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Clinical Article

SURGICAL MANAGEMENT OF CYSTIC TRANSITIONAL CELL CARCINOMA WITH URINARY BLADDER RECONSTRUCTION

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SUMMARY

Cystic transitional cell carcinoma with urinary bladder reconstruction in a dog is reported. An exploratory cystotomy was performed and a cauliflower like intramural tumor mass at the trigone region obliterating the left ureteric opening was identified and a partial cystectomy and neouretero cystostomy was performed. Histopathological examination of the mass confirmed cystic transitional cell carcinoma.

Keywords: Canine transitional cell carcinoma, Cystectomy, Neouretero cystotomy

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Transitional cell carcinoma (TCC) is the most common malignancy of the urinary tract in dogs. TCC arises from the epithelial cells lining the urinary bladder, ureter urethra, prostatic ducts and renal pelvis. TCC occurs most commonly in older female dogs (Mutsaers *et al.*, 2003). Treatment for TCC in dogs must be aimed to preventing urinary tract obstruction as well as preventing and treating metastasis. Numerous therapeutic modalities have been evaluated for treating TCC including surgery, radiation therapy and chemotherapy. Complete surgical excision of TCC in dogs is often not and is attributed to the trigonal location of most tumors. As per Knnap (2007) this tumour has already metastasized in 20% of dogs at the time of diagnosis.

A 7-year-old intact male Indian mongrel dog was referred to small animal surgery unit of Madras Veterinary College Teaching Veterinary Hospital with a history of hematuria at the end of normal urination for the past three months. Physical examination revealed distended bladder. Urinalysis revealed presence of numerous blood cells and transitional epithelial cells suggestive of transitional cell carcinoma (Fig. 1). Survery radiographs were not conclusive of any gross abnormality, however a space occupying mass was evident attached to the wall of the bladder on contrast radiography. It was tentatively diagnosed as cystic transitional carcinoma.

The dog was premedicated with Inj. Tramadol @ 4 mg/kg IV and inj. Diazepam @ 0.2 mg/kg IV. General anaesthesia was induced with inj. Propofol @ 4 mg/kg IV and maintained with 2.5% Isoflurane in 100% oxygen. The caudal abdomen was prepared aseptically. Cystotomy was performed and a cauliflower like intramural tumor mass at the trigone region, obliterating the left ureteric opening was identified and excised (Fig. 3). A partial cystectomy and neouretero cystostomy was performed by excision of tumor mass and cystorrhapy was done using with PGA 4-0 (Fig. 4). Urinary catheter no.7 size was fixed *in-situ* and abdomen incision was closed by ford interlocking suture pattern with PGA 1. The subcutaneous tissues were closed in continuous suture pattern with PGA 1-0. The skin was sutured with monofilament Polyamide3-0 in mattress pattern. Post-operatively Ceftriaxone @ 20 mg/kg P/O BID, Tramadol @ 4 mg/kg P/O BID, Pyroxicam @ 0.3 mg/kg P/O SID and Relaxyme 10 mg/kg P/O BID was administered for 5 days. Post operatively surgical site was dressed with Povidone iodine with normal saline iodine for 7 days and skin suture were removed on 10th post operative day. The excised tumour sample was collected in 10% formalin and sent for histopathological examination.

Histopathological examination of the tumor mass revealed cystic transitional cell carcinoma with cytoplasmic vacuolation invading muscle (Fig. 5). TCC had anaplastic cells and anisokaryosis (Fig. 6). TCC causing tumor nodule in the muscle tissue (Fig. 7). Post operatively, an intravenous pyelography was performed to check the patency of left ureter (Fig. 8). Cystic transitional cell carcinoma was successfully managed by neouretero cystostomy. No complications were observed up to 6 months after surgery.

Borjesson *et al.* (1999) reported canine TCC is typically a disease of urine bladder tumor of older dogs. The definitive diagnosis of canine bladder cancer requires histopathological examination of tissues obtained by cystotomy, cystoscopy, or catheter biopsy (Knapp, 1995).

Transplantation of tumor cells have been suspected following surgical manipulation (Anderson, 1989). Norris *et al.* (1992) reported 96% of 91 dogs in one study. Following the WHO classification scheme, the TNM stage at diagnosis of 102 cases of TCC was determined (Knapp *et al.*, 2000) when performing tumor debulking with or without partial cystectomy, surgical cure is rarely achieved. In a series of 102 dogs with TCC, complete resection of the primary tumor (with histopathologically

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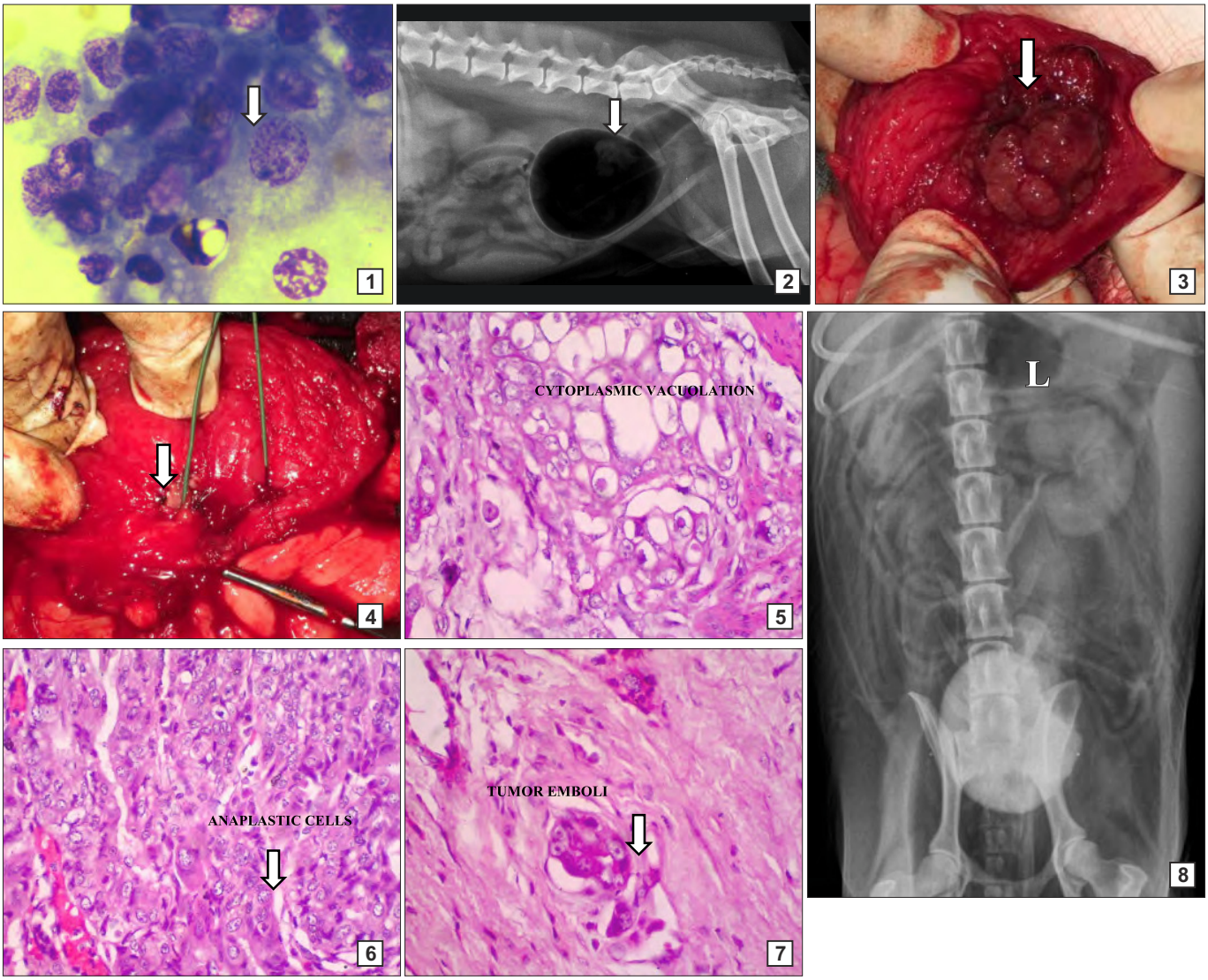

Figs. 1-8. **(1)** Transitional cell carcinoma-Large clusters of markedly pleomorphic cells with marked variation in cellular staining; **(2)** Pneumocystogram revealed a space occupying mass within the urinary bladder; **(3)** Cystotomy and a multiple cauliflower like tumor mass at the trigone region of the urinary bladder; **(4)** Partial cystectomy and Neouretero cystostomy in the left ureter and cystorrhaphy; **(5)** TCC CLEAR CELL TYPE – cytoplasmic vacuolation invading muscle. (Haematoxylin and Eosin, 40 X); **(6)** TCC anaplastic cells and anisokaryosis (Haematoxylin and Eosin, 40 X); **(7)** Tumor emboli noticed in the muscle tissue. (Haematoxylin and Eosin, 40 X); **(8)** Post operatively Intravenous Pyelography.

tumor-free margins) was only accomplished in 2 dogs (Knapp *et al.*, 2000). Walker and Breider (1987) reported the use of intra-operative radiation therapy in 13 dogs with bladder tumors, including 11 dogs with TCC. Intravesicular chemotherapy using thiotepah in 6 dogs has also been reported with poor results, likely because of the invasive nature of the tumor at diagnosis and the inability of the chemotherapy to reach infiltrated muscularis (Helfand *et al.*, 1994).

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