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Case Report

Squamous Cell Carcinoma Causing Spinal Compression in a Cat

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Abstract

A 9 years old DSH cat was presented with tetraparesis with front limbs extension and unable to walk. The CT scan revealed spinal cord compression due to a mass in the dorsal occipital-atlas region. Surgical treatment was performed. The mass was histopathologically diagnosed as a squamous cell carcinoma. The cat recovers to normal neurological function after the surgery.

Keywords: *Squamous Cell Carcinoma; Spinal Compression; Cat*

Introduction

Feline squamous cell carcinoma (SCC) is a very common cancer, it represents 15 to 20% of feline skin tumors [19] and approximately 60 to 70% of all feline oral malignancies [15]. SCC along with basal cell tumors, mast cell tumors and fibrosarcoma, make on average approximately 70% of all feline skin tumors [8]. Other common sites in cats are neck and head [22] and poorly haired regions such as eyelids, pinnae and periauricular areas [2]. Another uncommon but form of cutaneous SCC is multi centric SCC also known as Bowen´s carcinoma [7,19].

A research by the author in pubmed publications showed several publications about SCC in the last 2 - 3 years, in which around 30 studies with cutaneous and oral SCC and others research in association with papilloma virus. The publications where was bone involvement where oral SCC with bone invasion and one report by Paulin., *et al.* in 2018 of a supposed primary intraosseous SCC. There is one repot in a dog of a SCC causing spinal compression, by Miyazaki., *et al.* in 2016.

Case Description

A 9 year old, DSH, neutered male cat, presented for neurological consultation in our hospital. He disappeared for 2 days and was found in a side walk, unable to walk. He presented with front legs extension with neck tension. Flexor reflexes normal and deep pain sensation present in all limbs. No proprioception and absent postural reactions. Cranial nerves with no deficits. The cat had no signs of trauma, with clean fur and skin, no wounds. Th neurologic examination was suggestive of a C1-C5 lesion.

Figure 1

Blood analysis, abdominal ultrasound and thorax radiography were unremarkable.

A computed tomography scan was done with Simens helicoidal CT Emotion Duo. The pre-contrast medium study shows a calcified mass between the occipital and atlas bone, growing in the dorsal surface of the vertebral canal, more at the left side and causing dorsal spinal compression. After the IV contrast medium administration, Omnipaque (Iohexol) 300 mg/mL, the mass enhance as we'll as tissues around.

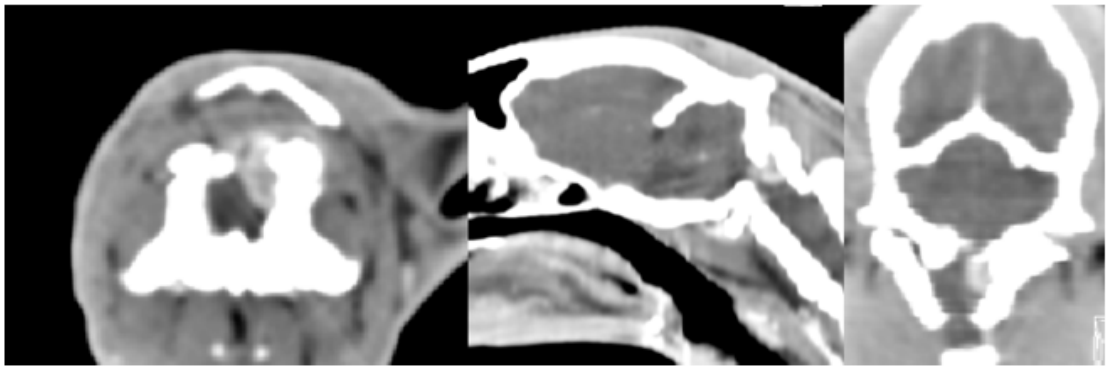

Figure 2

The cat was submitted to surgery. In sternal recumbency a dorsal approach was made to the cranial cervical spine. The anesthetic maintenance was done with sevoflurane. It was made an dorsal laminectomy and bone and mass were removed.

Histopathologically the sample was described as bone spicules involved by chronic, lymphocytic and granulomatous inflammatory process. This inflammatory population identifies a neoplastic population, large cells, broad cytoplasm, acidophilic, large nucleus and evident nucleolus, which seem to sketch images of keratinization. With an conclusion of metastasized bone with undifferentiated neoplasm compatible with squamous cell carcinoma.

Discussion

Most of the cats are considered to be senior at the time of the diagnosis, with a mean age at presentation of 12,5 years [13,15]. There is no breed or sex predisposition in cats [15].

Depending on the study, cutaneous carcinomas account, for approximately 15 - 50% of all cutaneous tutors in cats, making it among the 4 most common skin tutors in cats [21]. Overall, feline oral squamous cell carcinoma, are highly aggressive and invasive tutors in cats. Life expectancy is poor despite treatment, with average life expectancy after clinical presentation ranging from two to ten months [16]. Cats typically present for veterinary care for SCC at late stages of disease. The time of death or euthanasia is short [20].

Almost any malignant tumor can metastasize to bone via hematogenous route. The lumbar vertebra, femur, humerus, rib and pelvis are common sites for cancer spread, possibly because these predilections sites for bone metastasis from the common urogenital malignancies, such as prostate, bladder, urethral and mamar cancer [4]. Feline oral squamous cell carcinoma (FOSCC) can invade into local bone tissue depending on the site of the tumor [10,16] FOSCC can be locally invasive with metastasis occurring late in disease and most patients succumbing to local disease recurrence. In cats reported metastasis to regional lymph nodes (14,8% - 18%) and lungs (12%) occur late in the course of disease and most cats are euthanised due to poor quality of life as a result of primary tumor growth [22].

In presented case the bone metastatic SCC was in the first cervical vertebra, and no other primary tumor was found. Carcinoma of unknown primary (CUP) origin constitutes a group of metastatic carcinomas with no identified primary tumor after a complete and through examination of the body, including patient anamnesis, physical examination, laboratory tests and imaging techniques (thoracic radiography, abdominal ultrasound or computed tomography of the thorax, abdomen and pelvis, as well as mammography and prostate-specific antigen detection in blood in humans [11]. SCC in humans is rare [1], account for 5 - 10% of this CUP [3]. There are a few reports about CUP in humans these last years. Sladden., *et al*. in 2015 publish a case report in a 66 year old man with a SCC of unknown origin metastasizing to the right atrium causing acute heart failure, in 2017 Creta., *et al*. publish a report of a 78 year old man with a rare case of pelvic SCC of unknown origin presenting as perineal access and urethral stenosis, Agca and Kosif in 2018 presented a case of SCC in a mediastinal lymph metastatic lymph node with unknown primary origin, and more recently in 2019, Reith., *et al*. publish a case in a 68 year old man with metastatic SCC in the gallbladder fossa. SCC affecting the nervous system seems to be extremely rare, in human medicine there is a report from 2009 of a case of a 64 year old man with an intradural SCC in the cauda equina and in 1996 Jurgens., *et al*. publish a case of cervical metastasis of SCC. Carcinoma of unknown primary site is not a well-documented clinical syndrome in veterinary medicine [5]. In veterinary medicine most of the cases where there is bone involvement are oral SCC with local infiltration in the mandibular bone [13,18]. There are only, to the author knowledge, two cases published of SCC affecting vertebral bone, one in 1976 by Jonsson and Gustafsson of a SCC metastasizing to the thoracic and lumbar vertebra and another report in 2016 of a SCC with cervical vertebral invasion, both in dogs. Only one case was publish about a suspicion of an CUP in bone, by Matiz., *et al*. in 2019, where the metastasizing bone was the scapula, and it was also in a dog.

The histopathology study from this case came described as bone spicules involved by chronic, lymphocytic and granulomatous inflammatory process. The inflammatory population identifies a neoplastic population, large cells, broad cytoplasm, acidophilic, large nucleus and evident nucleolus, which seem to sketch images of keratinization. With the result being metastatic bone with undifferentiated neoplasm probably an squamous cell carcinoma.

Conclusion

We believe that this case of a cat with spinal compression caused by a metastasised bone with SCC could be a CUP, as no primary tumor was found.

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