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Tantaul Mesh in the Repair of Recurrent Abdominal Hernias of Horses and Cattle

O. W. Whitcomb, D.V.M., M.S.

The repair of secondary or recurrent types of hernias of horses and cattle has presented a difficult technical and surgical problem in the past. For the most part surgical procedures aim at closing the hernial ring by whatever means will approximate the edges. Operations such as suturing the ring, imbrication of the sac, and fascial flaps with relaxing incisions tend to either place greater tension or create weakness of an abdominal wall that has already shown itself to be defective. Following these operations, recurrences are common. It is therefore apparent that some substance is needed to bridge the gap in the abdominal wall without creating tension or weakening it. Many materials have been used experimentally and clinically for this purpose. Of the many substances used, Tantalum Mesh Gauze has been extremely successful for this type of herniorrhaphy in the human. Koontz. (2-3) Early experimental work was performed on animals using Tantalum mesh to repair artificially produced hernias in dogs. Lam, et. al. (1)

The first hernia repaired at Iowa State College using Tantalum Mesh to bridge the gap in the abdominal wall was done on a Standardbred colt 19 months old on November 18, 1952. Herniorrhaphy was performed on the colt two times prior to November 18 using a different operation each time. On April 3 the umbilical hernia was reduced using the Iowa hernia clamp. On June 12 the colt was presented with a strangulated umbilical hernia. The hernia was reduced and imbrication of the sac was accomplished but the hernia recurred on Sept. 11, 1952. The colt was returned again and Tantalum Mesh was used for a successful repair of this recurring hernia. This horse has been racing for the past two years. Since that time successful repairs of recurrent or secondary umbilical, abdominal, and costal arch hernias in horses and cattle have been accomplished through the use of Tantalum Mesh gauze.

Tantalum is an element (symbol Ta, atomic number 73 and atomic weight 180.88). Chemically this element is for practical purposes inert in animal tissue. The strength of Tantalum is similar to that of steel. Tantalum gauze consists of Tantalum wire .003 inch diameter, which has been woven into a 50 x 50 mesh. Sheets of this material measuring 6 inches by 12 inches are supplied for surgical purposes. Tantalum is insoluble in animal tissue and can be sterilized by autoclaving.

The technique of operating is as follows: The operation is performed with the animal patient under general anesthesia. The patient is placed in dorsal recumbency for operating ventral hernias and in lateral recumbency for others. The usual preoperative antiseptic precautions are followed. An incision is made through the skin and underlying tissues down to the her-
Diagram showing Tantalum Mesh in place.

nial sac. The skin is held back from the operative site with wound retractors. The hernial sac is dissected out and inverted into the abdominal cavity. The gauze which has been previously cut to size and the edges folded under \( \frac{3}{4} \) inch is placed over the hernial ring. The edges of the gauze are sutured to the surrounding fascia with interrupted sutures placed \( \frac{1}{2} \) inch apart using 0.10 inch (U.S.P. size 3.0) Tantalum wire. The center of the gauze is then continuously sutured to the hernial ring. It is advisable to use a Taper point needle when suturing. The overlying tissues are then brought into apposition over the gauze and a continuous Tantalum wire suture is used. The skin is sutured with nylon. There is usually considerable swelling following the operation. This swelling generally begins to subside on about the third or fourth day after the operation. The skin sutures can be removed on about the 10th day post-operative. In cases where the hernial ring is larger than the gauze, the hernial ring should be drawn together with cat-gut (No. 4 chromic) just far enough so that the gauze may be sutured to the fascia and the ring.

Summary

Secondary or recurrent hernias in horses and cattle can be successfully repaired by the implantation of Tantalum Gauze if too great a tension is not placed on the abdominal wall by drawing the hernial ring closed. Umbilical, costal arch, and ventral abdominal hernias have been successfully reduced using this method of repair.

*Tantalum mesh and Tantalum gauze were obtained through the courtesy of the Ethicon Suture Laboratories, New Brunswick, New Jersey.

References


**The action of adrenocorticotropic hormone on circulating eosinophils in dogs — a proposed screening method for evaluating adrenal cortical function.** Injection of 5 to 50 international units of adrenocorticotropic hormone (ACTH) in normal dogs, or in dogs suffering from diseases in which no adrenal cortical deficiency is known to exist, resulted in a 75 to 99 per cent decrease in circulating eosinophils within seven hours. It is suggested that the circulating eosinophil response to ACTH may be useful as a screening method for evaluating adrenal cortical reserve in dogs.


Since the tuberculosis eradication program became effective in 1917, there have been 80 tests made each minute on the basis of a 40-hour work week and a 50-week year.

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