**Surgical Technique in Cattle**

**In the Heifer**

The skin incision in heifers is a simple elliptical incision around the umbilical mass. The incision is continued through the subcutaneous tissue to the level of the external rectus sheath. Then a midline incision is made just immediately cranial (or caudal) to the mass (hernia or abscess) to allow the surgeon to place one finger into the peritoneal cavity to palpate for any

structures associated with the umbilicus. This allows one to complete the elliptical body wall incision without unintentionally incising any abdominal structures. At this point any abscessed or persistent fetal remnants can be resected. The umbilical arteries are ligated as deep in the abdomen as possible. If the urachus is present, the tip of the bladder and the urachal remnant are resected. The bladder should be packed off from the abdomen with wet sterile towels. Stay sutures are placed in the bladder to hold it while the urachus is excised along with the tip of the bladder. If the umbilical vein is abscessed and enlarged into the liver so that the surgeon does not feel safe simply ligating the vein, then it must be marsupialized through the body wall to facilitate drainage. The umbilical vein will exit the body wall at a site to the right of midline,

just caudal to the last rib, such that the vein remnant is nearly vertical from the liver to the ventral body wall in the standing calf. A circular incision, approximately the size of the enlarged vein, is made at this exit site through the skin, subcutaneous tissue, and external rectus sheath to excise the circular piece of these structures. The rectus abdominus muscle and peritoneum are separated to facilitate passage of the umbilical vein. The distal aspect of the vein is dissected from the umbilicus and covered with a surgical sponge or part of a glove to prevent contamination of the peritoneum when the vein is pulled through the exit site with forceps. The vein is secured to the skin under minimal tension with absorbable suture in an interrupted pattern incorporating the wall of the vein but not obstructing the lumen in any way. The excess length of vein outside the body wall is excised. The vein usually drains and resolves. The body wall incision is closed in a routine fashion dependent on the size of the calf and the tension on the closure. One method would be to use no. 2 absorbable suture with one (or possibly more in a longer incision under tension) near-far-far-near suture to counteract tension, followed by separate lines of a simple continuous pattern between the tension sutures. The subcutaneous layer and skin in the elliptical heifer incision is likewise closed routinely according to surgeon preference.

**In the Male:**A crescent shaped, or semilunar, skin incision is useful in male calves. The middle of the two curvilinear incisions is rostral to the umbilicus and between the umbilicus and preputial orifice respectively. The concave part of the incision surrounds the preputial orifice, and the points of the connected curvilinear incisions are directed caudally. In the semilunar skin incision used in males, the body wall incision is still elliptical and therefore closed in the same manner. The subcutaneous layer is done in a transverse direction with some interrupted sutures to close the dead space created. The skin is closed with two separate simple continuous suture lines. Both will start at the centre of the initial curvilinear incisions, immediately rostral to the preputial orifice, and continue caudally to the tips of

the incision.

**Reference: Techniques in Large Animal Surgery, 4th Edition by Dean A. Hendrickson and A.N Baird.**