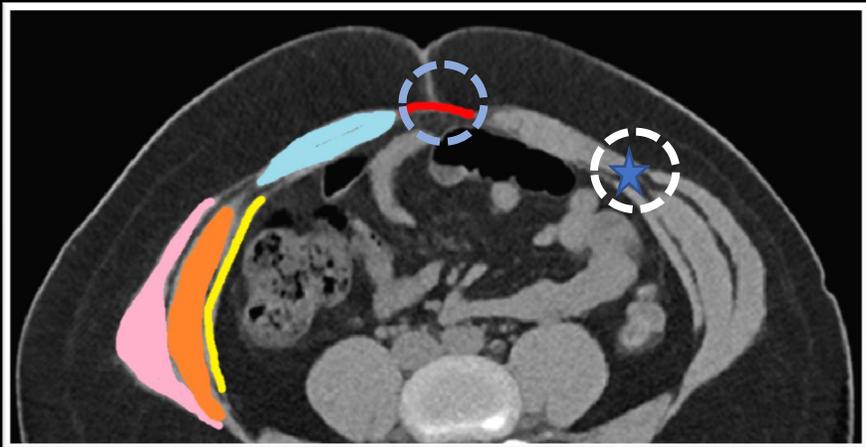
- Anatomy of anterior abdominal wall including potential sites for defects that give rise to hernias
- Types of ventral abdominal wall hernias
- Complications of ventral abdominal wall hernias
- Types of surgeries
- Post surgical complications



Anatomy of Ventral Abdominal Wall with Potential Sites Of Herniation

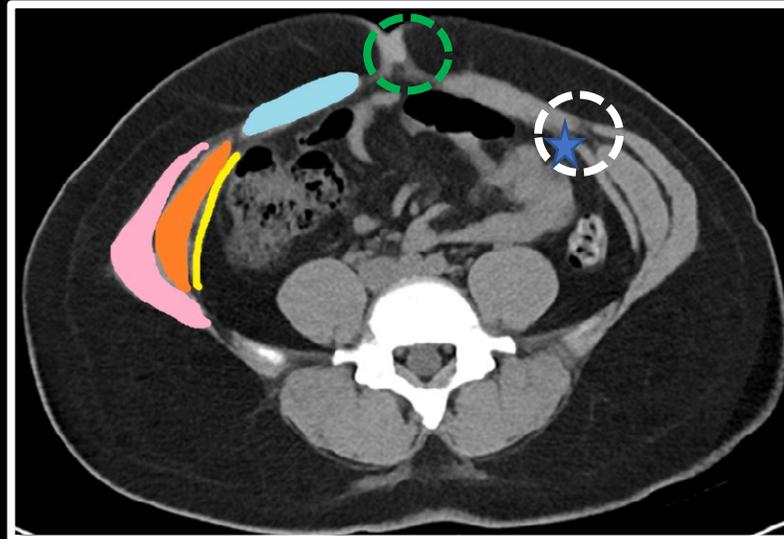
- Herniation of abdominal contents from defect or a point of weakness in the abdominal wall is a ventral abdominal wall hernia.
- Potential sites of herniation include the **umbilicus**, weakness/ defect in **linea alba** which is formed from the fusion of external and internal oblique aponeurosis and at the **semilunar line** which is the line of separation of rectus abdominis from the oblique muscles.

Axial CT of abdominal wall above the arcuate line of Douglas



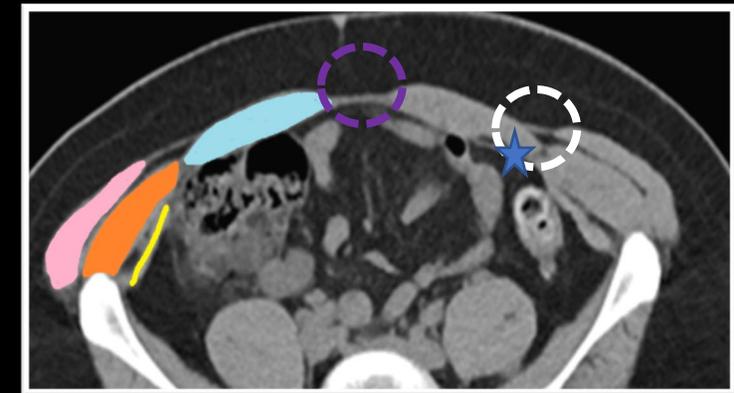
- External Oblique Muscle
- Internal Oblique Muscle
- Transversus abdominis
- Rectus muscle

Axial CT of abdominal wall at the level of umbilicus



- Linea alba
- Semilunar line

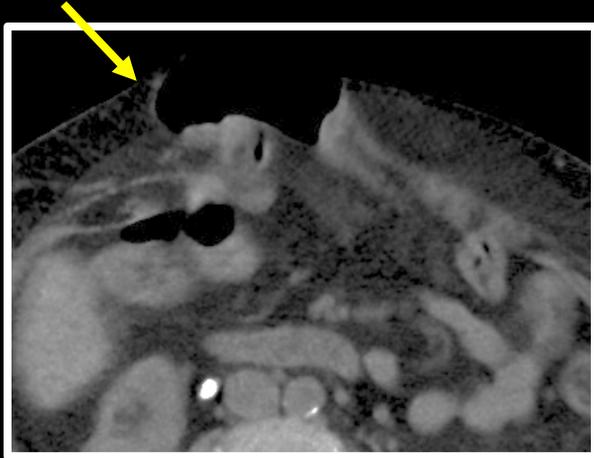
Axial CT of abdominal wall below arcuate line of Douglas



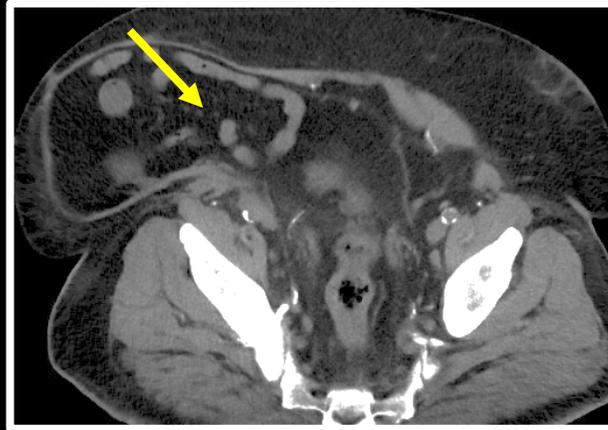
- Umbilical Hernia
- Epigastric Hernia
- Infra-umbilical Hernia
- Spigelian Hernia

Types of Ventral Abdominal Wall Hernias

Epigastric Hernia



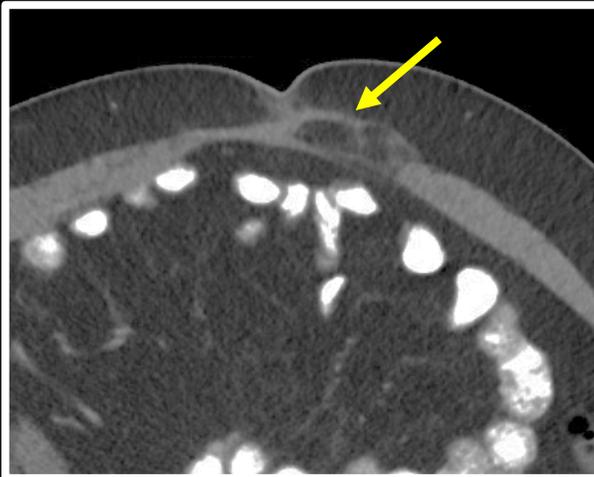
Right Spigelian hernia



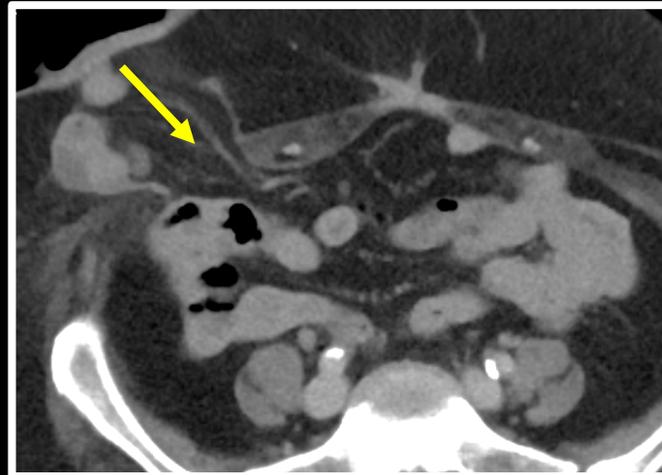
Umbilical Hernia



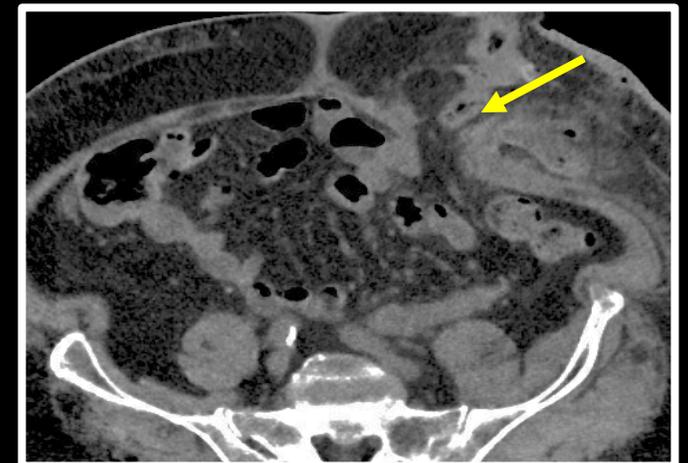
Left Para-umbilical hernia



**Incisional Hernia from
Ileostomy reversal**



Left parastomal hernia



Types of Mesh Repair

On-lay Technique



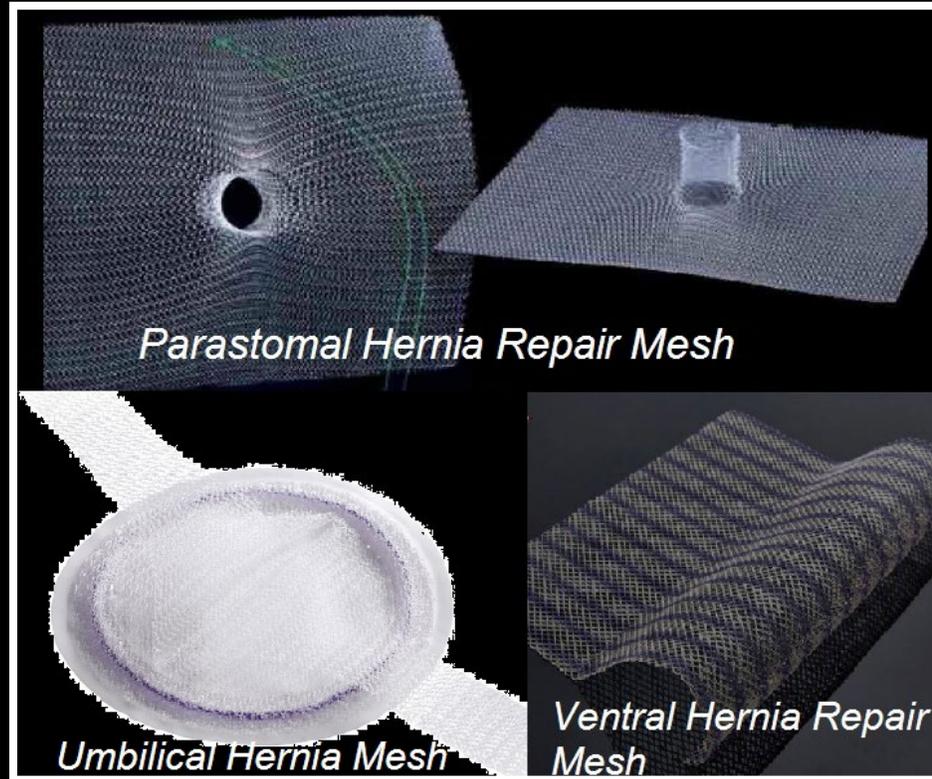
Mesh is placed anterior to the fascia

Sub-lay Technique



Mesh is placed posterior to the fascia

Mesh used in hernia repair



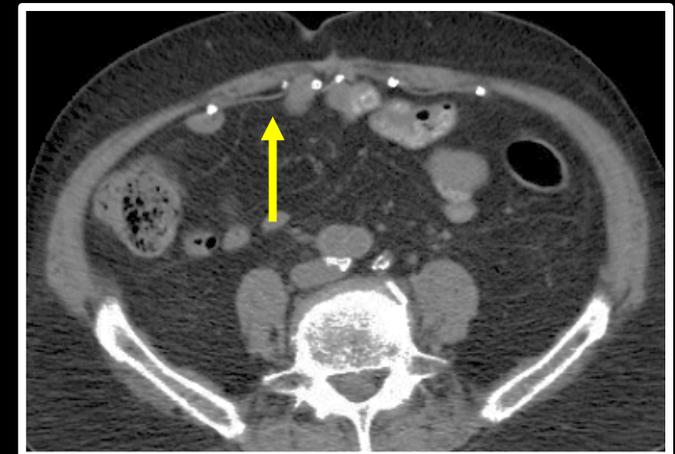
Mesh images courtesy- <https://en.dyna-mesh.com/>

Retro-rectus Repair



Mesh is posterior to rectus muscle and anterior to posterior rectus sheath

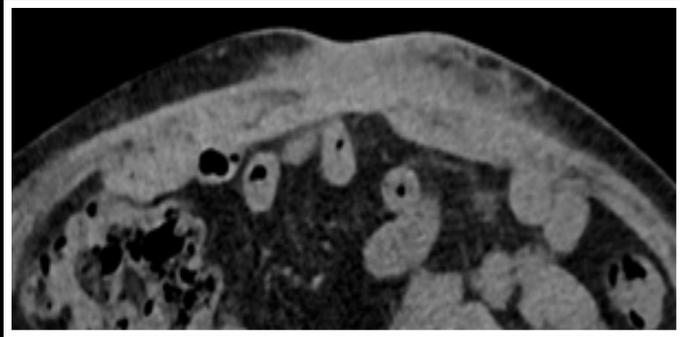
Pre-peritoneal Technique



Mesh is placed posterior to posterior rectus sheath

Complications of Hernia Repair

Site Infection



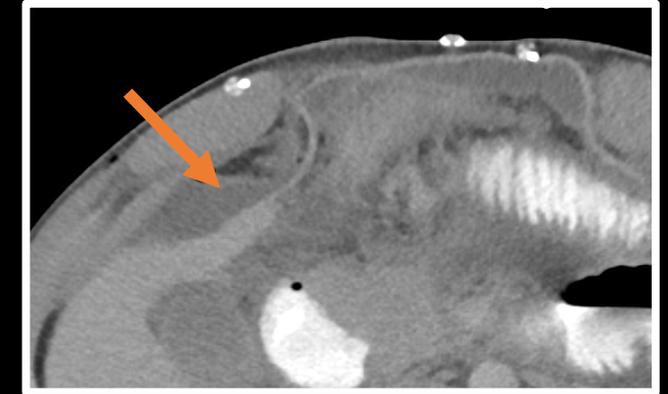
Extensive stranding in the skin and subcutaneous tissues of anterior abdominal wall following **on-lay** technique of repair

Postoperative seroma



Low-density collection after 3 weeks of **sublay** approach of hernia repair consistent with seroma

Abscess



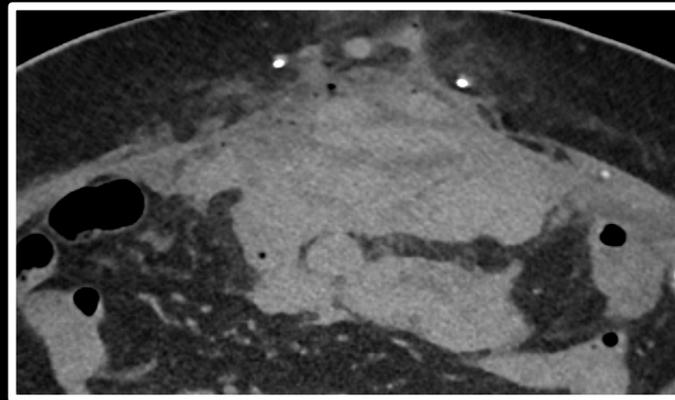
Retro-rectus repair complicated by abscess in right lower quadrant (orange arrow) anterior to the mesh

Enterocutaneous fistula



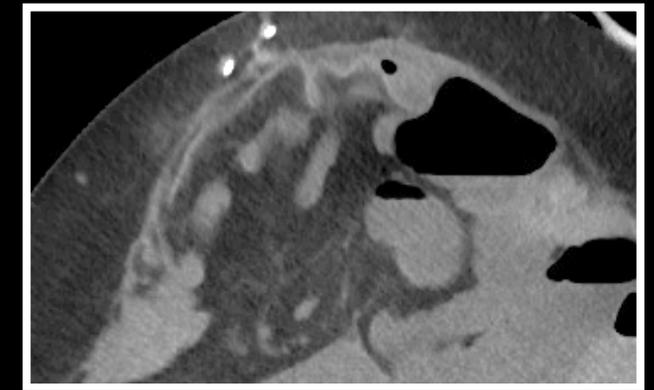
On-lay repair complicated by abscess (orange arrow) posterior to the mesh and enterocutaneous fistula (green arrow)

Hematoma



Sublay approach complicated by hematoma with intraperitoneal extension

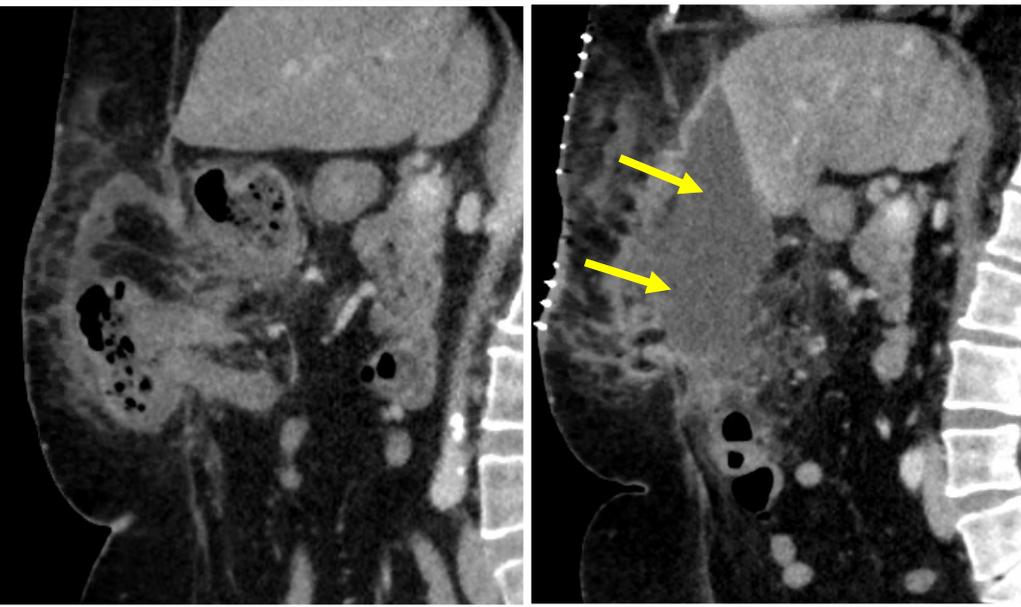
Mesh folding



Sublay technique complicated by folding of mesh and recurrent hernia

Complications of Hernia Repair

Intra-peritoneal abscess



Ventral wall hernia in a 56-year-old woman containing incarcerated bowel loops which was repaired with sublay approach of mesh placement. Post surgical images show large intra-peritoneal abscess (yellow arrows) that developed under the mesh within a week of surgery

Postoperative hematoma with intra-peritoneal extension



Ventral wall hernia in a 73-year-old woman repaired by sublay approach was subsequently complicated by post-operative hematoma (yellow arrows). There was no active bleeding on CT angiogram. IR guided drain was placed to drain the hematoma. Follow up imaging 2 months after drain placement shows mild decrease in the size of collection which is still persistent

Conclusion

There are different approaches of hernia repair associated with specific complications that radiologists need to know.

References

Lacour M, Ridereau Zins C, Casa C, Venara A, Cartier V, Yahya S, Barbieux J, Aubé C. CT findings of complications after abdominal wall repair with prosthetic mesh. *Diagn Interv Imaging*. 2017 Jul - Aug;98(7-8):517-528.