

SUTURE OF THE MONTH

Closing Of The Abdominal Wall/Linea Alba With MonoPlus®

For all operations in the abdominal cavity, a surgical opening and closing of the abdominal wall is needed.

In veterinary medicine, Laparotomy is used for diagnostic purposes, collecting biopsy samples, and for therapeutic surgery. It is used more frequently than laparoscopy. Therefore, a correct closing of the abdominal wall should be performed as a routine.

The incision is being made by preserving muscles and nerves of the patient's body. The standard technique is the ventral midline incision through the linea alba.

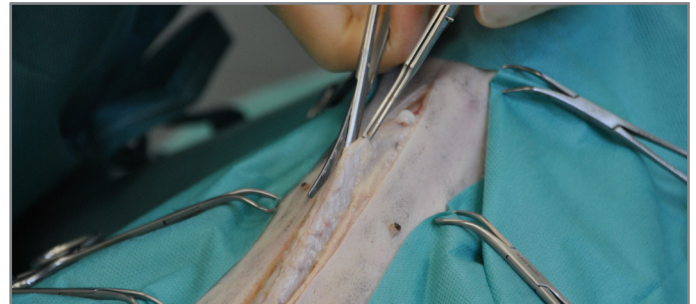
The entire abdomen should be prepared for aseptic surgery to allow extension of the incision from the xiphoid to the pubis.

The skin and subcutaneous tissue are cut accurately and cleaned until the external fascia of the rectus abdominis muscle is exposed. Sometimes you have to separate the adipose tissue from the fascia. Mind not to be too generous with the separation to avoid cavities between fascia and subcutaneous tissue which lead to post-surgical seroma. With a clear exposure of the linea alba it is easier and faster to close the abdominal wall. That can be important in older or compromised patients.



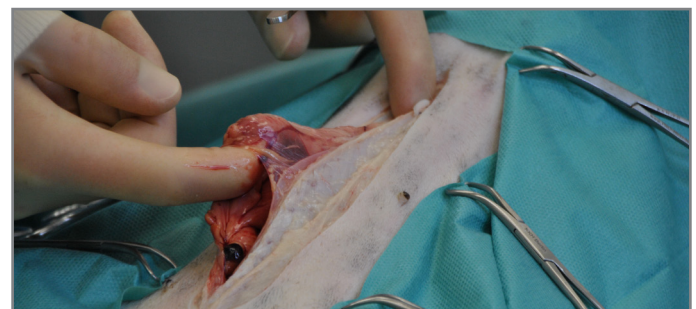
1. Detachment of the subcutaneous fatty tissue/ Exposure of the linea alba

The linea alba is formed by the aponeurosis of the abdominal muscles (M. Obliquus Externus Abdominis, M. Obliquus Internus Abdominis, M. Transversus Abdominis). It is strong and broad near the umbilicus and thins out near the pubis. Tent the abdominal wall near the umbilicus and make a sharp incision into the linea alba with a scalpel blade.



2. Opening of the linea alba with elevation of the abdominal wall

Use scissors (e.g., Metzenbaum) to extend the incision under the protection of your fingers. Palpate the interior surface of the linea alba for adhesions and move your fingers in front of the scissors. Digitally break down the attachments of the falciform ligament to the body wall in the cranial area of the incision. Ligate or cauterise the bleeding vessels if necessary.



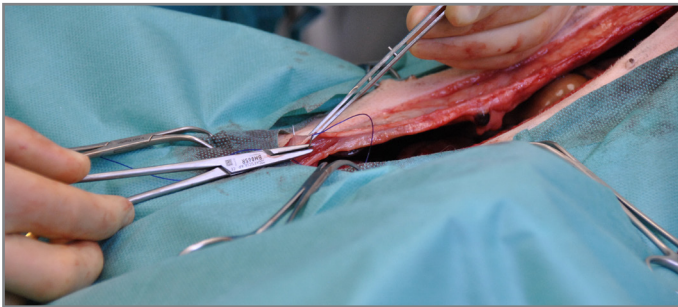
3. Blunt detachment of adhesions and of the ligamentum falciform from the inner side of the abdominal wall

After the exploration surgery of the abdominal cavity you close the abdominal wall. Therefore, a long term absorbable monofilament suture like MonoPlus® is used. MonoPlus® is made of polydioxanone which loses 30-50% of its tensile strength in 28-35 days, so it is an ideal suture material for slow healing tissues.

Combining the MonoPlus® suture material with a strong Easyslide needle you can pass repeatedly through thick tissue without reducing the sharp and easy penetration of the needle. The choice of the thickness of the thread depends on the size of the patient.

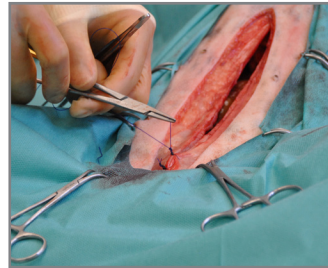
When closing the abdominal wall, it is important that the fascia of the rectus (external and internal layer or in the caudal region, just the external layer) is sutured, as this is a very strong tissue that perfectly incorporates the Monoplus® suture. The muscle tissue is not aimed for this.

The peritoneum has a fast-healing process across the incision and therefore it doesn't have to be integrated in the suturing.

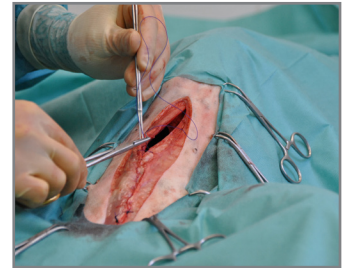


4. Integration of the fascia of the rectus abdominis muscle into the suture

The suture technique can be a simple interrupted pattern or a crossed pattern (Cruciate). The experienced surgeon uses a simple continuous pattern to save time. With this suture pattern, there is less suture material inside the body. Make sure that six to eight knots are placed at each end to avoid a loosening.



5. Closure of the abdominal wall with single staples



6. Closure of the abdominal wall using continuous suture technique

Close subcutaneous tissue with a simple continuous pattern of Monosyn®. The skin can be closed with a non-absorbable suture material like Dafilon® (see article No.2) or with Monosyn® as an intracutaneous suture.

SOURCE:

Small Animal Surgery by Theresa Welch Fossum and Clinical expert: Dr. A Wagner, data on file at B. Braun Group, Germany