

## **BALLOON BLADDER AUTOAUGMENTATION: A COMPARATIVE STUDY IN DOGS**

### **Aims of Study**

In the last 100 years a great deal of experimental studies in bladder augmentation was performed [1]. With the development of antibiotics these were redefined, and improved after the 1970's with clean intermittent self-catheterization [2, 3, 4]. These techniques aim to the development of a large and compliant reservoir of urine, promoting continence and preserving renal function. Main indications for bladder augmentation are: small capacity and/or low compliance. Such conditions lead to urinary incontinence and renal failure due to vesical deterioration [5].

The aim of the present study is to compare the results of bladder autoaugmentation with or without intravesical balloon.

### **Methods**

A total of 10 mongrel dogs (mean weight 20 kg) were divided into two groups: group 1 (standard procedure) was treated only with vesicomytomy, creating a diverticular bulge of the bladder dome, and group 2 (balloon) was treated with vesicomytomy and an intravesical balloon maintained distended the diverticulum, which was maintained for seven days with ureteral catheter. All the animals were maintained with urethral catheter for seven days. Cistometry was performed on all dogs, prior to the surgery and in the immediate post surgery, seventh, fifteenth and thirtieth post operative days. On the thirtieth day all dogs were sacrificed after cistometry and the bladder removed for histological analysis.

### **Results**

Pre-operative urodynamic evaluation showed mean bladder capacity of 250 ml and compliance of 8ml/cmH<sub>2</sub>O in the standard procedure group and 280ml of capacity and 10cm/H<sub>2</sub>O of compliance in the balloon group. In the standard procedure it was observed a progressive decrease of bladder capacity and compliance from the seventh to the thirtieth postoperative days. This was not observed in the other group (Figure 1 and 2 ). Histological evaluation showed, in both groups, extensive fibrosis in the area where the vesicomytomy was done, but in the standard procedure group a shrinkage of the surgical area was observed.

### **Conclusions**

The concept of autoaugmentation is to preserve bladder epithelium while its compliance and capacity improve due to a large diverticulum, minimizing the adverse effects of intestinal segments. The major concern about this technique is the development of fibrosis and consequent contraction of the diverticulum. To prevent such complication other authors recommend the use of demucolized segments of colon or epiploon to protect the diverticulum, but the long term results were not satisfactory [ 6, 7].

This study shows that the use of an intravesical balloon can prevent the shrinkage by holding the diverticulum distended.

### **References**

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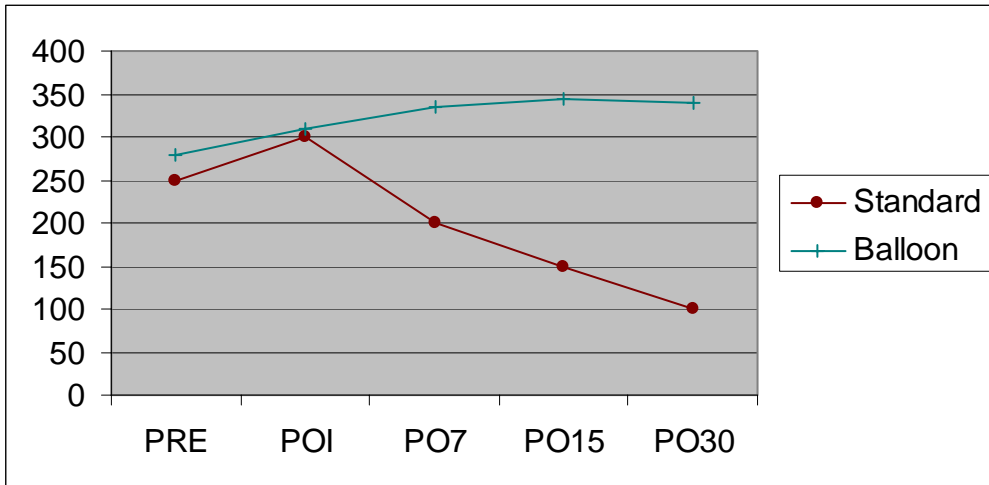


Figure 1 – Volume capacity decrease after surgery in group 1 (standard procedure) in comparison of group 2 (balloon autoaugmentation) how increase.

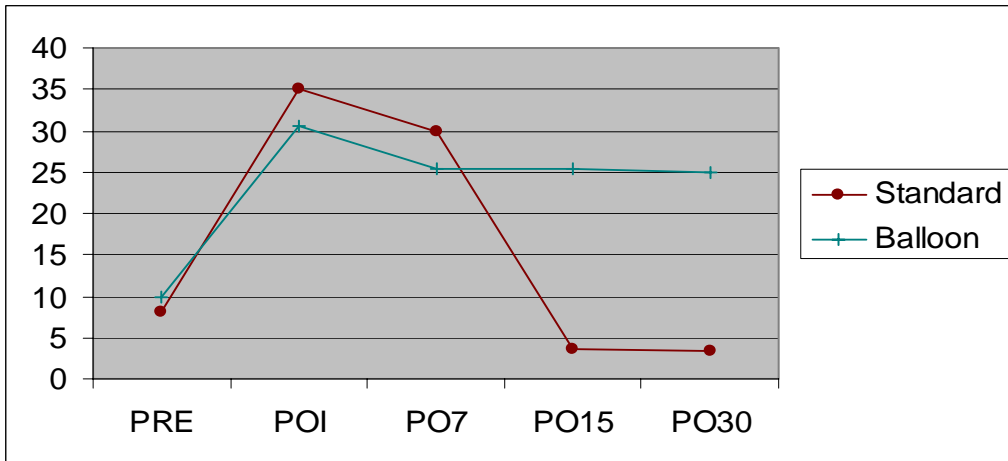


Figure 2 – The compliance decrease after surgery in group 1 (standard procedure) in comparison of group 2 (balloon autoaugmentation) who increase.