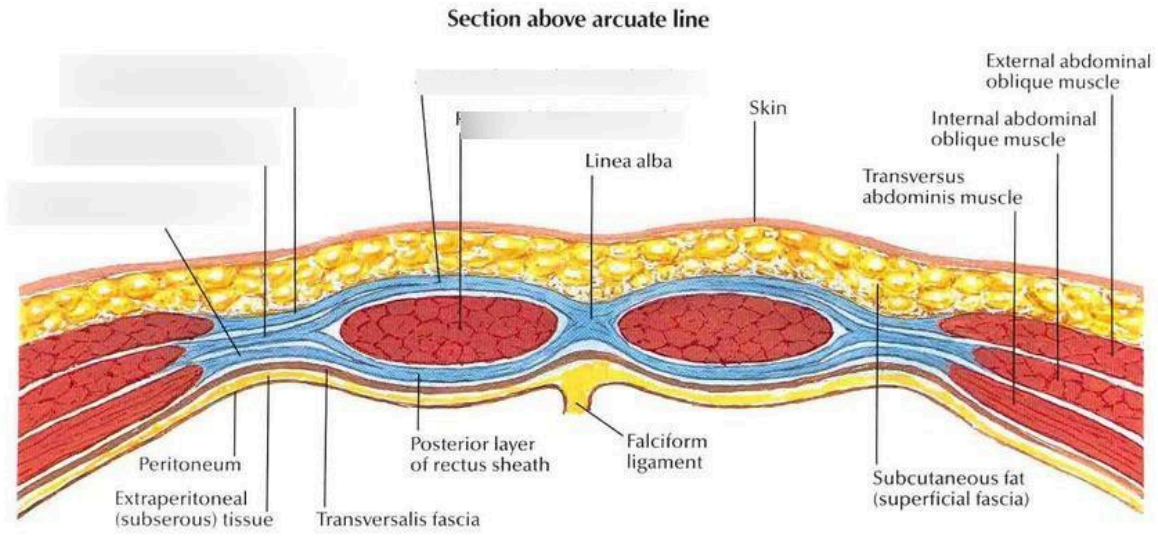
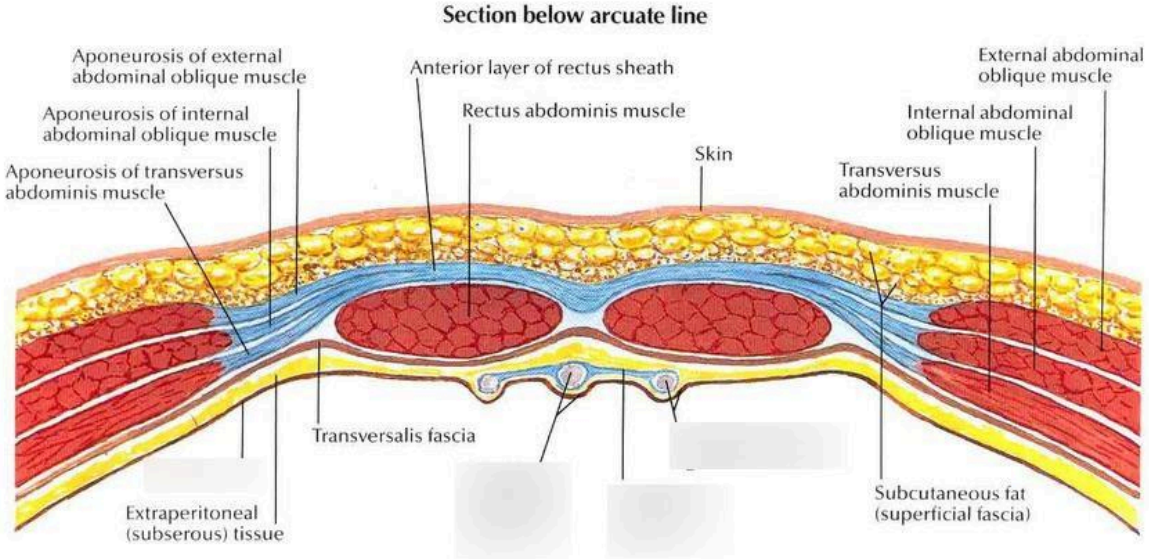
Rectus sheath — formation and contents

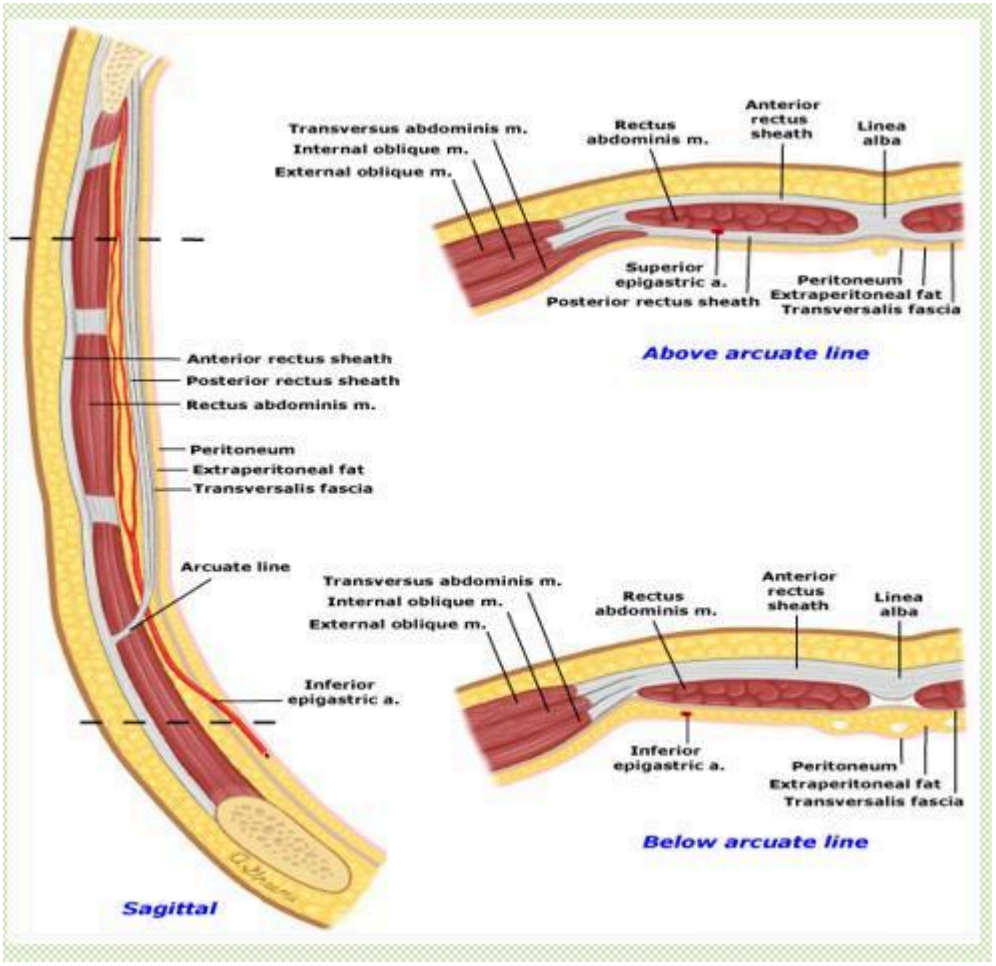
The **rectus sheath** is a strong fibrous sheath formed by the aponeuroses of the **external oblique, internal oblique and transversus abdominis**. It encloses the rectus abdominis and pyramidalis and contains important vessels and nerves.

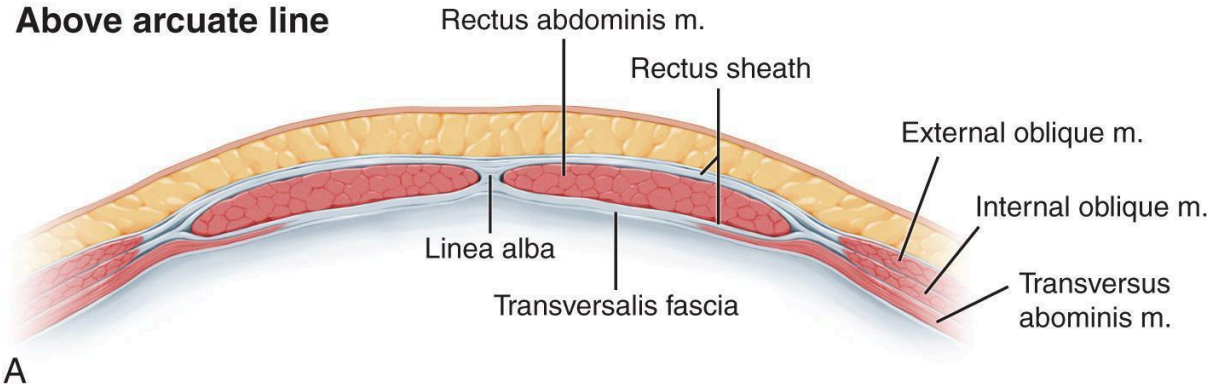


Aponeurosis of internal abdominal oblique muscle splits to form anterior and posterior layers of rectus sheath. Aponeurosis of external abdominal oblique muscle joins anterior layer of sheath; aponeurosis of transversus abdominis muscle joins posterior layer. Anterior and posterior layers of rectus sheath unite medially to form linea alba

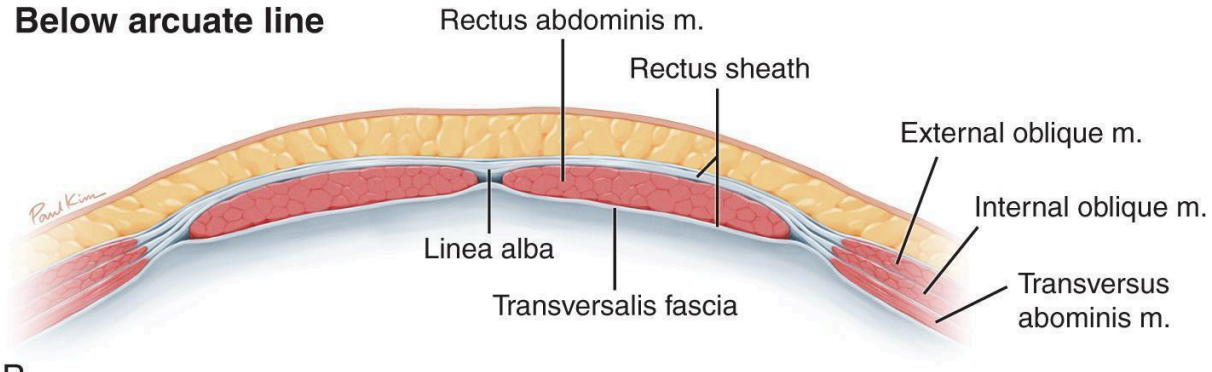


Aponeurosis of internal abdominal oblique muscle does not split at this level but passes completely anterior to rectus abdominis muscle and is fused there with both aponeurosis of external abdominal oblique muscle and that of transversus abdominis muscle. Thus posterior wall of rectus sheath is absent below arcuate line and rectus abdominis muscle lies on transversalis fascia

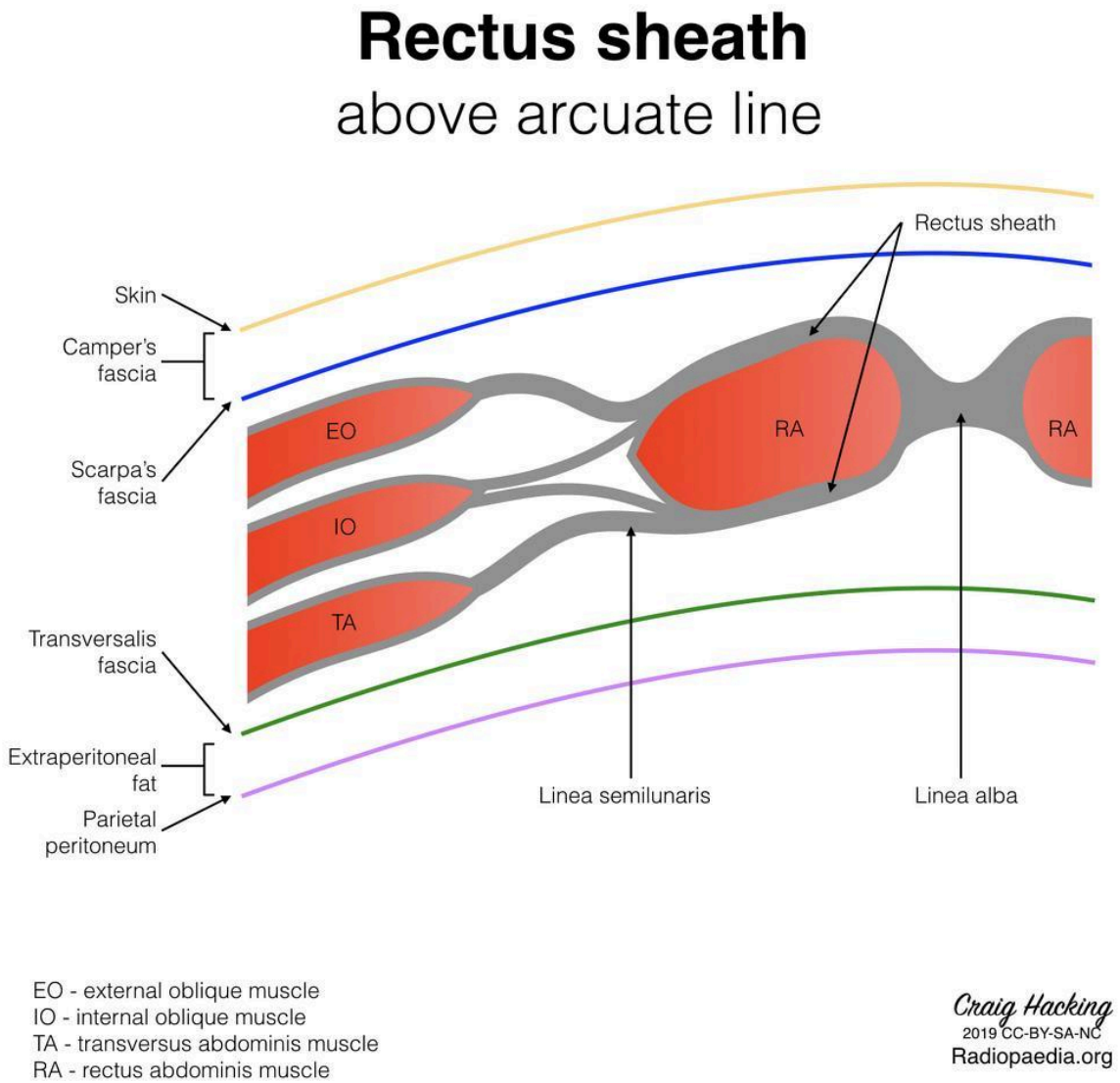

Transversus abdominis m.
Internal oblique m.
External oblique m.
Rectus abdominis m.
Anterior rectus sheath
Linea alba
Superior epigastric a.
Posterior rectus sheath
Peritoneum
Extraperitoneal fat
Transversalis fascia
Above arcuate line
Anterior rectus sheath
Posterior rectus sheath
Rectus abdominis m.
Peritoneum
Extraperitoneal fat
Transversalis fascia
Arcuate line
Inferior epigastric a.
Transversus abdominis m.
Internal oblique m.
External oblique m.
Rectus abdominis m.
Anterior rectus sheath
Linea alba
Inferior epigastric a.
Peritoneum
Extraperitoneal fat
Transversalis fascia
Below arcuate line
Sagittal


Above arcuate line
Rectus abdominis m.
Rectus sheath
External oblique m.
Internal oblique m.
Linea alba
Transversalis fascia
Transversus abominis m.

A


Below arcuate line
Rectus abdominis m.
Rectus sheath
External oblique m.
Internal oblique m.
Linea alba
Transversalis fascia
Transversus abominis m.

B



1. Formation of the rectus sheath

The arrangement differs **above and below the arcuate line**.

A. Above the arcuate line

The **internal oblique aponeurosis splits into two laminae**:

- **Anterior lamina** → passes anterior to rectus abdominis and joins the external oblique aponeurosis.
- **Posterior lamina** → passes posterior to rectus abdominis and joins the transversus abdominis aponeurosis.

Therefore:

Anterior wall
→ External oblique aponeurosis + anterior lamina of internal oblique

Posterior wall
→ Posterior lamina of internal oblique + transversus abdominis aponeurosis

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B. Below the arcuate line

All three aponeuroses pass **anterior to rectus abdominis**:

- External oblique
- Internal oblique
- Transversus abdominis

Thus, below the arcuate line there is **no true posterior rectus sheath**.

Posterior to rectus are:

Transversalis fascia → extraperitoneal tissue → parietal peritoneum

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2. Arcuate line

- Also called **semicircular line of Douglas**.
- Marks the point below which the posterior wall of the rectus sheath disappears.
- Located approximately midway between the umbilicus and pubic symphysis, but its position is variable.

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3. Medial formation

The aponeuroses of the three flat abdominal muscles meet in the midline to form the:

Linea alba

- Extends from **xiphoid process to pubic symphysis**.
- The two rectus sheaths are united at the midline by the linea alba.

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4. Lateral boundary

The lateral margin of the rectus sheath forms the:

Linea semilunaris

- Curved line corresponding approximately to the **lateral border of rectus abdominis**.
- Extends from the costal margin toward the pubic region.

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5. Contents of rectus sheath

The sheath contains:

Muscles

1. **Rectus abdominis**
2. **Pyramidalis** — usually present inferiorly

Arteries

3. **Superior epigastric artery**
4. **Inferior epigastric artery**

These vessels anastomose within the sheath.

Veins

5. **Superior epigastric vein**
6. **Inferior epigastric vein**

Nerves

7. Terminal branches of **thoracoabdominal nerves T7–T11**
8. **Subcostal nerve T12**

These nerves supply rectus abdominis and the overlying skin.

Lymphatics

9. Lymphatic vessels accompanying the neurovascular structures.

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6. Important cross-section

Above arcuate line

Skin
↓
Superficial fascia
↓
Anterior rectus sheath
 ├─ External oblique aponeurosis
 └─ Anterior lamina of internal oblique
↓
RECTUS ABDOMINIS
↓
Posterior rectus sheath
 ├─ Posterior lamina of internal oblique
 └─ Transversus abdominis aponeurosis
↓
Transversalis fascia
↓
Extraperitoneal tissue
↓
Parietal peritoneum

Below arcuate line

Skin
↓
Superficial fascia
↓
All 3 aponeuroses
 ├─ External oblique
 ├─ Internal oblique
 └─ Transversus abdominis
↓
RECTUS ABDOMINIS
↓
Transversalis fascia
↓
Extraperitoneal tissue
↓
Parietal peritoneum

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7. Clinical importance

1. Epigastric hernia

Weakness/defect in the **linea alba**, usually above the umbilicus.

2. Rectus sheath haematoma

Injury to the **superior or inferior epigastric vessels** may cause bleeding within the rectus sheath.

3. Surgical incisions

The rectus sheath is important in abdominal surgical approaches.

4. Inferior epigastric vessels

They are an important landmark in **inguinal hernia**:

- **Direct hernia** → **medial** to inferior epigastric vessels
- **Indirect hernia** → **lateral** to inferior epigastric vessels

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⭐ Viva answer in one minute

“The rectus sheath is formed by the aponeuroses of external oblique, internal oblique and transversus abdominis. Above the arcuate line, the internal oblique splits into anterior and posterior laminae, with the anterior lamina joining external oblique and posterior lamina joining transversus. Below the arcuate line, all three aponeuroses pass anterior to rectus, leaving only transversalis fascia posteriorly. The sheath contains rectus abdominis, pyramidalis, superior and inferior epigastric vessels, thoracoabdominal nerves T7–T11 and subcostal nerve.”