

***Rhabdomyosarcoma in a Budgerigar (melopsittacus undulates)***  
**(The First Case Report from Iran)**

**Tavassoly, A.**

*Pathology Dep., Faculty of Veterinary Medicine, Tehran University, P.O.Box 14155-6453,*

*Tehran, Iran*

Received 20 Jun 2001; accepted 7 Nov 2001

Rhabdomyoma or rhabdomyosarcoma are names given respectively to benign or malignant neoplasm's arising from striated muscle, skeletal, or cardiac. Although known in many animal species but it is infrequent. Rhabdomyosarcoma has been reported to arise from skeletal muscle of the tongue, pharynx, and panniculus, and from the myocardium and urinary bladder of dog which are locally invasive and tend to metastasize early (Jones *et al* 1997). Primary tumors of striated muscle are rare. Malignant striated muscle tumors are twice as frequent as benign ones, and about half of the striated muscle tumors in domestic animals arise from sites other than skeletal muscles (Jubb *et al* 1993). Rhabdomyosarcoma was reported from budgerigar (Petraik 1969, Raphael & Nguyen 1980) and fowl (Grewal & Patel 1985, Dukes & Pettit 1983). However, It suggested that rhabdomyosarcoma, nephroblastoma and hepatocellular carcinoma were rare tumors in poultry. Avian rhabdomyosarcomas may induce by Rous sarcoma virus (Levenbuk *et al* 1994). In human, rhabdomyosarcoma is predominantly a neoplasm of infancy, childhood, and adolescence, with a peak incidence in the first decade of life. It is the most common form soft tissue Sarcoma in the pediatric population. These tumors arise most frequently in the head and neck area, genitourinary tract and retro peritoneum occasionally tumors originate in the extremities (Kumar & Robbins 1997).

Many pathologists feel uncomfortable in diagnosing a rhabdomyosarcoma without seeing striations. These can be revealed most clearly in histology sections by staining with iron hematoxyline (Weiner or Headman) or with Mallory's

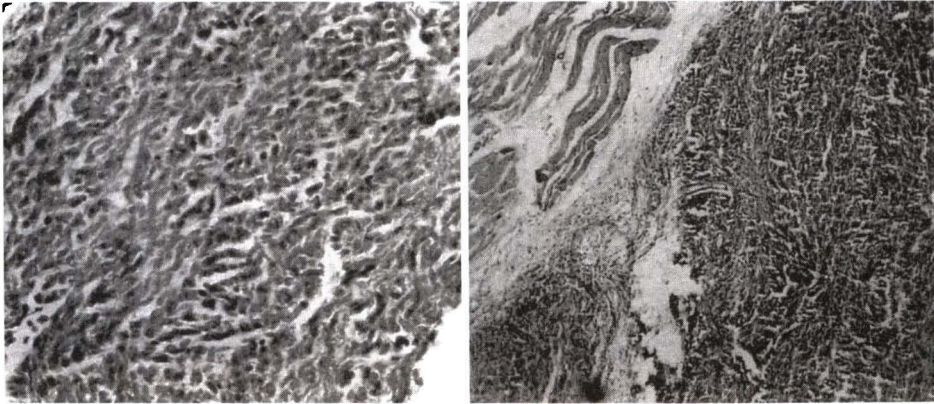
phosphotungstic acid hematoxylin (PTAH). However, searching for cross-striation in undifferentiated tumors is time consuming and not always useful (Carlton & Gavin 1995). Some tumors arising in skeletal muscle are apparently derived from a progenitor cell other than a muscle fiber or myoblast. The most frequently used classification that seems to be practical for tumors of both human and animals is based on cell morphology. In this scheme, three major types are recognized: alveolar, embryonal, and pleomorphic. No clearly identifiable examples of the alveolar type have been reported as a naturally occurring tumor of domestic animals (Moulton 1990).

In this paper a rhabdomyosarcoma is described on the muscle of left thigh of a male budgerigar.

### ***Case history***

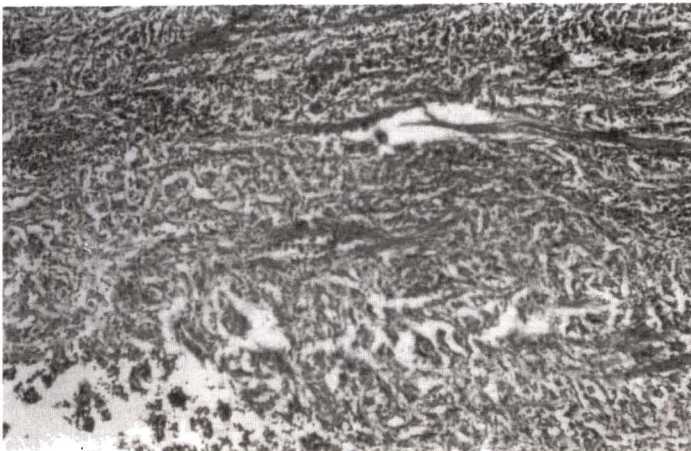
A tumor mass was found on the muscle of left thigh of a male budgerigar. According to the owner, a swelling was presented in the left thigh area, and has been enlarging rapidly during a month. Physical examination revealed oval, moderately firm mass, about 2.5cm in diameter in the region of the left thigh. The bird was weak and died following day. This tumor mass was separated from soft tissue and bone of left thigh. Tumor mass was fixed in a 10% buffered formalize solution. After fixation and tissue processing, 7 $\mu$  paraffin sections were stained with Hematoxyline & Eosin. The special staining was carried out for differentiating from other mesenchymal malignant tumor of connective tissue. Necropsy revealed a roughly oval mass measuring 2.5 $\times$ 1.5 $\times$ 1cm in the muscle of left thigh, the external surface of the mass was pale red and gray on cut surface. Tumor was poorly circumscribed and was not encapsulated. There were no metastases. At the cut surface, the evidence of necrosis and invasion of the adjacent tissue were observed. The microscopic appearance was similar to that of a fibrosarcoma. The tumor cells were poorly differentiated. Large vacuolated cells (spider cells) were present. Mitotic figures were numerous, nuclei varied greatly in size and pleomorphism in tumor cells were seen, cell outlines were not clear. The mass contained irregular areas of necrosis. According to the

microscopic characteristic of this tumor, neoplasia diagnosed as a pleomorphic type of rhabdomyosarcoma. (Fig.1).



*Figure 1. Rhabdomyosarcoma, the neoplastic cells are highly pleomorphic and form little collagen fibers. Spider cells are present. H & E  $\times$ 250*

This finding was confirmed by Van Gieson special staining. In the stain the cytoplasm of tumor cells and skeletal muscle as well as epithelium cells stained yellow and collagen fibers stained red (Fig. 2).



*Figure 2. Rhabdomyosarcoma, van Gieson stain cytoplasm of neoplastic cells stained yellow, nuclei are dark and collagen fibers stain red*

In this study, the tumor cells poorly differentiate, and large vacuolated cells with pleomorphism, were present. According to the histopathology this neoplasia and using special stain for differential diagnosis of them. This tumor diagnosed as a pleomorphic type of rhabdomyosarcoma.

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