



# Diagnostic Exercise

## From The Davis-Thompson Foundation\*

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### *Answer Sheet*

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**Microscopic description:** Polypoid protrusion of the bladder mucosa comprised of well-differentiated urothelial epithelium with multiple downward projections of the epithelium forming nests in the underlying propria submucosa, some of them with cavities filled with eosinophilic (proteinaceous) material, cellular debris and erythrocytes. Transitional epithelial cells have mild atypia. There is often accompanying inflammatory cell infiltrate, with predominance of lymphocytes and plasma cells, and variable degree of hemorrhage with hemosiderin-laden macrophages (hemosiderophages).

**Morphologic diagnosis:** Chronic proliferative (polypoid) cystitis.

**Typical gross findings:** The proliferated growths that characterize this condition can be single or multiple and may be polypoid, pedunculated, or nodular<sup>1</sup>. The most commonly affected location is the cranioventral portion of the urinary bladder and polyps can vary from a few millimeters to 4 cm of diameter<sup>1,2</sup>.

**Typical microscopic findings:** The histological criteria for the diagnosis of polypoid cystitis are epithelial hyperplasia of transitional cells forming projections into the lamina propria, dense inflammatory cell infiltrate with predominance of mononuclear cells, stromal edema, and marked chronic hemorrhage with hemosiderin-laden macrophages<sup>2</sup>. Other possible findings are cystic change of the transitional epithelial nests often filled with proteinaceous material, cellular atypia, erosions, ulcerations, and granulation tissue<sup>2</sup>.

**Discussion:** Polypoid cystitis is a common disease in dogs and most domestic species, and is characterized by polypoid masses and chronic inflammation of the bladder mucosa<sup>3</sup>. The cause is unknown but the literature suggests a hyperplastic reaction resulting from chronic injury of the bladder mucosa, mainly from recurrent urinary tract infection or urolithiasis<sup>2</sup>. Due to the low number of published cases, little is known about sex and breed predispositions. The main clinical signs include hematuria, pollakiuria, stranguria and abdominal pain; however, in some cases no clinical signs are observed and the lesion is considered an incidental finding<sup>2</sup>. Grossly, polyps are indistinguishable from transitional cells carcinomas; thus, histopathology is required to confirm the diagnosis<sup>1,2</sup>. Polypoid projections, urothelial (transitional) epithelial hyperplasia and marked inflammation are consistent histopathological features<sup>2,3,4</sup>. Surgical resection combined with anti-inflammatory and/or antibiotic therapy have been reported to be clinically effective<sup>5</sup>. If

present, calculi should be removed and their recurrence prevented. It is imperative to differentiate polypoid cystitis from transitional cell carcinoma, which can present similar clinical signs and macroscopic characteristics, but has a very different prognosis and therapeutic approach.

### **References and Recommended literature:**

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