Indian J. Vet. Med. Vol. 41, No. 2, 2021 pp. 78-80

Homeopathy- A successful treatment of transitional cell carcinoma

Neetu Saini, Iqra Shafi Khan and Sujata Turkar*
Department of Veterinary Medicine, Guru Angad DevVeterinary and Animal Sciences University (GADVASU), Ludhiana,Punjab.

Abstract

A seven year old male Labrador retriever dog weighing 35 kg was presented with the history of hematuria for past six months with no evidence of pus or pain while urination. On physical examination, the animal was active with normal vital parameters. Complete blood count revealed relative neutrophillia with normal platelet count. Blood urea nitrogen (15mg/dL), total protein (5.8g/L), albumin (2.5g/L), creatinine (1.6 mg/dL), ALT (47U/L) and phosphorus (5.5mg/dL) levels were within the normal limits. Urine examination revealed large number of cells with pleomorphism with high nuclear to cytoplasmic ratio suggested of transitional cell carcinoma (TCC). Ultrasound examination of abdomen revealed thickened urinary bladder wall with debris suggestive of cystitis. The culture examination of urine revealed bacterial growth of *E.coli,* so antibiotic (Augmentin and enrofloxacin) based on the urine culture were administered in the patient but the animal did not show any improvement. Afterwards, homeopathic medicine Calcarea carbonica 30 cc strength once in a week was given for four weeks and piroxicam @ 0.3mg/kg orally once in a day for one week were used as mainstay of therapy and animal showed improvement within 15 days of administration and complete recovery after one month.

Keywords: Transitional cell carcinoma, Urinary bladder, Calcarea carbonica

Transitional cell carcinoma (TCC) is the most common neoplasm affecting urinary bladder of dogs (Withrow 2001, Norris *et al.,*1992). Transitional cell carcinoma (TCC) of urinary bladder is difficult to diagnose as well as treat effectively (Mutsaers *et al.,* 2003). Most of the TCC's are intermediate to high-grade papillary infiltrative tumors as compared to superficial, low-grade tumors (Knapp *et al*., 2014). Canine TCC also has the ability to spread to other parts of the body i.e. lymph nodes, lung, liver etc. TCC is most frequently found in the urinary bladder, but can also develop in the kidneys, ureters, prostate and urethra (Henry, 2003).

Homeopathic remedies are worldwide used in patients with cancer (Saha *et al.,* 2013). Calcarea carbonica is one of the conventionally used homeopathic medicine with in vitro and in vivo anti-cancer properties (Guimaraes *et al.,* 2010). It has been reported that calcarea carbonica improves the immune response against tumor cells by regressing tumor through immunomodulatory circuit (Guimaraes *et al.,* 2010).

The nonsteroidal anti-inflammatory drug (NSAID), piroxicam, has been evaluated extensively for the treatment of canine TCC. Piroxicam, a cyclooxygenase (COX) 2 inhibitor is effective for the treatment of TCC by subjective improvement of clinical signs and quality of life (Mutsaers *et al.,*2003). The potential mechanism of piroxicam antitumor activity involves prostaglandins (especially PGE2) mediated immunosuppression. Piroxicam is a cyclooxygenase inhibitor which inhibits PGE2 synthesis and allows restoration of immune function.

Case History and Observations

A seven year old, male Labrador retriever dog weighing 35 kg was presented to Teaching Veterinary Clinical Complex of Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, Punjab with history of hematuria for last 6 months with no signs of dysuria and stranguria. The vaccination and deworming status was complete. On clinical examination, the dog was apparently healthy with normal rectal temperature (101°F), normal mucus membranes and normal lymph nodes. The abdomen was distended and tense on palpation.

The patient was evaluated for complete blood count, serum biochemistry profile, urinalysis, thoracic radiography and ultrasonography. Urine was collected by cystocentesis (Fig 1) and sent for urinalysis and culture. Complete blood count revealed normal haemoglobin (11.9g/dL), PCV (36.2%), platelet count (2.2×10^5/µL) and total leucocyte count (8130/µL) with relative neutrophilia (neutrophils 82%, lymphocytes 16 %). Blood urea level

*Corresponding author: sainin26@gmail.com

(15mg/dL), total protein (5.8g/L), albumin (2.5g/L), creatinine (1.6 mg/dL), ALT (47 U/L) and phosphorus (5.5mg/dL) levels were within the normal limits. The routine urine examination showed normal specific gravity (1.015), urine pH (6.5) with absence of glucose, bilirubin, casts and crystals. However, the cytological examination of urine revealed large number of cells showing pleomorphism with high nuclear to cytoplasmic ratio confirmed as transitional cell carcinoma (Fig. 2).

Abdominal ultrasound revealed normal echo texture of liver, kidney and spleen however, urinary bladder revealed the thickened wall (Fig 3). X-ray of chest showed no lesions of pulmonary metastasis. , Transitional cell carcinoma was diagnosed in present case based on both urine analysis and cytology.

Treatment and Discussion

Culture examination of urine revealed *E.coli* and showed sensitivity to amoxicillin, amikacin, ciprofloxacin and enrofloxacin however, resistant to tetracycline, cephotaxime and trimethroprim. So, dog was treated with antibiotic combination of Amoxicillin and clavulanic acid @ 20 mg/kg PO every 12 hrly; (Augmentin 625mg/tablet; Glaxosmithkline Pharmaceuticals Ltd., Mumbai, India) and enrofloxacin @ 5 mg /kg bwt PO, q12h, (Meriquin, vetoquinol) for their synergistic effects. But animal didn't show any improvement in clinical signs. Afterwards, piroxicam was administered orally once daily at a dose of 0.3 mg/kg for one week. Along with this, homeopathic medicine, Calcarea carbonica 30 was prescribed once weekly. After one week interval, the animal showed recovery and there was resolution of haematuria. Urine analysis and ultrasonography was repeated in patient after an interval of 15 days which revealed normal urine sample with some amount of debris in the urinary bladder. After one month interval, all the clinical signs were resolved and the ultra sound was performed again which revealed normal urinary bladder and normal urine with absence of any debris in urinary bladder (Fig.4).

Tumors of the urinary bladder and urethra accounts for 1% of all canine cancers (Henry, 2003). Transitional cell carcinoma (TCC), however, accounts

Fig 1. Blood in urine (hematuria)

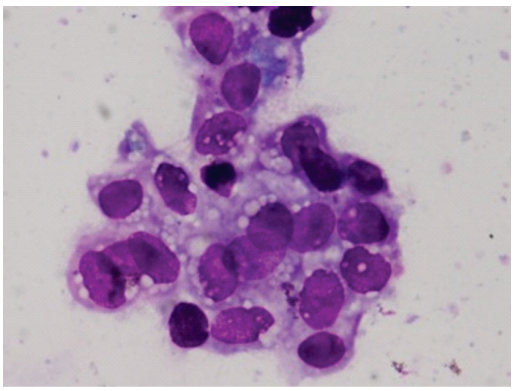

Fig. 2. Pleomorphic cells indicating Transitional Cell Carcinoma

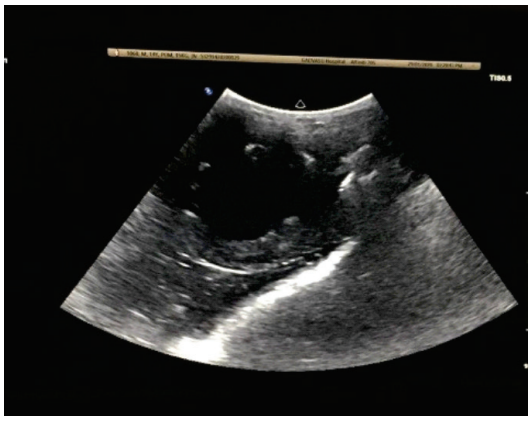

Fig. 3. Thickened urinary bladder (Pre-treatment)

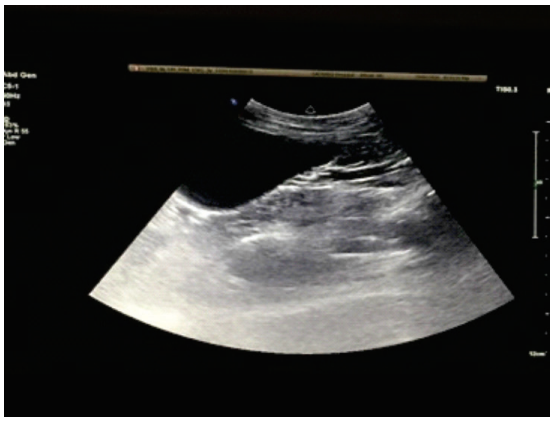

Fig. 4. Normal urinary bladder (Post-treatment).

for 50% to 75% of reported cases of canine urinary bladder cancer (Caswell, 2011). Prevalence of TCC is higher in certain breeds like Scottish terrier, Beagles and Collies etc. as compared to other breeds due to genetic predisposition. Knapp and McMillan (2013) reported hematuria, stranguria as well as pollakiuria in dogs affected with TCC. However in present case, only hematuria was the primary complaint.

In dogs with suspected TCC, evaluation should include complete blood count (CBC), serum biochemistry profile, urinalysis, urine culture, thoracic radiography and abdominal ultrasonography (Knapp and McMillan, 2013). The urinary tract signs with TCC closely resemble those of a urinary tract infection. So, antibiotic treatment was constituted for one week but with no reduction or resolution of clinical signs.

Knapp *et al.* (1994) observed successful use of piroxicam in treatment of dogs with transitional cell carcinoma of the urinary bladder. Transitional cell carcinoma may be indistinguishable from cystitis on urinalysis however, increased red blood cells, white blood cells and bacteria may be observed in the urine in both conditions (Henry, 2003). Knapp *et al.* (1994) and Knapp *et al.* (2000) reported that piroxicam, given at dose rate of 0·3 mg/kg/day in dogs is well tolerated and gastrointestinal (GI) toxicity occurs in only 15% of treated cases. But in present case, it was well tolerated without showing any gastrointestinal toxicity.

Calcarea carbonica plays an important role in tumour apoptosis, immuno therapy and for successful tumour regression (Saha*et al.,* 2013). As compared to conventional allopathic treatment, homeopathic treatment of TCC with calcarea carbinica was relatively cheaper, had no side effects and results in drastic improvement in clinical condition of the animal and hence extending the quality life. TCC growth can be controlled in approximately 75% of dogs with good quality life and median survival times of more than one year (Fulkerson and Knapp, 2015). In our case, Calcarea carbonica was given for two months. Afterwards, animal was completely recovered and alive after more than one year of the start of treatment.

References

Caswell, M. 2011. Transitional cell carcinoma of the urinary bladder in a 14-year-old dog. *Can. Vet. J.* **52:** 673-75.

Fulkerson, C. M. and Knapp, D W. 2015. Management of transitional cell carcinoma of the urinary bladder in dogs: a review. *Vet. J.* **205** (2): 217-25.

Guimaraes, F.S., Andrade, L.F., Martins, S.T., Abud, A.P., Sene, R.V., Wanderer, C.,Tiscornia, I., Bollati-Fogolín, M., Buchi, D.F. and Trindade, E.S. 2010. In vitro and in vivo anticancer properties of a Calcarea carbonica derivative complex (M8) treatment in a murine melanoma model. *BMC Cancer* **10**(1):113.

Henry, C. J. 2003. Management of transitional cell carcinoma. *Vet. Clin. North Am. Small Anim. Pract.,* **33:** 597–613.

Knapp, D.W., Richardson, R.C., Chan, T.C., Bottoms, G. D., Widmer, W.R., Denicola, D. B., Teclaw, R., Bonney, P.L. and Kuczek, T. 1994. Piroxicam therapy in 34 dogs with transitional cell carcinoma of the urinary bladder. *J. Vet. Intern. Med.,* **8:** 273-78.

Knapp, D .W.,Glickman, N.W., Denicola, D.B., Bonney, P.L., Lin, T.L. and Glickman, L. T. 2000. Naturally-occurring canine transitional cell carcinoma of the urinary bladder A relevant model of human invasive bladder cancer. *Urol. Oncol.,* **5:** 47-59.

Knapp, D. W. and McMillan, S. K. 2013. Tumors of the Urinary System, In: Small Animal Clinical Oncology (5thEdn), Elsevier-Saunders, St Louis, MO, USA, pp. 572-82.

Knapp, D. W., Ramos-Vara, J. A., Moore, G. E., Dhawan, D., Bonney, P. L. and Young, K. E. (2014). Urinary bladder cancer in dogs, a naturally occurring model for cancer biology and drug development. *ILAR J.,* **55:** 100–118.

Mutsaers, A.J,Widmer, W.R. and Knapp, D.W. 2003. Canine transitional cell carcinoma. *J. Vet. Intern. Med.,* **17:**136-44.

Norris, A.M., Laing, E., Valli, V.E., Withrow, S.J., Macy, D.W., Ogilvie, G.K., Tomlinson, J., Mccaw, D., Pidgeon, G. and Jacobs, R.M. 1992. Canine bladder and urethral tumors: a retrospective study of 115 cases (1980-1985). *J. Vet. Intern. Med*., **6:** 145-53.

Saha, S., Hossain, D.M.S., Mukherjee, S., Mohanty, S., Mazumdar, M., Mukherjee, S.and Chakrabarty, R. 2013. Calcareacarbonica induces apoptosis in cancer cells in p53-dependent manner via an immuno-modulatory circuit. *BMC Complement. Altern. Med.,* **13**(1): 230.

Withrow, S.J. 2001. Tumors of the urinary system. In: Small Animal Clinical Oncology, 3rd ed. WB Saunders, Philadelphia.

Received : 15.04.2021
Accepted : 29.11.2021