



Fetal Movement in the Anterior Placenta

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ABSTRACT

The blood supply of the anterior abdominal wall is done separately for deep and superficial sections. Blood supply to the skin and subcutaneous tissue is carried out from the cutaneous branches of the superior epigastric artery (exit from the internal thoracic artery) and the terminal branches of pairs of 7 to 12 intercostal arteries. The lower parts of the skin and subcutaneous tissue of the abdomen are supplied by three subcutaneous arteries (from the femoral arterial system) that are located in the ascending and medial directions, anastomose with the arteries (superior epigastric, intercostal, internal sand) which comes out of the upper basin. Blood supply to the deep parts of the anterior abdominal wall occurs due to the inferior and deep epigastric arteries (starting from the external iliac). The most bleeding occurs when the branches of the inferior epigastric artery occur during incisions of the abdominal wall according to Chermi or according to Pfannenstil when passing the incision through the lower edge of the rectus muscle and others. The sinking of the anterior abdominal wall varies with the segment. Its upper parts are attracted by intercostal nerves (pair 7-12). The ilio-hypogastric and ilio-inguinal nerves, arising from the lumbar pelvis, provide innervation to the medial abdominal wall. Its lower parts are innervated by the external sciatic nerve (genital branch of the genital nerve). Depending on which part of the abdominal wall is cut, the branches of these nerves are damaged.

Introduction

The anterior wall of the abdomen has the following layers: Skin, subcutaneous fat tissue, superficial fascia and itself, muscles, transverse fascia, pre peritoneal tissue, parietal peritoneum [1].

The superficial fascia (fascia propria abdominis) consists of two plates. The surface layer is transferred to the thigh without connecting to the inguinal ligament. The deep leaf of the fascia is better expressed in the hypogastric region and contains more fibers. A deep sheet is attached to the inguinal ligament, which should be considered during inguinal hernia surgery (suture of the subcutaneous tissue by taking a deep sheet of fascia as an anatomic support tissue) [2].

The abdominal muscle (fascia propria abdominis) covers the external liquid muscle and its aponeurosis.

The intrinsic fascia approaches and attaches to the inguinal ligament. This is an anatomical barrier to lower the inguinal hernia below the inguinal ligament and also prevents the femoral hernia from moving upward. In children and women, a certain leaf of the special fascia is sometimes removed during surgery to aponeurose the external fluid of the abdomen [3].

Blood supply to the abdominal wall is provided by the vessels of the superficial and deep systems. In connection with the anatomical direction of blood vessels, each of them is divided into longitudinal and transverse. Longitudinal level system: A. inferior epigastrica, which leaves the femoral artery and epigastrica superior super-ficialis, which is a branch of a. Inland Turasia [4].

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These vessels anastomose around the navel. Transverse surface blood supply system: rami perforantes (from 6 inter cortical arteries and 4 lumbar arteries), which move segmentally posteriorly and anteriorly, a. circumflexa ilium superficialis, runs parallel to the inguinal ligament to the anterior superior spina ossis ilii on both sides. Deep blood supply to the abdominal wall: Longitudinal - a. epigastrica superior, which is the continuation of a. thoracica interna, - located behind the rectus muscle [5].

The deep transverse system - six lower and 4 lumbar arteries - is located between the medial and transverse musculature. Venous outflow is carried out through the veins of the same name, and a connection is established between the axillary vein system and the femur. Abdominal flat vessels anastomose in the navel with depth (vv. Epigastricae superior et inferior) [6].

The innervation of the anterior abdominal wall (its surface layers) is provided by six inter cortical nerves that run between the internal and transverse smooth muscles. Cutaneous branches are distributed in the lateral and anterior part, and the first part passes over the oblique and the second part over the rectus abdominis muscles. In the lower abdominal wall, innervation is provided by the iliohypogastric nerve (the case of the iliohypo-gastricus) and the ilio-inguinal nerve (the case of the ilioinguinalis). The lymphatic system of the anterior abdominal wall consists of superficial and deep lymphatic vessels. The superficial veins of the upper abdominal wall flow in the axillary lymph nodes, the lower part - to the inguinal nodes [7].

In abdominal wall hernia surgery of different locations, the surgeon considers the access point of the vessels and nerves for complete anatomical access, cutting muscle-aponeurotic flaps for plastic with the aim of minimizing their damage to ensure the best recovery and prevent recurrence [8].

The muscle mass of the anterior abdominal wall consists of three layers. In each half of the abdominal wall, there are three broad muscles (m. obliquus abdominis externus et internus, t. transversus) and one rectus muscle, which determine the balance of the abdominal wall, its resistance to intra-abdominal pressure. These muscles are connected by aponeurotic elements and sewers that support the anatomical connection of both sides.

The external oblique muscle (m. Obliquus externus) is covered by its abdominal fascia. The lower edge of the aponeurosis of the external oblique muscle forms the inguinal ligament, which is located between the anterior superior iliac spine and the tube of the gland [9].

The aponeurosis of the external fluid muscle is transferred to the rectus muscle and forms the anterior wall of the vagina. It should be noted that the fibers of the aponeurosis of the external oblique muscle cross each other with the fibers of the opposite side along the white line. Anatomical connection, which is very important for strengthening the groin area, which is located in the vicinity of the femoral triangle, is carried out by the continuation of the aponeurosis tendon fibers to form two ligaments - lacunar (lig. lacunare s. Gimbernati) and twisted ligaments (lig. reflexum) be woven simultaneously to the anterior wall of the rectus sheath [10-12].

These anatomical connections are considered appropriate in inguinal and femoral hernia operations. The fibers of the aponeurosis of the external oblique muscle in the iliac canal form two legs of the superficial anguinal ring (eras mediate et laterale), through the cracks through which the cutaneous branch of the ilio-hypogastric nerve and the terminal branches of the ilio-inguinal nerve pass through the skin. Places in the upper and lower finger area. The internal oblique muscle is separated from the external oblique muscle by the first muscular plate of the joints. This muscle is the most advanced muscle of the abdominal wall. Its lower bundles are directed downward and inward parallel to the inguinal ligament [13].

Among the internal and transverse oblique muscles, there are bundles that form a muscle that raises the testicle (m. cremaster) and passing through the spermatic cord in the form of cremasterica fascia (mascada). The muscle that lifts the testicle also includes transverse muscle fibers. As an anatomical layer, the transverse abdominis joint muscle separates the internal fluid muscle from the transverse. On the front surface of the transverse muscle, nn is located. intercostales (VII-XII), n. iliohypogastricus, n. ilioinguinalis, internalization of the lateral and anterior walls of the abdomen and further passage into the sheath of the rectus muscle and the thickness of the muscles (Figure 1).

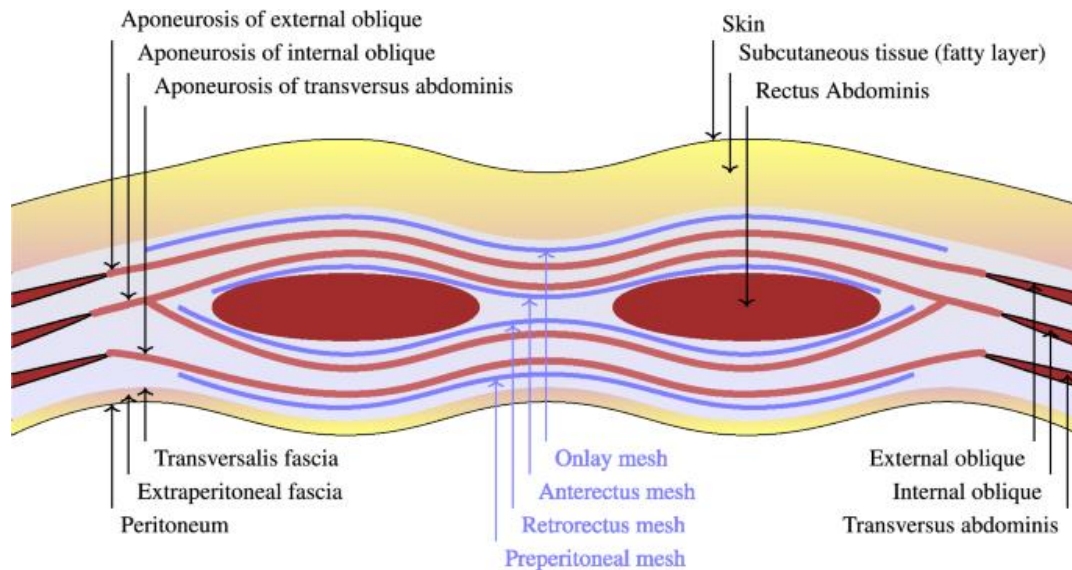


Figure 1. Biomechanical stability of hernia-damaged abdominal walls

The marked location of the nerve trunks on the anterior abdominal wall provides effective anesthesia of the anterior half of the abdominal wall, which is especially important in major procedures for recurrent hernias and incisions [14].

Transverse fascia (fascia transversalis) is adjacent to the posterior surface of the transverse muscle. The anatomical density of this fascia and its thickness are closer to the inguinal ligament and the outer edge of the rectus muscle. The transverse fascia is attached to the aponeurotic stretch of the internal and transverse oblique muscles and is intertwined with them by fibers. The importance of this mutual support link is very important for the normal ratios of the respective area. These data are used by surgeons when performing operations based on anatomical and physiological basis, and all possibilities are used to normalize the newly created anatomical reinforcement layers [15-17].

The transverse fascia is a part of the endo abdominal fascia, where separate areas are defined that determine the anatomical proximity of this fascia to different areas of the abdominal wall (umbilical fascia, rectus fascia), in the rectus muscles (iliac fascia). Behind the transverse fascia, the pre peritoneal tissue, the pre peritoneal fat layer (stratum adiposum praeperitonealis) is located, which separates the transverse fascia from the peritoneum. During surgery for abdominal wall hernia, the hernial sac forms on the transverse fascia itself with the pre peritoneal fat layer. These fat deposits are better expressed in the lower part of the abdomen and are placed in the tissue after the operation, which the surgeon encounters in hernias of the joints, femur, and urethra [18-20].

In abdominal wall hernia surgery in the lower part of the abdomen, the transverse fascia can be separated as a rest, in the upper half of the abdominal wall, a weak pre peritoneal fat layer is created and the peritoneum is separated from the transverse

fascia with difficulty. Fascia separation problems are observed in the deep (inner) inguinal ring and in the navel area [21-23].

Rectus abdominis muscles. The anterior vaginal wall of the rectus abdominis muscle (vagina m. Recti abdominis) is formed by the aponeuroses of the external and internal oblique muscles, in the lower third - by the aponeuroses of all three muscles (external oblique, internal and transverse) in the upper two thirds. The posterior wall of the rectus sheath in the upper two thirds is formed by the aponeurosis sheets of the internal and transverse muscles. In the lower third, the rectus muscle is adjacent to the transverse and peritoneal fascia, which are separated by the pre peritoneal fat layer.

What is the anterior pair?

The placenta is an organ that connects the developing fetus to the wall of the mother's uterus and delivers nutrients to it. The placenta is responsible for regulating heat, removing waste materials, and delivering oxygen from the mother's blood to the fetus. The placenta also fights internal infections and helps produce hormones to protect pregnancy. The placenta is embedded in the wall of the uterus and is located above, below or around the uterus. But the way the placenta is placed is not always like that and sometimes the situation is a little different [24-26].

The anterior placenta is formed when the position of the fetus is in the front wall of the uterus. Fertilized eggs usually implant in the back of the uterus, which is close to the spine. But in some cases, egg implantation is done on the opposite side, that is, the front wall of the uterus and close to the abdomen. In this case, the placenta grows in front of the uterus and the fetus is placed behind it. The anterior placenta is identified in ultrasound with the English name: Anterior placenta [27].

Usually, the position of the placenta can be detected in the ultrasound of the 20th week of pregnancy. The sonographer or gynecologist describes the position of the placenta in one of the following situations:

- Anterior - in front of the uterus;
- Posterior - behind the uterus;
- Fundal - at the top of the uterus;
- Right or left lateral - on the right or left side of the uterus.

All these positions are normal and normal for the pair [28].

Risks of anterior placenta

It does not matter what position and where the fetus is in the uterus, but the position of the placenta can have complications. Placing the placenta in the anterior and front position of the abdomen does not pose any risk to the mother and the fetus, but it may cause the following complications:

1. You can hardly feel the movements of the fetus.

Because the anterior placenta acts as a barrier between the fetus and the uterus, the mother cannot feel the movements of the fetus during the different

weeks of pregnancy. Even in the second trimester of pregnancy, the anterior placenta acts like a shield and does not allow you to feel the kicking of the fetus and its strong blows [29-31].

2. It becomes difficult to hear the heartbeat of the fetus.

If the placenta is anterior, it will be difficult for the doctor or midwife to hear the fetal heartbeat. But it does not interfere with ultrasounds or in determining the gender of the fetus [32].

3. Disturbance in medical procedures.

The placement of the placenta interferes with the amniocentesis test. If your fetus is in the transverse or breech position and the placenta is in the anterior position, you will face problems. Usually, in late pregnancy, the placenta may return to a posterior position (behind the uterus). If this happens, all the issues we mentioned above will be solved. Despite all the above problems, placenta previa does not pose any risk to the health of the mother and the fetus (Figure 2).

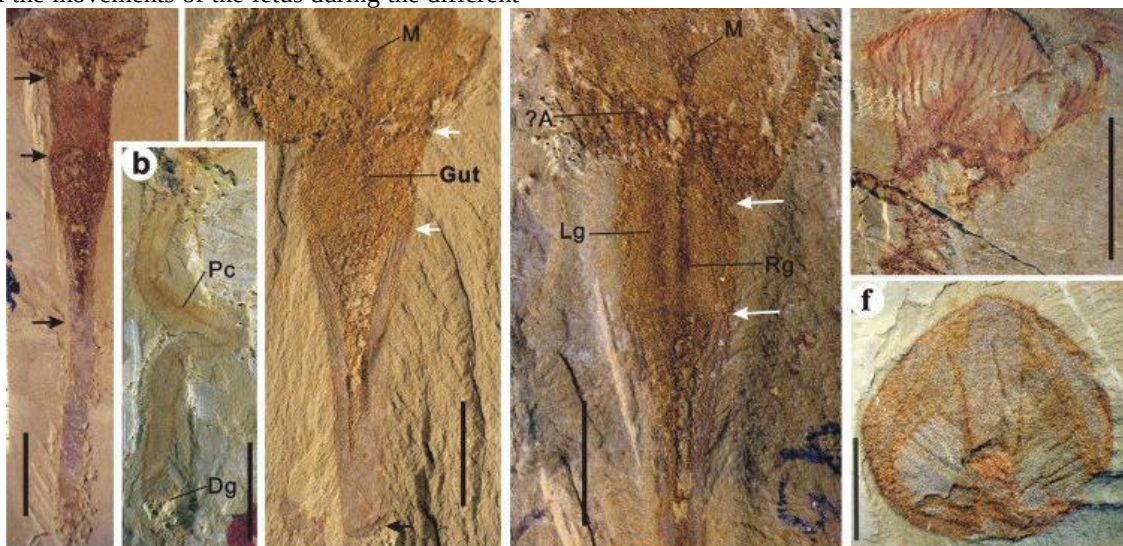


Figure 2. Arrows point to the borders between the anterior pair of valves

Anterior placenta and fetal sex

Some believe that the position of the placenta in the uterus is related to the sex of the fetus, but this hypothesis has not been proven yet. However, the number of female babies in pregnancies with anterior placenta is more. Remember that the placement of the placenta has no effect on the development of the baby [33-35].

The exact time when the mother can feel the movements of the fetus for the first time depends on the position of the placenta. Usually, expectant mothers feel fetal movements around the 22nd week of pregnancy. Pregnant mothers who have an anterior placenta can feel the movements of the fetus a little later than this time. But if you do not feel the beats and movements of the fetus until the end of the

24th week of pregnancy, it is better to contact the doctor. But during the following weeks, the movements of the fetus increase and the mother can count the kicks of the fetus and even recognize the time schedule of her movement and sleep [36].

Anterior placenta and caesarean section

If your previous delivery was by cesarean section, there is a possibility that the placenta will grow at the site of the wound and the uterine wall. This condition is rare, but ultrasound and MRI can detect it. According to the findings of a research, anterior placenta can cause certain complications such as gestational diabetes, uterine contractions, intrauterine growth restriction, and pregnancy blood pressure [37].

Anterior placenta and normal delivery

If the placenta remains in the same position in the front and in front of the uterus until the 40th week of pregnancy and does not create any obstacle to the cervix, a natural birth can be performed and there is no need for a cesarean section, but in a handful of cases, the placenta is completely or partially in the cervix covers that in this case cesarean section is mandatory [38].

Facts about the anterior placenta

- Babies born with an anterior placenta have a higher birth weight than others.
- In the anterior placenta, the probability of the birth of a female baby is higher.
- Although the anterior placenta does not pose any risk to pregnancy, research indicates that the position of the placenta can increase the possibility of high blood pressure in pregnancy, placental abruption, gestational diabetes, slow fetal growth, and even fetal death [39].
- The possibility of placenta previa is more likely in mothers with O+ blood group.
- Mother's sleeping position during sperm implantation affects the position of the placenta.
- The probability of induction of labor and cesarean section is higher in the anterior placenta.
- An anterior placenta delays the start of the active phase of natural labor [40].
- An anterior placenta increases the risk of postpartum complications such as postpartum hemorrhage (PPH) in normal delivery.

Blood supply to the rectus abdominis muscles

1 - External iliac artery; 2 - Lower epigastric artery; 3 - Ligament around the uterus; 4 - Internal chest artery; 5 - Navel; 6 - Fold of the umbilical cord; 7 - Middle navel level.

Immediately after leaving the iliaca externa a. epigastrica inferior junction with the distal ligament enters the inguinal canal. internal sign a. inferior epigastric - pl. umbilicalis lat in which this artery is associated with the veins of the same name.

Internally, the muscular layer of the anterior abdominal wall is lined with a transverse fascia that passes from above to the diaphragm and then to the m. The iliopsoas is the anterior part of the lumbar spine and sinks further into the pelvis. Transverse fascia is considered part of the connective tissue layer that is the foundation for the peritoneum. Between the transverse fascia and the peritoneum, there is pre peritoneal tissue, a layer of which grows downward and is transferred to the parietal tissue of the pelvis. Thus, the parietal peritoneum covering the inner part of the anterior abdominal wall is weak with the underlying layers, except for the umbilical ring, and there it is weak with the transverse fascia and the fascia of the white line of the abdomen in an area 3-4 cm in diameter [41].

Where is the lower limb?

The structure of the human body consists of various organs, almost all of which are placed in a bilateral symmetry. To better examine the tissue structure and function of these organs, we divide the body into several main anatomical regions. The head and neck region, trunk, upper limbs and lower limbs are the four main anatomical regions in the human body, which have different types of muscle, fat, nerve, and bone tissues and their appearance (morphology). In addition to the general division, each of these organs is classified into "Anterior", "Posterior", "Lateral", "Superior" and "Inferior" parts (Figure 3).

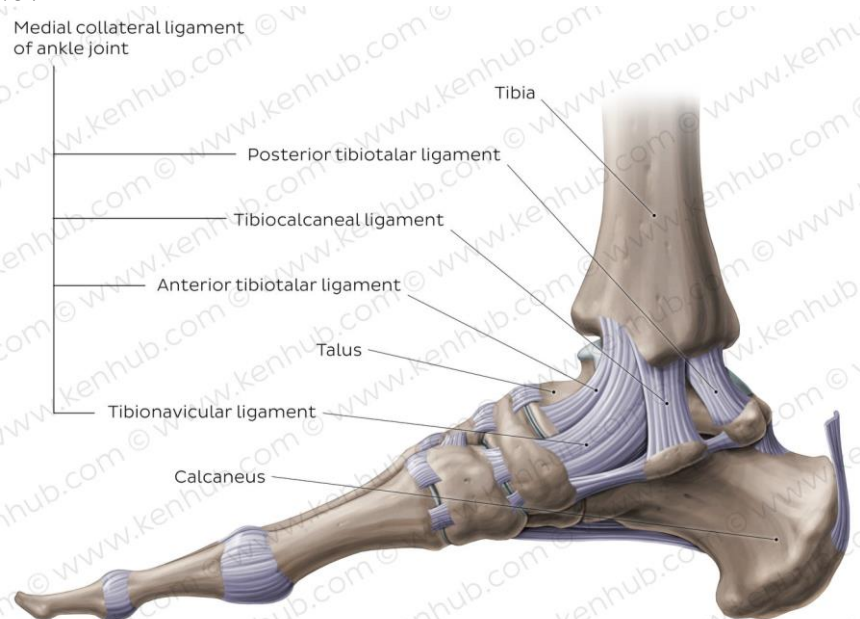


Figure 3. Lower limb anatomy: Bones, muscles, nerves, vessels

The lower limbs consist of two main parts, the pelvis and the legs. Legs are the lower motor organs that consist of the thigh (Thigh | the area of the leg that is located between the hip joint and the knee joint), the leg (Leg | the area of the leg that is located between the knee joint and the ankle joint) and the sole of the foot (Foot | area It is divided from the foot that is placed on the ground and is placed between the ankle joint and the fingers) [42].

What are the bones of the lower limb?

The lower body is made up of more than 30 bones, including the femur, patella, tibia, fibula, tarsal bones, sole of the foot. (Metatarsal bones) and "Knuckles" (Phalanges) are located.

Femur bone

Femur or thigh bone is one of the long bones of the body located in the lower limb. This bone is the longest and strongest bone in the body, which makes up a quarter of a person's height and supports a weight between 800 and 1100 kg. The circular end of this bone in the upper region forms the side joint with the rib bone. "Fovea Capitis" or a pit in the head of the femur is the place where the ligament of the head of the femur connects, which prevents damage to the side joint by connecting the femur to the side bone. The feeding artery of the femoral head is located in this ligament. The formation of this bone begins in the 5th to 6th fetal week and is completed during childhood to adolescence (14 to 18 years old). We divide this bone into three parts: near end, shaft and far end [43].

➤ **Proximal end:** This part of the femur consists of the head, neck, greater trochanter or greater projection, lesser trochanter or lesser projection and the medial crown of the trochanter. This part participates in the formation of the hip joint. The greater trochanter is the attachment point for most of the muscles that move the hip joint.

➤ **Shaft:** The main part of the femur bone, which is placed at a 125-degree angle from the middle axis of the body between the two end parts. "Nutrient Foramina" are small openings for the entry and exit of blood vessels to the bone tissue, which are located in this part of the femur. The curvature of the shaft bone in the "Ventral area" (anterior, front | Anterior) helps the femur to bear the weight of the body. In the middle part of the back of the shaft bone, there is a ridge that is the point of attachment of many skeletal muscles of the thigh [44].

➤ **Distal end:** This part consists of two protrusions of the lateral and middle condyle, on which the junction of the lateral ligaments (epicondyle) is located. These two protrusions are separated by the intercondylar shaft. This part participates in the formation of the knee joint with the tibia.

Knee patella

Patella bone or patella is the largest sesamoid bone in the human body [45]. Sesame bones are attached to skeletal muscle tendons at the joint site. This bone participates in the formation of the joint with the underlying bones (femur) to prevent damage to the tendon (the tendon of the quadriceps muscle in the front of the thigh) due to stretching on the bones during movement. There is no joint between the patella and tibia. The knee bone is one of the sesamoid bones of the body that prevents quadriceps tendon damage [46].

Conclusion

The tibia is another long bone of the lower limb that is located in the middle part of the leg and its diameter is greater than the fibula. The tibia is the second longest bone in the body after the femur, which bears most of our weight. The front-middle part of this bone is located exactly under the skin tissue. For this reason, it can be easily recognized by touching the foot. The tibia, like the femur, consists of two end parts and a shaft.

Proximal end: This part of the tibia consists of two medial and lateral condyle ridges. There is no epicondyle in this bone. Two tibial chondrules with femoral chondrules form the knee joint. The initial projection of the tibia or "Soleal Line" is the last point of attachment of the knee tendon.

Shaft: The bone of this part of the tibia has pores for blood vessels to enter and feed the bone tissue. In the upper third of the back of the tibia, there is a linear ridge to which the skeletal muscles of the leg attach.

Distal end: The malleolus is medial to the medial malleolus or malleolus at the medial end of the tibia. This part forms the wrist joints with the talus bone of the wrist. In the lateral part of the tibia, there is a gap called fibula, which forms a joint with the end part of the fibula. The tibia is the second longest bone in the body that supports the most body weight.

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