

IMAGING, NECROPSY AND HISTOPATHOLOGICAL FINDINGS IN AGGRESSIVE MAMMARY TUMOR IN ONE CAT

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Abstract

The rate of cancer diagnosis in cats is increasing, and one of the most common type is of mammary gland tumors. Mammary neoplasia are clinically diagnosed, radiology and ultrasound revealed, and confirmed by necropsy examination and through histopathology. One intact female cat, 9 years old, with 10 cm ulcerated mammary tumor and with severe clinical condition, was brought to the Radiology service for imaging examination metastasis check up. Considering the critical condition, the radiological findings, and the clinical tumoral staging, with the consent of the owner, the cat was directed to the anatomopathology department for euthanasia, and for necropsy procedures. Pathological findings that were discovered on survey radiographs included: increased radiopacity in the pulmonary projection area, mild pleural effusion, radiopaque structure defined in the ventral abdominal wall, with decrease radiodensity middle area, and radiopaque kidney projection area. During necropsy, macroscopically was identified: aggressive mammary tumor invasions, pulmonary metastasis, kidney changes and ovarian cysts. Histopathological changes consists of: diagnosed mammary adenocarcinoma consisted of polymorphic cells with vacuolated cytoplasm and hyperchromatic nuclei, with frequent mitosis and with necrosis areas. Also, subpleural pulmonary metastasis with compact tumoral cells areas, hepatic congestion injury and fibrous nephritis were encountered. Mixed mammary adenocarcinoma exhibit a complex histological pattern, with an aggressive clinical behaviour, associated with a reserved or bad prognostic. Mammary tumours are one of the most frequent neoplasia in female cats; therefore, these tumours represent a serious problem in veterinary medicine.

Keywords: adenocarcinoma, cat, mammary, tumor, radiography

Introduction

To understand cancer, we must realize that it is not a simple or a freestanding disease, rather the term “cancer” is an umbrella term that describes a large number of pathological processes whose only common feature is uncontrolled cell growth and proliferation. The prevalence of cancer in pets is growing steadily, for a variety of reasons, some still being studied, and it is one of the major morbidity and mortality causes in cats and dogs.

The rate of cancer diagnosis in cats is somehow high, and one of the most common type is of mammary gland tumors. Mammary neoplasia are clinically diagnosed, radiology and ultrasound revealed, and confirmed by necropsy examination and through histopathology.

Materials and Methods

One intact cross breed female cat, 9 years old, with 10 cm ulcerated mammary tumor and with severe clinical condition, was brought to the Radiology service for imaging examination metastasis check up.

The superinfected mammary mass corresponded to the inguinal pair of mammary glands, causing pain when palpated, presented increased consistency and lacked mobility. The patient exhibited severe dyspnea, being only half conscious and found in a state of advanced weight loss.



Fig.1. Clinical image. Mammary tumor, ulcerated, superinfected, inguinal location. FMV Iași.

Following clinical examination and medical history assessment, radiological examination was employed, using two lateral positions, thoracic and abdominal, operations carried out with maximum care in order to avoid deterioration of the vital signs of the animal.

Considering the critical condition, the radiological findings, and the clinical tumoral staging (IV), with the consent of the owner, the cat was directed to the anatomopathology department for euthanasia, and for necropsy procedures.

Necropsy was performed by opening main anatomical cavities (thoracic and abdominal) and by examination of internal organs, following pathological modifications, as well as accumulation of pathological materials and fluids.

In order to establish a certain diagnosis, morphological samples were taken, followed by their preparation and special histopathological examination.

Results

Pathological findings that were discovered on survey radiographs included: increased radiopacity in the pulmonary projection area, mild pleural effusion, radiopaque structure defined in the ventral abdominal wall, with decrease radiodensity middle area, and radiopaque kidney projection area.

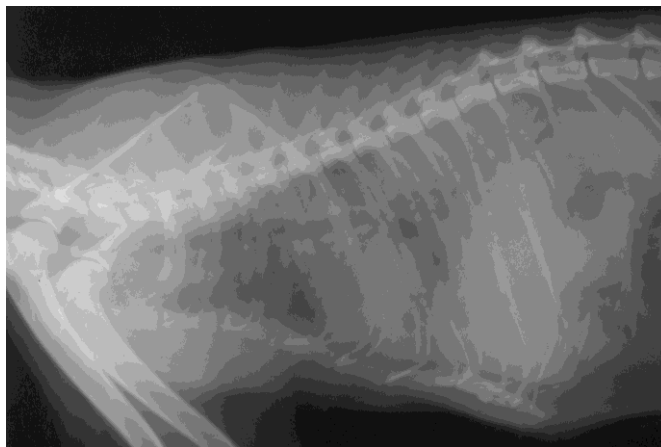


Fig.2. Radiological image. Thorax – lateral radiograph. Massive pulmonary infiltration in diaphragmatic lobes, pleural effusion, reduced respiratory space. FMV Iași.

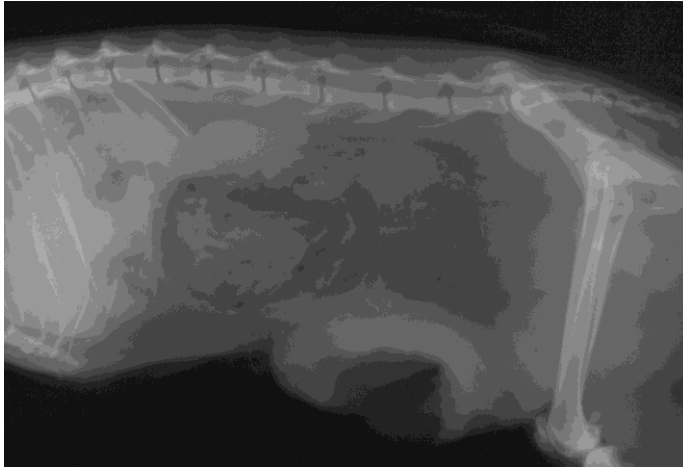


Fig.3. Radiological image. Abdomen – lateral radiograph. Increased radioopacity over the renal projection area. Ventrally situated radioopaque mass, well differentiated, presenting a central radiotransparent area, corresponding to the tumoral mammary mass with central area of necrosis.
FMV Iași.

During necropsy, macroscopically was identified: aggressive mammary tumor invasions, pulmonary metastasis, kidney changes and ovarian cysts.



Fig.4. Necropsy image. Thorax. Nodular lung metastases. FMV Iași.

Histopathological changes:

- diagnosed mammary adenocarcinoma consisted of polymorphic cells with vacuolated cytoplasm and hyperchromatic nuclei with star or spindle appearance, with frequent mitosis and with necrosis areas. Capillary neoformation, intratumoral hemorrhages and neutrophil infiltrations were found.

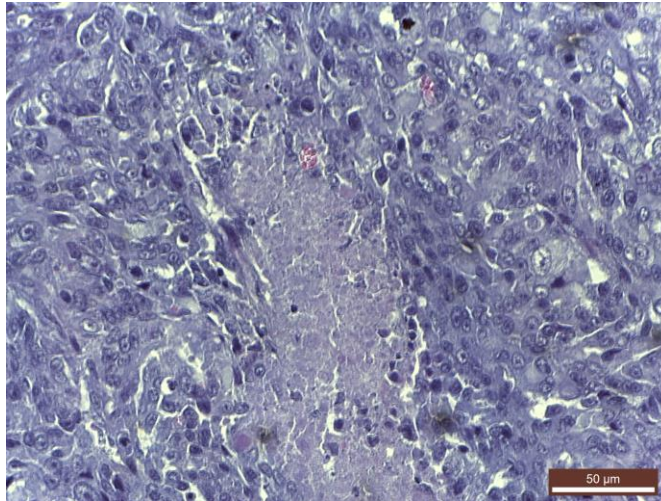


Fig.5. Histopathological image. 50 μm , HE stain. Mammary adenocarcinoma consisting of polymorphous cells, anisokaryosis and necrosis areas. FMV Iași.

- pulmonary metastasis consisting of compact areas of tumoral cells, extended areas of necrosis, as well as tumoral cells of acinar structure, with areas of pulmonary edema and atelectasis due to compression of pulmonary alveoli located at the edge of the metastasis.

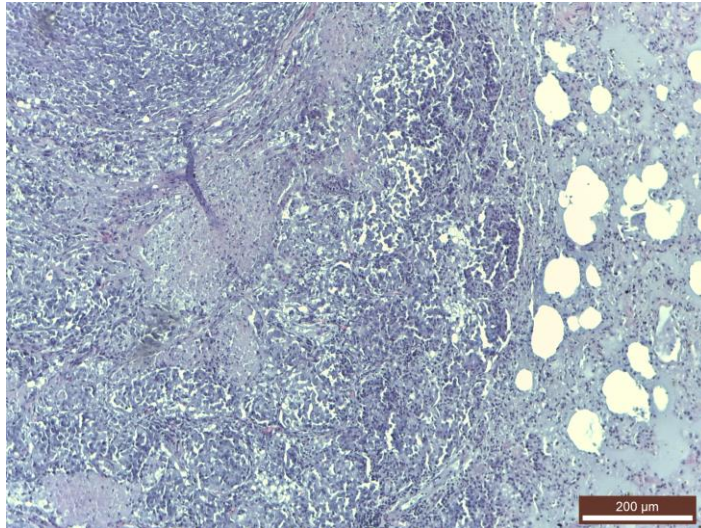


Fig.6. Histopathological image. 200 μm , HE stain. Compact lung metastasis, alveolar atelectasis and pulmonary edema. FMV Iași.

Also, hepatic congestion injury and fibrous nephritis were encountered.

Conclusion

Mixed mammary adenocarcinoma exhibit a complex histological pattern, with an aggressive clinical behaviour, associated with a reserved or bad prognostic. Mammary tumours are one of the most frequent neoplasia in female cats; therefore, these tumours represent a serious problem in veterinary medicine.

In any type of mammary mass, regardless of its dimensions, early examination using clinical and imaging methods is recommended, but also by cytological and histopathological investigations, in order to establish a diagnosis and subsequently an adequate therapeutic conduit.

Avoiding administration of hormonal products and consulting the specialist veterinarian upon noticing any modification in mammary glands are recommended, thus helping avoid tumoral advancement towards stages III and IV.

References

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