Laparotomy

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Indications

Laparotomy of the left side is the approach of choice for surgery of the rumen, reticulum and some reproductive and urinary tract conditions, explorations of the viscera and inguinal hernia repair in the adult.

Specific indications for rumenotomy include bloat, impaction, grain overload and traumatic reticulitis. Another common use of the approach is Caesarean section.

Anatomy

The paralumbar fossa is a triangular area bounded by the last rib cranially, lumbar transverse processes dorsally and the tuber coxae caudally. The laparotomy incision site is central in this area and usually extends ventrally 20 cm from a point equal distances from the last rib, tuber coxae and transverse processes of the lumbar vertebrae. This will provide access to explore the abdominal viscera on the left side.

Palpation of the abdominal viscera should follow an orderly and sequential pattern so that each structure is identified relative to position, size and consistency.

The rumen occupies the abdominal cavity cranially and ventrally from the paralumbar fossa; the dorsal sac adjacent to the incision, the ventral sac occupying the ventral half of the abdominal cavity below a line from the patella to the xyphoid. The normal consistency is doughy and the surface should be smooth, glistening and free from the abdominal wall.

The spleen lies over the dorsal sac of the rumen, its base at 12 - 13 rib dorsally and extending cranioventrally with the apex at the mid-point of the 9th rib. The surface should be smooth and the consistency firm.

The reticulum lies cranioventrally against the diaphragm and dorsal to the xyphi-sternum. It should be soft and pliable, and the honey-comb lining should be palpable through the wall.

In the female, the non gravid uterus lies over the brim of the pelvis, the horns and broad ligaments extending laterally to the ovaries. The organ should be firm with smooth surfaces and the fimbric should be a veil-like structure near the ovary.

The urinary bladder lies within the pelvis unless distended, in which case it will extend cranial to the symphysis pubis. The empty bladder will be hard and resemble an orange in consistency, the distended bladder will be tense and fluctuant with smooth surfaces.

The intestinal mass will lie to the right of the rumen and fill the area of the right flank.

The left kidney lies against the right side of the rumen wall, is somewhat pendulous, freely movable and is usually enveloped in fat.

The omasum lies to the right of the media plane opposite the seventh to eleventh ribs and is ellipsoidal in shape and very firm in consistency. Depending on the diet of the animal, it is larger and harder if the animal has a high percentage of fibre in the ration and can be definitively identified by the left gastric artery which courses around its circumference or greater curvature of the organ.

Laparotomy of the right side is the approach of choice to aid in the diagnosis of the "acute abdomen", which may include such differentials as intestinal intussusception, dilation and/or torsion of the secum, right dilatation and/or torsion of the abomasum, torsion of the intestinal mass and torsion of the uterus.

This approach may also be used for surgery of the reproductive tract including Caesarean section, surgery of the urinary tract and correction of left displacement of the abomasum.

Anatomy - Right Side

The greater omentum occupies the right side of the abdominal cavity ventrally and cranially from the paralumbar fossa. It is normally lying loosely in the area, soft and fatty in consistency and should be visible in quantity.

The descending duodenum crosses the paralumbar fossa, from cranial to caudal, almost to the tuber coxae and is suspended from the sublumbar region by the mesoduodenum. It forms the caudal flexure and passes cranially in contact with the terminal part of the colon. It should be soft in consistency and lying loosely or the underlying viscera.

The liver lies cranially within the rib cage and the gall bladder is easily identified near the 12th intercostal space near the costochondral junction. The pylorus of the abomasum lies immedicately ventral to the gall bladder and the abomasum lies ventrally and cranially in the lower right quadrant of the abdominal cavity from the costochondral junction of the 11th rib to the xyphi-sternum.

The liver should be smooth surfaced, firm in consistency with sharp edges. The gall bladder is soft and fluctuant and

may approach the size of a grapefruit. The abomasum is normally soft in consistency and usually not identifiable due to the overlying omentum.

The reticulum lies cranially and medially to the abomasum and in contact with the diaphragm. The reticulum can be identified by palpating the lining through the wall and the diaphragm is a tense structure and the heart can be palpated through it.

The caudal margin of the greater omentum lies in the paralumbar fossa and covers the cecum, colon and small intestines. The omentum can be retracted cranially to permit access to the female reproductive tract, left and right kidneys and the urinary bladder and omasum.

The nongravid uterus and left kidney have been described previously. The right kidney lies cranial to the left for the most part and is ventral to the first four lumbar transverse processes and lies closer to the sublumbar muscles than does its counterpart.

The omasum has been described previously and is equally accessible from either side.