Surgical Management of Deep Extramedullary Cervical Plasmacytoma in a Dog

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Abstract
A male Spitz was presented with history of severe dyspnea and open mouth breathing. Physical examination revealed a fist-sized growth on the right side of neck, behind the angle of mandible. Radiograph showed narrowing of cranial part of trachea. Surgery was performed under general anaesthesia with isoflurane to excise the tumor mass. Capsulated, slightly irregularly marginated tumor mass of about 7.5 cm diameter was positioned deep within the muscles of neck bordered by jugular vein and carotid artery laterally. Histopathology were suggestive of plasma cell tumor or extramedullary plasmacytoma (EMP). Normal respiratory pattern was restored immediately after removal of the mass.

Keywords: Extramedullary; neck; plasma cell; plasmacytoma; tumor

Introduction
Solitary plasma cell tumors (plasmacytoma) represents 2.4 percent of all canine tumors. These tumors originate from soft tissues (extramedullary plasmacytoma, EMP) or bone (solitary osseous plasmacytoma). Multiple myeloma is the malignant form of plasma cell tumor with poor prognosis. The most common location plasmacytoma is the skin or mucous membranes especially the lip, digits, trunk, ears and face (Richard, 1991). Apart from these sites, recently solitary extramedullary plasmacytomases has been reported in trachea (Gupta et al., 2014), larynx (Witham et al., 2012), lung (Adelman et al., 2014), penile mucosa (Jackie et al., 2012) and digit (Gupta et al., 2014) of dogs. These neoplasm arise when a cell of B-lymphocyte plasma cell lineage proliferates to form a malignant population of similar cells.

History and Observations
A three year old male Spitz dog weighing 5.6 kgs was presented with history of severe dyspnea and open mouth breathing for past three weeks with reduced feed intake. Respiratory stridor and intermittent coughing were also present. Physical examination revealed congested mucus membrane, slightly bluish tinged tongue, highly inflamed and ulcerated tonsils bilaterally occluding the gлоти. A fist-sized growth on right side of neck, behind the angle of mandible was palpable. All other superficial lymph nodes were palpable. No other tumor mass was present elsewhere.

Radiograph showed soft tissue mass compressing the cranial part of trachea and no metastatic lesion in thorax and abdomen. Haematology, serum biochemistry profile, urinalysis and bone marrow aspirate cytology were within the normal reference ranges. Haemoglobin-15.6 g/dL, PCV-47.9%, RBC-7.37 million/cumm, WBC-6,300 cells/cumm, neutrophil-73%, lymphocyte-22%, monocyte-3% and eosinophil-2%. BUN-11 mg/ dL, creatinine-0.9 mg/ dL, ALT-6 IU/l, SAP-79 IU/l, total protein-7.2 g/ dL, albumin-2.1 g/dL, and globulin-5.10 g/dL.

Treatment and Discussion
The dog was premedicated with Atropine @ 0.04 mg/kg b.wt. General anaesthesia was induced using Propofol @ 5 mg/kg b.wt. intravenously. Endotracheal tube no. 6 was introduced into trachea with difficulty. Maintenance of anaesthesia was with 1-1.5 percent isoflurane using ADS 1000 with controlled ventilation. Inj. Ceftriaxone @ 20mg/ kg b.wt. and Tramadol @ 2mg/ kg b.wt. were also administered intravenously before surgery. The dog was placed on left lateral recumbency and surgical site was prepared following aseptic procedures.

A linear incision was made on the skin of about 10 cm over the tumor mass. Immediately below the skin, careful dissection was made to isolate the external jugular vein and its bifurcation (maxillary vein and lingo-facial vein) were deflected. Sterno thyro hyoideus and sternocephalicus were separated and encapsulated tumor mass was noticed. Carotid sheath was placed ventrally and required cautious dissection of tumor mass to remove it (Fig. 1). The
encapsulated tumor mass was irregularly margined and about 7.5 cm in diameter (Fig. 2). After tumor excision, muscles, subcutaneous tissue were approximated with polyglycolic acid and skin by black braided silk. Histopathological examination of tumor mass showed round or oval cells with eccentric nuclei and fine to moderately clumped chromatin (Fig. 3).

As the animal recovered from anaesthesia, there was no more dyspnea and dog started to breath normally. Antimicrobial agent, Ceftriaxone @ 20 mg/kg i.v. was administered intravenously and Prednisolone @ 0.5 mg/kg b.wt. orally were given for a week. Sutured site was bandaged on alternate days and suture was removed on the ninth day.

Complete surgical excision may be considered curative. Long term survival with surgical excision alone has been supported by Adelman et al. (2014) and Smithson et al. (2012). Apart from surgery, chemotherapy with Melphalan (0.1-0.05 mg/kg b.wt., PO) and Prednisolone (0.5 mg/kg b.wt. PO) had been attempted (Witham et al., 2012). However, there is limited information on the use of systemic chemotherapy for EMPs. Similarly, radiation therapy for incompletely resected EMPs in penile mucosa had been done (Jackie et al., 2012). Dogs without complete surgical removal of EMP and no adjuvant therapy had a median survival time of 138 days (Wright et al., 2008).

Extramedullary plasmacytomas has been so far found in tissues of throat and sinuses in human beings. To date, there has been no clinical case report of EMP in the muscles. This is the first case of plasmacytoma reported in neck, not associated with larynx, trachea, oesophageus, mucosa or skin. This mass was found compressing the trachea in the cervical region. This leaded to oral breathing and tonsillitis. In order to resume normal breathing in this case, surgical excision of tumor was opted. Tumor mass was surgically excised along with the capsule, after careful dissection of external jugular vein and carotid sheath in neck region. The case was followed for a period of six months and no recurrence of the tumor was noticed.

References