

Hernia repair surgery- Peppy

1. The anaesthesia team monitored the calf throughout the surgery as explained in the Pre Op Procedure.
2. Cut skin around hernia in a fusiform shape with scalpel.
 - To avoid dog ears the length of the incision should be 4 times the width.
 - When cutting skin ensure that the right amount of pressure is applied. Start cutting the skin with gradual increases in pressure with one stroke until the skin tissue separates under the blade and white connective tissue is seen immediately under.
 - At this point maintain that pressure while making singular long strokes.
 - Care should be taken to avoid cutting too deeply into the tissues below the initial incision and avoid cutting through the herniated material.
 - Premature rupture or opening of the herniated material can lead to infection and septic peritonitis.
3. Blunt dissect the around the fusiform incision with a Mayo scissors.
 - Insert the scissors under the skin through subcutaneous/connective tissue and open the tip of the scissors angled upwards to avoid nicking important structures and to expand the area creating a tunnel.
 - Cut through the subcutaneous/connective tissue along the tunnel.
 - Continue this action of blunt dissecting and cutting around the fusiform skin incision.
4. Use haemostats intermittently to control bleeding throughout the surgery.
5. The abdominal wall should be more visible at this point.
 - Blunt dissect and cut through the superficial sheath of rectus abdominis, 2-3 cm in length with a Mayo scissors, 2.5 cm lateral from the hernia ring.
6. Insert one finger through that incision and gently pass that finger along the peritoneum of the abdominal wall to remove any adhesions and to identify the infected vestigial tissue.
 - A hard tubular structure going caudally = infected urachus(95 %) whereas umbilical arteries(5 %)
 - A hard to soft tubular structure going cranially = omphalophlebitis of umbilical vein
 - A soft structure going dorsally = adhered omentum
7. Important tip cut around all infected tissue with abscess, never cut open/through an abscess while inside of the animal during surgery and remove these unwanted tissues in one segment.
8. With the Mayo scissors continue the incision around the hernia ring until the umbilicus, herniated material and omentum can be lifted upwards from the peritoneum.
 - Inspection of the herniated material can be performed to identify its length, adhesion to other structures and consistency.
9. Peppy was determined to have a caudally directed firm tubular structure of 10 cm (most likely was a persistent/infected urachus) from the herniated material which ended/became a true remnant tissue within the omentum.
 - This is a favourable finding as a continuation of the structure to the bladder wall requires Patent urachus repair is surgery to fix a bladder defect with resection of the adhered bladder wall.
10. Using two extra-large haemostat (Rochester-Carmalt Haemostat) 2 cm apart to clamp down fully on the omentum 10 cm away from the end of the firm tubular structure (so dorsally/closer to the body).
11. Apply 2 transfixional sutures just above each clamp to adequately prevent haemorrhage. With a needle attached to 1.0 cat gut absorbable suture material bite through one end of the omentum and knot at that point just above one haemostat. Wrap the suture material around the omentum to make a circumferential ligature. Upon removing the haemostat tighten the knot firmly which should sit within the groove made by the haemostat. Tie off the cat gut securely and repeat above the other haemostat.

12. Using two extra-large haemostat 2 cm apart to clamp down fully on the omentum above the transfixional sutures. The more distal clamp prevents the back flow of potentially infective material from entering the peritoneum upon cutting through the tissue. Using a scalpel cut along the lower clamp.
13. Assess immediately for bleeding through the omentum and sutures.
 - Upon observations of bleeding add an additional Miller's knot (which is a strangle/constrictor knot) with 1.0 catgut, similarly as above utilizing a haemostat to create a groove. Assess bleeding again then proceed.
14. A second bag of fluids was given with the same volume of drugs for the Continuous Infusion Rate.
15. Use an Army navy retractor to pull up the abdominal wall (from the layer of peritoneum to superficial sheath of rectus abdominis) with another surgeon pressing down the abdominal contents to perform a vest over pants suture.
 - This prevents the unwanted perforation of any abdominal organs with needle which can lead to septic peritonitis.
16. The vest over pants creates an overlapping layer of the opposing abdominal walls which increases adhesions improving the strength of the healed tissue.
 - This suture was done with non-absorbable 2.0 Nylon (Supramid).
 - All the 5 sutures were pre-placed across the abdominal wall incision before knotting and haemostats were used to secure the free ends of the suture.
 - This ensure that the surgeon can visualize the abdominal structures and place the needle with sufficient room to prevent unwanted perforation of any abdominal organs.
17. Pull the haemostats attached to the sutures taut upwards, maintaining the tension as the layers of abdominal wall overlap.
18. Allow the surgeon to tie the knot of one vest over pants suture pattern at a time while another surgeon maintains the tension on the other sutures.
 - It was noted that ends of these sutures were cut as short as possible, 0.3 cm once knotted.
19. Suture the subcutaneous tissue with absorbable 2.0 lactomer (Polysorb) in a simple continuous pattern.
 - It was noted that large bites parallel and close to the skin margin on either side improved the technique as it allowed for opposite ends of subcutaneous tissue and skin to meet when the suture was pulled taut.
20. As the surgery was about to end the anaesthesia team decreased the drip rate to 3 drops per second allowing for a gradual awakening of the calf after surgery.
21. Suture the skin with non-absorbable 2.0 Nylon (Supramid) in a Horizontal mattress.
 - It was noted to take bites 0.4 cm away from the skin edge. This reduces the chance of the suture ripping through the skin especially since there will be greatest force on the sutures ventrally.
 - Simple interrupted sutured were placed where needed to ensure that none of the skin dermis was everted. This reduces the chance of infection into the body.
22. The surgical site was cleaned with diluted chlorhexidine and gauze to remove the blood. Iodine was also swabbed around the surgical site.
23. The wound was then sprayed with Antibiotic spray (Tetravet) followed by Aluminium powder barrier (Alu spray) and then a Larvicide (Metabicheras fort dodge) was sprayed around the wound.
24. Peppy was stable throughout the surgery with a noted low heart rate of 36 beats per minute at one point it was decided to decrease the drip rate and monitor her closely.
25. Peppy was increasingly active at the end of surgery and once placed into the hospital pen she periodically stood up and rested in sternal recumbency. These were good signs that she was coming out of anaesthesia.

Abdominal muscles

