

# TWO ATYPICAL CASES OF FELINE RESTRICTIVE ORBITAL MYOFIBROBLASTIC SARCOMA (FROMS) INITIALLY PRESENTING AS ORAL MASSES

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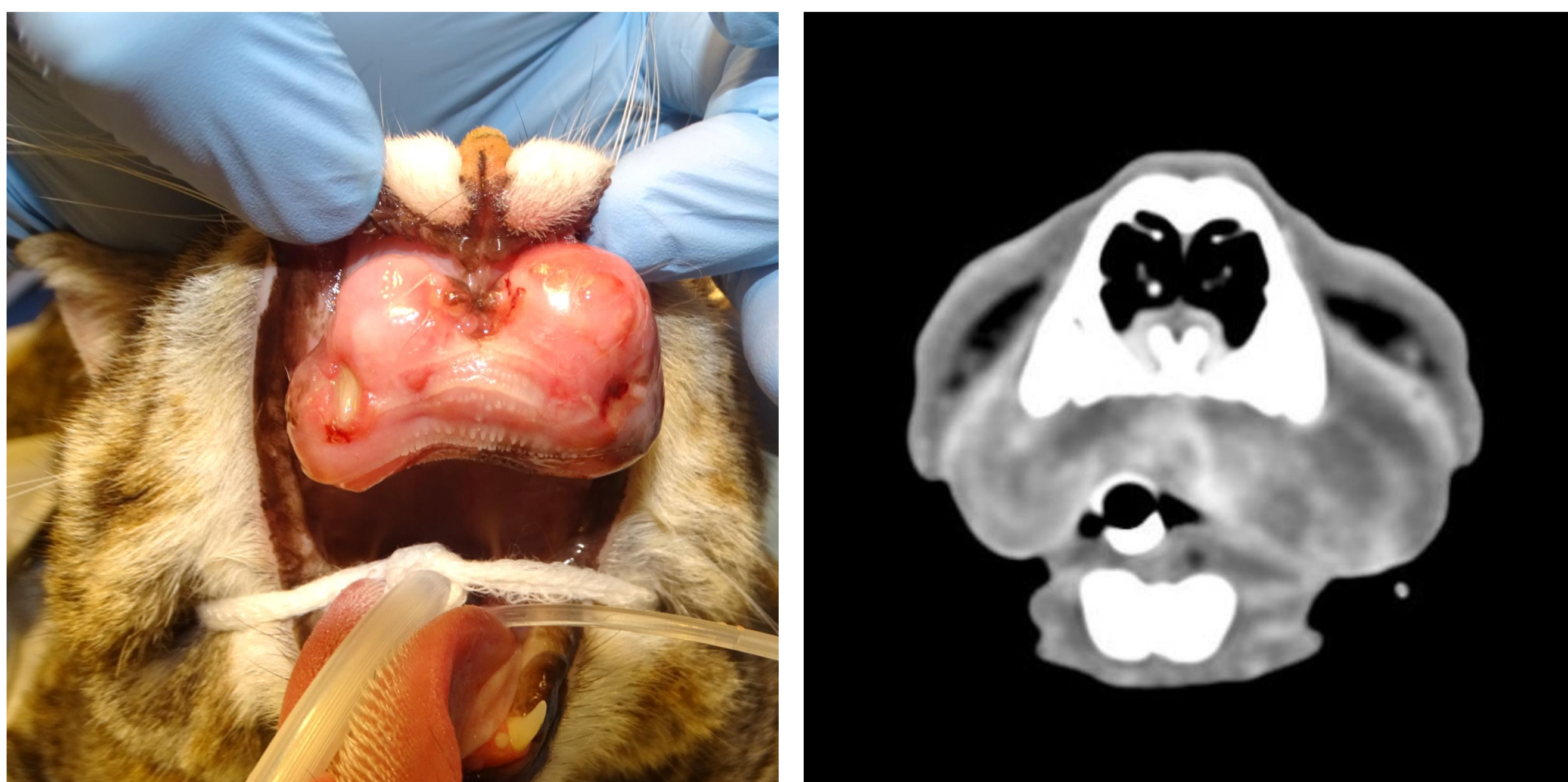
## INTRODUCTION

**Feline restrictive orbital myofibroblastic sarcoma (FROMS)** is an entity with a progressive clinical course and a poor prognosis, despite a morphology characterized by well-differentiated neoplastic spindle cells resembling reactive fibroblasts. FROMS typically arises as thickening of the orbit and midfacial region, and, in late stages, involves the contralateral eye up to the entire face, often extending into the oral cavity. We describe two cases of FROMS initially presenting as oral masses.

### CASE #1

«Nilu»: European Shorthaired cat, spayed female, 7.5 year-old

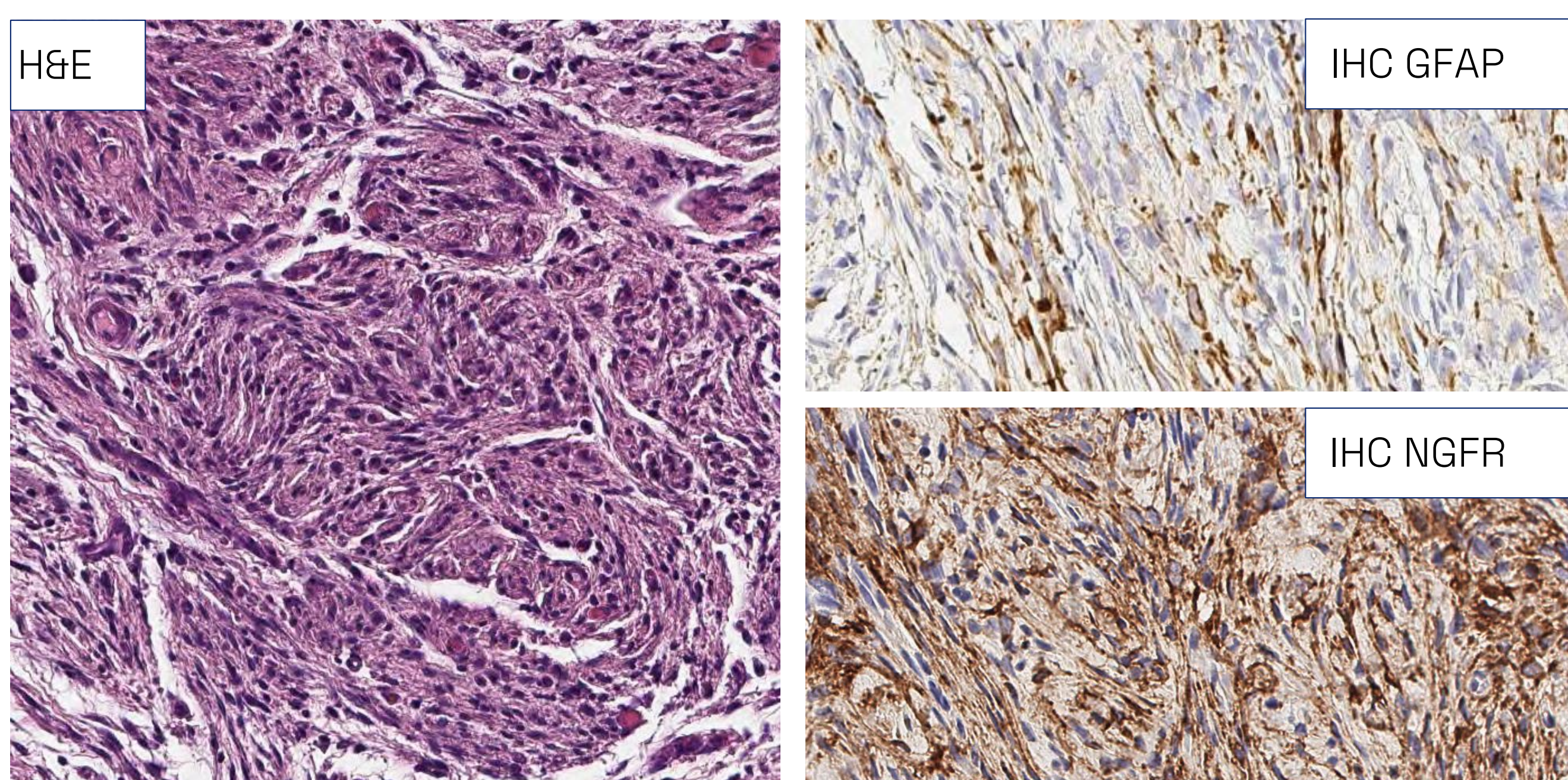
**CASE PRESENTATION:** Nilu was presented to visit in August 2021 because she had been keeping the mouth open since April: a rostral mass involving the hard palate and covering the canine teeth was highlighted. After a first incisional biopsy, the palate was surgically removed. In June 2022, multifocal ulcerated plaques appeared in the skin on the medial canthus of the eyes and near the nostrils.



**COMPUTED TOMOGRAPHY:** CT scans were held in August 2021 and June 2022. In 2021, a 4x2x1 cm palatal neoformation was evident, extending to either side of the midline beyond the gingival margin, covering teeth 101-108 and 201-208. The mass has a marked and inhomogeneous post-contrast enhancement. There was no lysis of the bone. In 2022, there was a recurrence of the palatal neoformation, with involvement of the nostrils, the rostral nasal cavity and with palate lysis. The mandibular, medial retropharyngeal and superficial cervical lymph nodes were enlarged.

**HISTOLOGY:** A first incisional biopsy of the mass was performed in early August 2021 and revealed the presence of a moderately cellular proliferation of bundles of spindle to stellate cells, with minimal atypia, firstly interpreted as a benign lesion. Histological examinations were then carried out on the palate, surgically removed in late August 2021, and the periocular skin, with punch biopsies in June 2022. The latter were characterized by a neoformation organized in bundles and whorls of spindle cells with mild to moderate features of atypia and occasional mitotic figures, associated with mild lymphoplasmacytic inflammation.

**IHC:** diffuse positivity to vimentin; multifocal positivity to S100, GFAP and NGFR. Negative stains for smooth muscle actin, desmin, Melan-A and PNL2.

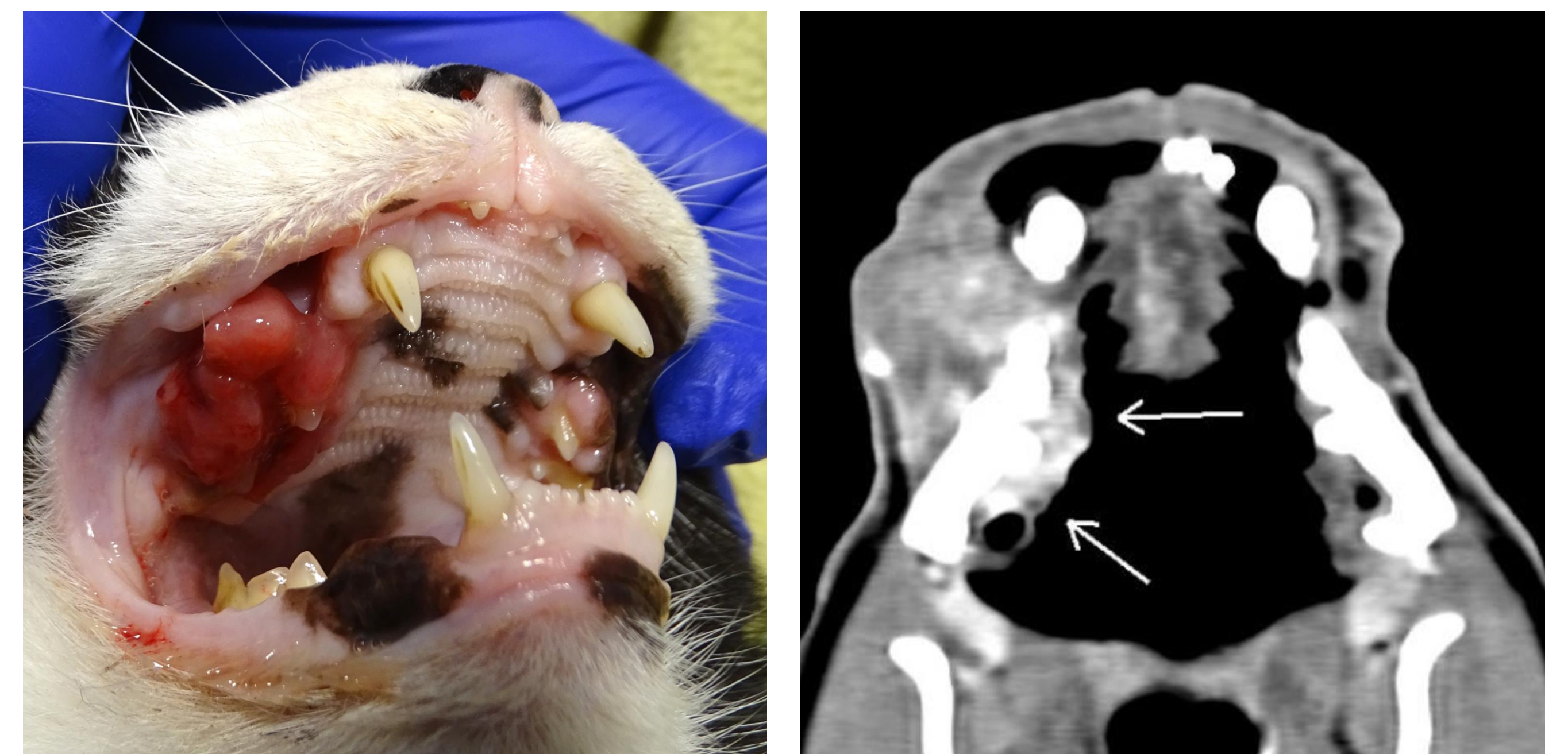


**CLINICAL OUTCOME:** The mass recurred after one year and enlarged until it filled the orbit and the face. Nilu died on 21/08/2022 following enormous difficulties in food intake.

### CASE #2

«Mia»: European Shorthaired cat, spayed female, 16 year-old

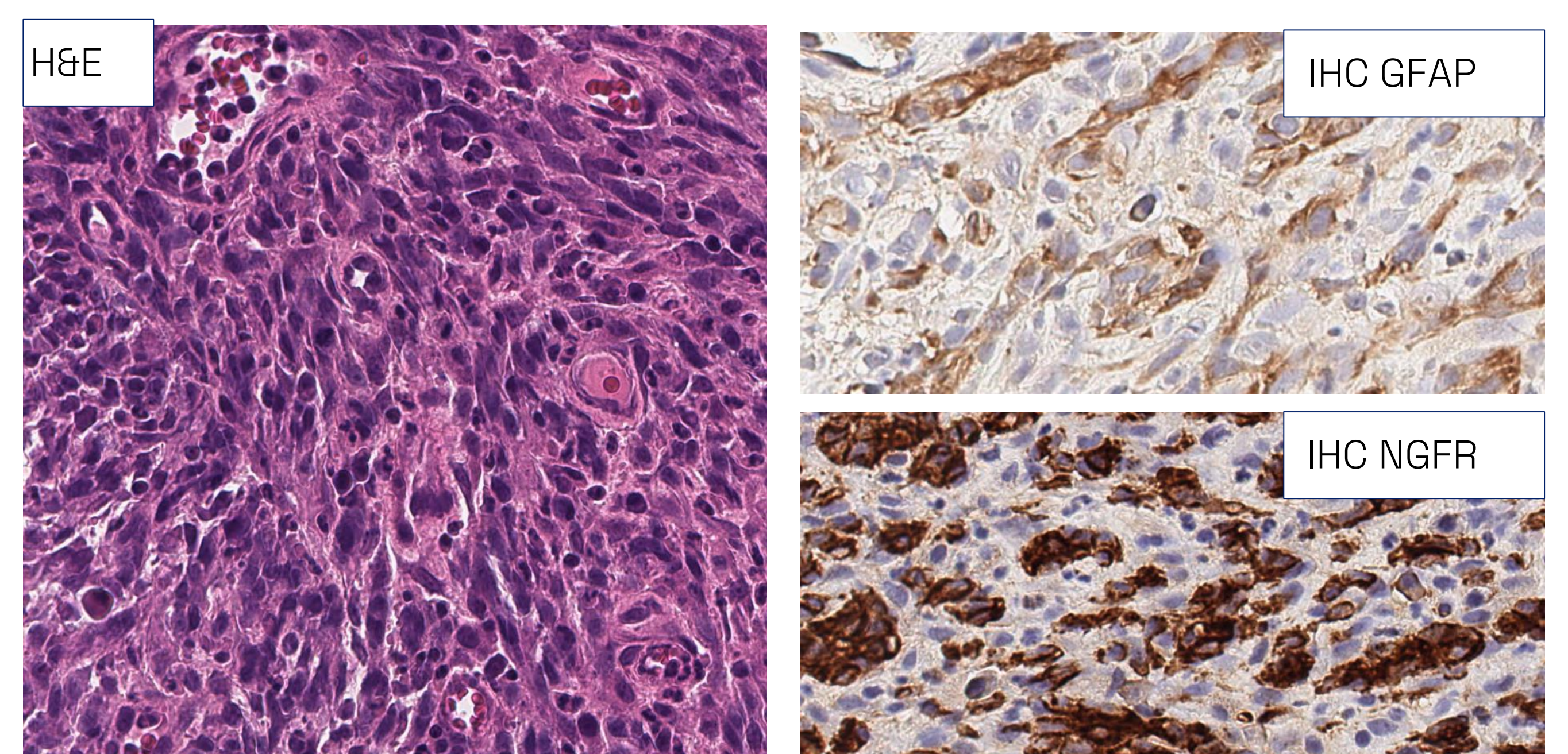
**CASE PRESENTATION:** Mia was presented for clinical examination in February 2023 due to the presence of a gingival mass, noticed by the owner, involving the entire right maxilla.



**COMPUTED TOMOGRAPHY:** A CT scan was held in March 2023. There was a large neoformation of the soft tissues of the nose on the right side, with poor and inhomogeneous post-contrast enhancement, which extended to the nasal bones, into the mouth at the gingival level around teeth 106-109, and minimally also in the ventral portion of the orbit. There was lysis of the maxillary bone. The right mandibular lymph nodes were enlarged.

**HISTOLOGY:** A punch biopsy of the mass was analyzed. The oral mucosa was expanded by an inflammatory infiltrate represented by numerous plasma cells, Mott cells, few lymphocytes, and rare neutrophils, associated with short irregular bundles of slightly pleomorphic mesenchymal cells, with occasional mitotic figures.

**IHC:** diffuse positivity to vimentin; multifocal positivity to S100, GFAP and NGFR. Negative stains for smooth muscle actin, desmin, Melan-A and PNL2.



**CLINICAL OUTCOME:** The mass enlarged up to invade the entire face within 5 months. Mia was euthanized on 4/07/2023 due to enlargement of the mass and severe worsening in health conditions.

## CASE DISCUSSION

In both cases, a diagnosis of FROMS was suggested based on the clinical course, characterized by a progressive involvement of the orbit, and on the histological features of a low-grade mesenchymal neoplasm with a poorly demarcated growth pattern and associated with inflammation. FROMS can manifest with oral swelling as first clinical presentation: despite the term “orbital myofibroblastic sarcoma”, FROMS should be considered as differential diagnosis for oral masses in cats, and caution should always be exercised even with well-differentiated mesenchymal proliferations.