Incarcerated Hernia: X-ray and CT scans evaluate inquinal swelling and long-term swelling in elderly males.

CASE 1: An elderly male patient with long term history of right inquinal swelling presented to emergency department with acute pain in abdomen along with nausea, vomiting, distension of abdomen and increase in swelling and tenderness in right inquinal region. Frontal erect abdominal X-ray shows only two dilated air-fluid level on right side. Air and fecal matter
in colon. In view of history CT scan of abdomen recommended.

Axial CT with contrast images of abdomen shows hugely distended stomach and dilated small bowel.
Continuous axial CT with contrast images of abdomen shows dilated small bowel with right inguinal hernia containing dilated mildly thick wall small bowel and some fluid.
Continuous axial CT with contrast images of abdomen shows right inguinal hernia containing dilated mildly thick wall small bowel and some fluid. Patient has penile prosthesis.

Coronal reformatted images of abdomen shows hugely distended stomach, dilated small bowel and right inguinal hernia containing dilated mildly thick wall small bowel and some fluid represent incarcerated hernia causing small bowel obstruction.
Saggital and coronal reformatted images of abdomen shows hugely distended stomach, dilated small bowel and right inguinal hernia containing dilated mildly thick wall small bowel and some fluid represent incarcerated hernia causing small bowel obstruction. Findings represent incarcerated hernia. Emergency physician informed immediately for further management.

CASE 2: An elderly male patient with previous history of abdominal surgery and long term swelling at the site of surgical scar at left side of lower abdomen and now presented to emergency with acute abdominal pain and distension along with nausea, vomiting and increase in swelling with tenderness at the site of swelling. Supine X-ray abdomen shows dilated small bowel indicating small bowel obstruction.
Erect X-ray abdomen shows multiple dilated air-fluid level in small bowel, indicating small bowel obstruction.
Axial images of CT abdomen with oral and intravenous contrast shows dilated proximal small bowel with defect in left side of abdomen containing omental fat in upper aspect and bowel loop with some fluid and fat stranding in lower aspect, distal bowel loops are not dilated represent incarcerated hernia.
Axial images of CT abdomen with oral and intravenous contrast shows dilated proximal small bowel with defect in left side of abdomen containing omental fat in upper aspect and bowel loop with some fluid and fat stranding in lower aspect with transitional zone, distal bowel loops are not dilated represent incarcerated hernia.
Axial images of CT abdomen with oral and intravenous contrast shows dilated proximal small bowel with defect in left side of abdomen containing omental fat in upper aspect and bowel loop with some fluid and fat stranding in lower aspect with transitional zone, distal bowel loops are not dilated represent incarcerated hernia. Multiple non complicated colonic diverticulum.
Reformatted images of CT abdomen with oral and intravenous contrast shows dilated proximal small bowel with defect in left side of abdomen containing omental fat in upper aspect and bowel loop with some fluid and fat stranding in lower aspect with transitional zone, distal bowel loops are not dilated, no pneumatosis, represent incarcerated hernia. Multiple non complicated colonic diverticulum. Emergency physician informed immediately for further management.

Definition: A hernia is the protrusion of an organ or the fascia of an organ through the wall of the cavity that normally contains it. There are different kinds of hernia, each requiring a specific management or treatment.

Anatomic locations for various hernias:
Indirect hernia — An indirect inguinal hernia follows the tract through the inguinal canal. This results from a persistent process vaginalis. The inguinal canal begins in the intra-abdominal cavity at the internal inguinal ring, located approximately midway between the pubic symphysis and the anterior iliac spine. The canal courses down along the inguinal ligament to the external ring, located medial to the inferior epigastric arteries, subcutaneously and slightly above the pubic tubercle. Contents of this hernia then follow the tract of the testicle down into the scrotal sac.

Direct hernia — A direct inguinal hernia usually occurs due to a defect or weakness in the transversalis fascia area of the Hesselbach triangle. The triangle is defined inferiorly by the inguinal ligament, laterally by the inferior epigastric arteries, and medially by the conjoined tendon.

Femoral hernia — The femoral hernia follows the tract below the inguinal ligament through the femoral canal. The canal lies medial to the femoral vein and lateral to the lacunar (Gimbernat) ligament. Because femoral hernias protrude through such a small defined space, they frequently become incarcerated or strangulated.

Umbilical hernia — The umbilical hernia occurs through the umbilical fibromuscular ring, which usually obliterates by 2 years of age. They are congenital in origin and are repaired if they persist in children older than age 2 to 4 years.

Richter hernia — The Richter hernia occurs when only the antimesenteric border of the bowel herniates through the fascial defect. The Richter hernia involves only a portion of the circumference of the bowel. As such, the bowel may not be obstructed, even if the hernia is incarcerated or strangulated, and the patient may not present with vomiting. The Richter hernia can occur with any of the various abdominal hernias and is particularly dangerous, as a portion of strangulated bowel...
may be reduced unknowingly into the abdominal cavity, leading to perforation and peritonitis.

Incarcerated hernia — This iatrogenic hernia occurs in 2 percent to 10 percent of all abdominal operations secondary to breakdown of the fascial closure of prior surgery. Even after repair, recurrence rates approach 20 percent to 45 percent.

Incarcerated hernia

Spigelian hernia — This rare form of abdominal wall hernia occurs through a defect in the spigelian fascia, which is defined by the lateral edge of the rectus muscle at the semilunar line (costal arch to the pubic tubercle) The two subtypes are interstitial and subcutaneous, which are best defined using CT and assist with optimizing the surgical approach when indicated.

Obstructed hernia — This hernia passes through the obturator foramen, following the path of the obturator nerves and muscles. Obturator hernias occur with a female-to-male ratio of 6:1, because of a gender-specific larger canal diameter and predominately in the elderly. Because of its anatomic position, this hernia presents more commonly as a bowel obstruction than as a protrusion of bowel contents.

Hernia symptoms and signs: The signs and symptoms of a hernia can range from noticing a painless lump to the severely painful, tender, swollen protrusion of tissue that you are unable to push back into the abdomen (an incarcerated strangulated hernia).

Reducible hernia
- It may appear as a new lump in the groin or other abdominal area.
- It may ache but is not tender when touched.
- Sometimes pain precedes the discovery of the lump.
- The lump increases in size when standing or when abdominal pressure is increased (such as coughing).
- It may be reduced (pushed back into the abdomen) unless very large.

Irreducible hernia
- It may be an occasionally painful enlargement of a previously reducible hernia that cannot be returned into the abdominal cavity on its own or when you push it.
- Some may be chronic (occur over a long term) without pain.
- An irreducible hernia is also known as an incarcerated hernia.
- It can lead to strangulation (blood supply being cut off to tissue in the hernia).
- Signs and symptoms of bowel obstruction may occur, such as nausea and vomiting.

Strangulated hernia
- This is an irreducible hernia in which the entrapped intestine has its blood supply cut off.
- Pain is always present, followed quickly by tenderness and sometimes symptoms of bowel obstruction (nausea and vomiting).
- The affected person may appear ill with or without fever.
- This condition is a surgical emergency.

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