

## Case report of a myxoma in a gamecock

I. YAMAN<sup>1</sup>, T. DURGUN<sup>2</sup>, E. KARABULUT<sup>2</sup>

<sup>1</sup>Department of Pathology, <sup>2</sup>Department of Surgery, Faculty of Veterinary Medicine, Firat University, Elazig, Turkey

**ABSTRACT:** A mass was detected on the right side of the crop of a 17-month-old gamecock. Macroscopically, the excised mass, 10 × 7.0 × 4.0 cm in size, was ovoid-shaped with a smooth surface and a few lobules. Microscopically, the individual neoplasm cell was stellate or fusiform in shape and the cell nucleus was round, ovoid or elongated, with multiple nucleoli. No hypercellular or pleomorphic areas were identified and no mitoses were observed. The mass was myxoma according to the macroscopic and microscopic results of this study.

**Keywords:** myxoma; gamecock

Myxoma is considered to be a benign neoplasm of dermal or subcutaneous fibroblast origin (Muller et al., 1983; Pulley and Stannard, 1990; Okamoto et al., 2002). Affected animals are usually adult or aged (Pulley and Stannard, 1990). The cause of these neoplasms is unknown (Muller et al. 1983). Although its incidence is rare (Muller et al., 1983; Pulley and Stannard, 1990; Okamoto et al., 2002), myxoma usually occurs in man and in all domestic animals with no breed or sex predilections (Muller et al., 1983; Pulley and Stannard, 1990; Crankson et al., 2002). Myxoma is extremely rare in cats, dogs (Darke and Gordon, 1974; Muller et al., 1983; Campbell and Gelberg, 2000) and birds (Erturk and Pamukcu, 1974; Yang and Lee, 1987). In a study (Erturk and Pamukcu, 1974) of 612 birds during the period of 1933–1974, only a single myxoma was detected among 81 neoplasms. Myxoma is a fibroma (Weiss, 1974; Pulley and Stannard, 1990; West et al., 2001) in which the neoplasm cells have the stellate morphology of primitive mesenchymal cells (Muller et al., 1983; Jubb et al., 1985; Pulley and Stannard, 1990; Campbell and Gelberg, 2000; West et al., 2001; Crankson et al., 2002; Okamoto et al., 2002). Myxoma can occur in a variety of locations including the heart, bones, skin, subcutaneous and aponeurotic tissue, genitourinary tract, skeletal muscle (Allen, 2000) and at any site where the connective tissue exists (Pulley and Stannard, 1990;

West et al., 2001). This case report describes the morphological features of a myxoma in a gamecock.

### CASE HISTORY

A mass was detected on the right side of the crop of a 17-month-old gamecock. Xylazine hydrochlorure (Rompun – 2 mg/kg, Bayer) was administered and the rooster was anaesthetized with ketamine hydrochlorure (Ketalar – 40 mg/kg, Eczacibasi) and the mass was surgically excised. This tissue sample was fixed in 10% neutral-buffered formalin. The formalin-fixed tissue was embedded in paraffin wax, sectioned at 5 µm and stained with haematoxylin-eosin, Alcian blue and toluidine blue.

Macroscopically, the excised mass, 10 × 7.0 × 4.0 cm in size, was ovoid-shaped with a smooth surface and a few lobules. In addition, it was soft-to-firm, slimy, and nonencapsulated and in the colour of greyish white-yellow (Figure 1). Cut surface of the mass was glossy, wet and in the formation of cystic cavitations. Microscopically, the neoplasm was characterized by stellate-to-fusiform cells distributed in a vacuolated, basophilic, mucinous stroma containing few tiny blood vessels that was partitioned by collagenous connective tissue septae. The cells were scattered appearing singly or in small clusters. The individual neoplasm cell was



Figure 1. Macroscopic appearance of the neoplasm (10 × 7.0 × 4.0 cm in size, ovoid-shaped with smooth surface and a few lobules)

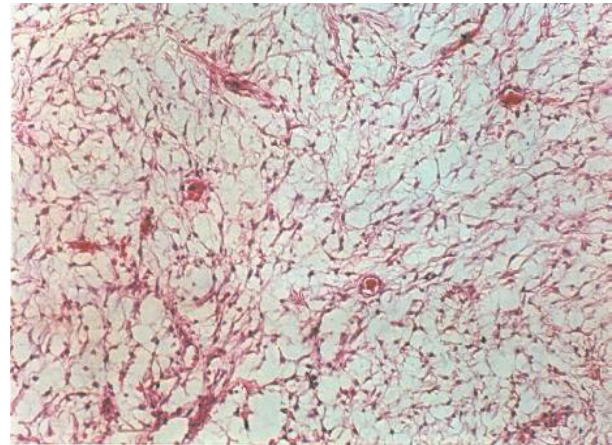


Figure 2. Microscopic appearance of the neoplasm (stellate-to-fusiform cells distributed in a vacuolated, basophilic, mucinous stroma containing few tiny blood vessels); haematoxylin and eosin, × 100

stellate or fusiform in shape and the cell nuclei was round, ovoid or elongated, with multiple nucleoli (Figure 2). No hypercellular or pleomorphic areas were identified and no mitoses were observed. The stroma of neoplasm was pale blue in haematoxylin-eosin stained sections, and stained with Alcian blue and metachromatically with toluidine blue. Alcian blue staining was confirmed by the presence of abundant acid mucopolysaccharides in the myxoid matrix.

## DISCUSSION

Myxoma was reported to be extremely rare in birds (Erturk and Pamukcu, 1974; Yang and Lee, 1987). Mature and old animals were observed to be the most affected animals by the neoplasm (Pulley and Stannard, 1990). In the present report, a gamecock at the age of 17 months was presented. Early slaughtering is probably the cause of rare incidence of neoplasm. The neoplasm was reported in heart (Darke and Gordon, 1974; Campbell and Gelberg, 2000), lungs (Paliwal and Baxi, 1979), spleen (West, 1974), spinal canal (Teague and Berg, 1978), skin (Muller et al., 1983; Yeruham et al., 1999), skeletal muscle (Crankson et al., 2002; Okamoto et al., 2002), subcutaneous and aponeurotic tissue, genitourinary tract, liver and bones (Pulley and Stannard, 1990; Allen, 2000). The neoplasm was detected on the right side of the crop (related with subcutaneous connective tissue) in this case. In clinical manage-

ment, the therapy of choice for myxoma is radical surgical excision (Muller et al., 1983), which was also performed successfully in the present case. Macroscopically, neoplasm is reported to be glossy, soft-to-firm, slimy, nonencapsulated and in the colour of pale grey-white (Muller et al., 1983; Pulley and Stannard, 1990; Campbell and Gelberg, 2000; Crankson et al., 2002). In this case, macroscopic findings were found to be similar to the references. Microscopically, sparsely distributed spindle-shaped or stellate-shaped fibroblast-like cells in abundant myxoid matrix with few vessels are reported for myxoma (Muller et al., 1983; Jubb et al., 1985; Campbell and Gelberg, 2000; Crankson et al., 2002; Okamoto et al., 2002). The nuclei of these cells are generally round or ovoid (Pulley and Stannard, 1990; West et al., 2001). The stroma of neoplasm and consequently intercellular fibrils are bluish (haematoxylin-eosin) stained (Jubb et al., 1985; Campbell and Gelberg, 2000). It is also reported that the neoplasm was stained intensely with Alcian blue and metachromatically with toluidine blue (Jubb et al., 1985; Campbell and Gelberg, 2000; Okamoto et al., 2002). Similar microscopic findings were observed in the present report.

Myxoma is reported to be a fibroma (Weiss, 1974; Jubb et al., 1985; Pulley and Stannard, 1990; West et al., 2001) and mucin in the intercellular matrix is the chief feature that distinguishes myxoma from fibroma (Pulley and Stannard, 1990). There are no mitotic figures, cellular or nuclear pleomorphism in myxoma (Darke and Gordon, 1974; Campbell

and Gelberg, 2000; Crankson et al., 2002). There are hypercellular or pleomorphic areas and mitoses in myxosarcoma versus myxoma (Roh et al., 2001). However, no hypercellular or pleomorphic areas and mitoses were identified in the case. Because of all these findings, the mass was thought to be a myxoma.

## REFERENCES

- Allen P.W. (2000): Myxoma is not a single entity: a review of the concept of myxoma. *Ann. Diagn. Pathol.*, 4, 99–123.
- Campbell M.D., Gelberg H.B. (2000): Endocardial ossifying myxoma of the right atrium in a cat. *Vet. Pathol.*, 37, 460–462.
- Crankson S.J., Namshan M.A., Mane K.A., Bamefleh H. (2002): Intramuscular myxoma: a rare neck mass in a child. *Ped. Radiol.*, 32, 120–122.
- Darke P.G.G., Gordon R. (1974): Cardiac myxoma in a dog. *Vet. Rec.*, 95, 565–567.
- Erturk E., Pamukcu A.M. (1974): 1933–1974 yılları arasında Ankara ve yöresinde kanatlı hayvanlarda raslanan hastalık ve tumor olayları. *A. U. Vet. Fak. Derg.*, 21, 13–20.
- Jubb K.V.F., Kennedy L.P., Palmer N. (1985): *Pathology of Domestic Animals*. 3rd ed. Vol 1., Academic Press Inc., London. 516 pp.
- Muller G.H., Kirk R.W., Scott D.W. (1983): Neoplastic diseases. In: *Small Animal Dermatology*. 3rd ed. Press of W. B. Saunders Company, Philadelphia. 743–744.
- Okamoto S., Hisaoka M., Meis-Kindblom J.M., Kindblom L.G., Hashimoto H. (2002): Juxta-articular myxoma and intramuscular myxoma are two distinct entities. *Virchows Archiv*, 440, 12–15.
- Paliwal O.P., Baxi M.R. (1979): Pulmonary myxoma in sheep. *Indian Vet. J.*, 56, 892.
- Pulley T., Stannard A.A. (1990): Tumors of the skin and soft tissues. In: *Tumors in Domestic Animals*. 3rd. Moulton J. (ed.): University of California Press, Berkeley. 33–34.
- Roh M.S., Hun G.Y., Jeong J.S., Lee G.D., Hong S.H. (2001): Left atrial myxosarcoma with systemic metastasis (A case report). *J. Korean Med. Sci.*, 16, 111–114.
- Teague H.D., Berg J.A. (1978): Myxoma of the spinal canal in a dog. *J. Am. Vet. Med. Assoc.*, 173, 985–986.
- Weiss E. (1974): Tumours of the soft (mesenchymal) tissues. *Bull. Wld. Hlth. Org.*, 50, 101–110.
- West J.L. (1974): An avian splenic myxoma. *Avian Dis.*, 18, 139–141.
- West W.L., Gaillard E.T., O'Connor S.A. (2001): Fibroma (myxoma) molle in a hamster (*Mesocricetus auratus*). *Cont. Top. Lab. Anim. Sci.*, 40, 32–34.
- Yang S.Y., Lee S.H. (1987): Neoplasms identified in chickens and pigeons in Taiwan. *J. Chin. Soc. Vet. Sci.*, 13, 81–88.
- Yeruham I., Perl S., Orgad U. (1999): Congenital skin neoplasia in cattle. *Vet. Dermatol.*, 10, 149–156.

Received: 03–02–27

Accepted after corrections: 04–05–25

---

### Corresponding Author

Assoc. Prof. Dr. Ihsan Yaman, Firat University, 23119, Elazığ, Turkey  
Tel. +90 533 468 12 06, fax +90 424 411 29 96, e-mail: yamanih@hotmail.com

---