a greater length of ureter were removed, the flap could be turned from the base upward towards the fundus as advocated by Boari. In this instance, however, the blood supply to the flap was less abundant, and the position of the artificial tube or pouch varied with the size of the bladder.

Although one could easily maintain the integrity of the bladder tube and could easily effect an anastomosis, a stricture almost invariably formed at the junction of the ureter and the bladder, which in itself defeated the purpose of the operation. Therefore, studies were directed toward finding a suitable type of anastomosis between the normal bladder and normal ureter, and this procedure[2] was applied satisfactorily to uniting the ureter with the tube constructed from the bladder.

6510

Ureterovesical Anastomosis: An Experimental Study.

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(Introduced by C. M. Van Allen.)

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Due to the formation of strictures in the ureter when transplanted into a tube constructed from the bladder,[1] studies were directed toward finding a satisfactory method of anastomosing the normal ureter with the normal bladder. Several modifications of the Coffey type of implanting the ureter into the sigmoid were employed.[2]

Our most satisfactory anastomosis was obtained by the following technic. The ureter was cut across near the bladder between 2 silk ligatures. The bladder was opened anteriorly. The proximal portion of the ureter was led through the posterior bladder wall at about the same level and slightly medial to the normal entrance of the incised ureter. This was easily done by using a large curved, non-cutting needle which carried through the loose ends of the ligature previously tied around the proximal end of the cut ureter and which then could be used to pull the ureter into the bladder cavity

[2] Spies, J. W., Vermooten, V. D., and Wilson, C. S., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 426.

[1] Spies, J. W., Johnson, C. E., and Wilson, C. S., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 425.

[2] Coffey, R. C., *Brit. J. Urol.*, 1931, **3**, 353.

for the desired distance (usually about 1.5 cm.). To accomplish this no incision or dilatation with instruments was needed. The mucous membrane of the bladder was incised downward for a distance of about 1 cm. from the hole made by the artificial entrance of the ureter. The corresponding portion of the ureter within the bladder was next placed in the defect created by the incision of the mucous membrane which was then sutured over the ureter. This left about 1 cm. of the ureter lying between the muscle and the mucous membrane. Subsequently the ureter projecting into the bladder cavity was cut squarely across just proximal to the silk ligature, and usually the end was split into 2 equal parts, each of which was turned back and sutured to the mucosa of the bladder. In some instances, a portion of the end was incised in an oblique manner and the most distal point was sutured to the bladder mucosa. Catgut sutures were employed inside the bladder as non-absorbable sutures caused the collection of urinary salts.

The operated dogs were observed for varying periods of time. Urograms, autopsies, and histological studies were made.

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Postoperative Behavior of the Diaphragm and Ribs in Dogs.

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For a few days after upper abdominal operations in man the thoracic parietes are characteristically altered. Both the diaphragm and the ribs are markedly elevated, so that the space occupied by the lungs is shorter and broader; also, the diaphragmatic and costal movements are much reduced. The cause of this has been assigned to several factors: tight surgical dressings about the abdomen, reflex spasm of the abdominal and intercostal muscles, reflex inhibition of the diaphragm, gastro-intestinal distention, and pneumoperitoneum. Clinical studies[1, 2, 3] have furnished very suggestive evidence, but opinions are still conflicting as to the chief cause. We felt that, if laboratory animals also present these postoperative changes, they would be better adapted than man to the study of the

[1] Muller, G., Overholt, R., and Pendergrass, E., *Arch. Surg.*, 1929, **19**, 1322.

[2] Potey, D., *Brit. J. Surg.*, 1930, **17**, 487.

[3] Jung, T., and Van Allen, C., ready for publication.