NOTE

Solitary Plasmacytoma Originating from the Rectum in a Dog

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Extramedullary plasmacytoma is rare in dogs, although there are several reports of multiple myeloma [1, 6–8]. Recently we encountered a case of canine plasmacytoma originating from the rectal wall.

The dog, an 11 years old female Akita breed, was brought to the veterinary hospital of Azabu university for archorrhagia and pain on defecation for three days. It was apparently in good condition except for the two nodular masses in the rectal wall detected by X-ray examination. An egg-sized mass was located in some distance from a walnut-sized one.

Imprint smears were made of aspiration biopsy materials from the masses and stained with Giemsa’s solution. Numerous pleomorphic plasma cells with some mitotic figures and binucleated cells were observed (Fig. 1A & 1B). Tentative diagnosis of plasma cell tumor was made, but abnormal plasma protein was not detected. Other blood values showed no remarkable change. Therefore, tumor excision was made and the removed tissues were fixed with a 10% phosphate-buffered formalin solution and processed for histopathological examinations. Small pieces of the tissues were fixed with glutaraldehyde and OsO₄ and embedded in epoxy resin. Ultrathin sections were made for electron microscopic examination.

Light microscopic findings: Two masses were almost the same in the pathological findings. There were many neoplastic cells accumulated in the submucosa of both the masses. Most of these cells were large, round and ovoid in shape each with a round nucleus. In some neoplastic cells, the nucleus was located quite eccentrically on one side of cytoplasm and had a characteristic cartwheel chromatin pattern of plasma cells (Fig. 2). Binucleated cells and mitotic figures were frequently seen. When the section was stained with methylgreen and pyronine, cytoplasm of most cells were bright red. Accumulation of hyaline substance was observed in some blood vessel walls in the neoplastic tissues (Fig. 3). No such inflammatory cells as lymphocyte, granulocyte and macrophage were seen.

Electron microscopic findings: Numerous oval-shaped cells had large cytoplasm with multilayered rough endoplasmic reticulum and grobular electron dense substances (Fig. 4). The round nuclei, often, had distinct nucleoli and the “clock face” pattern of margined chromatin.

From these findings, diagnosis of plasmacytoma was made. The dog was much improved and discharged from the hospital on the fourth day after operation.
About a month later, the dog died of gastric torsion. Then postmortem examination was made. No secondary neoplastic growth in any other organ including the bone marrow was detected.

Solitary plasmacytoma is classified into a benign tumor by WHO [4]. This tumor was apparently different from the plasma cell granuloma, since many mitotic cells were observed in the tissues without association of infiltration of other inflammatory cells. It has been reported that abnormal protein appears in some multiple myelomas [1–3, 5–8], however, it was not detected in this solitary tumor. As compared with multiple myelomas, the total number of neoplastic plasma cells was very small in this tumor. Although the presence of electron dense substances in endoplasmic reticulums of plasma cells were observed, abnormal protein was not detect by routine examination.

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References

Explanation of Figures
Fig. 1. Smear of an aspiration biopsy material. Numerous pleomorphic plasma cells (1A). A binucleated cell with many cytoplasmic vacuoles (1B). Giemsa’s stain. 1A×280, 1B×700.

Fig. 2. Neoplastic plasma cells each with an eccentric nucleus and mitotic figures (Arrow). H. & E. stain. ×280.

Fig. 3. Hyaline substance accumulated in the blood vessel of the neoplastic tissue. H. & E. stain. ×140.

Fig. 4. Neoplastic plasma cells containing pronounced rough endoplasmic reticulums and electron dense globular substances. Nuclear chromatin was arranged in a cartwheel. (Bar=2 μm).

要約
犬の直腸にみられた形質細胞腫の1例（短報）：新井成之・小林好作・高橋孝佐1・鈴木立雄1・武藤真3（麻生大学獣医学部臨床病理学教室）、家畜医病院、家庭外科学教室）——11歳、雄の秋田犬の直腸壁に異常を生じた形質細胞腫と診断したが、末梢血には異常白血球は検出されなかった。摘出腫瘍を病理組織学的に検索したところ、両者ともには同様の所見を示し形質細胞の腫瘍性増殖が認められた。手術後の回復は順調であったが約1ヶ月後に再発し、剖検により骨髄およびその他の臓器に形質細胞の腫瘍性増殖は認められず、亀裂性形質細胞腫と診断された。