

# A Glomus Cell Tumour on the Head of a Cat

A. Conte\*, E. Scurrill†, S. J. Baines‡

\*Small Animal Hospital, University of Glasgow, Bearsden Road, Glasgow, G61 1QH. †CytoPath Ltd, Ledbury, Herefordshire, HR8 2YD. ‡Willows Veterinary Centre and Referral Service, Shirley, Solihull, West Midlands, B90 4NH.

## INTRODUCTION:

The glomus body is a specialised form of arteriovenous anastomosis regulated by the sympathetic nervous system whose function is principally thermoregulatory<sup>1</sup>. The structure consists of an afferent arterial segment, an efferent venule and an anastomotic vessel termed *Suquet-Hoyer canal* connecting the arterial and venous capillary circulation. When open, these structures increase the blood flow to the skin, warming or cooling a specific area<sup>1,2</sup>. The type of cell that comprises the wall of the *Suquet-Hoyer canal* is called the glomus cell and is classified as a modified smooth muscle cell.

## OBJECTIVE:

Glomus cell tumours are rare in animals, having only been reported in one cat<sup>3</sup>, and most of them reported in animals have arisen from the digit. We describe a skin tumour that shares the same histopathological and immunohistochemical characteristics of previous glomus cell tumours in small animals, but in a unique location.



**Fig. 1.** Appearance of the mass at initial presentation.

## MATERIAL & METHODS:

A solitary mass, approximately 8 mm in diameter, was found on the left temporal region of a 7-year-old neutered female cat (**Fig. 1**).

Histopathology of a wedge biopsy revealed that the mass was a tumour of an uncertain type, with a carcinoma being considered more likely than a sarcoma.

Clinical staging comprised a fine needle aspirate of the mandibular lymph node and inflated radiographs of the thorax, which were both unremarkable.

The mass was excised with 1cm lateral margins and one fascial plane deep. Immunohistochemistry was performed to confirm the diagnosis.

## RESULTS:

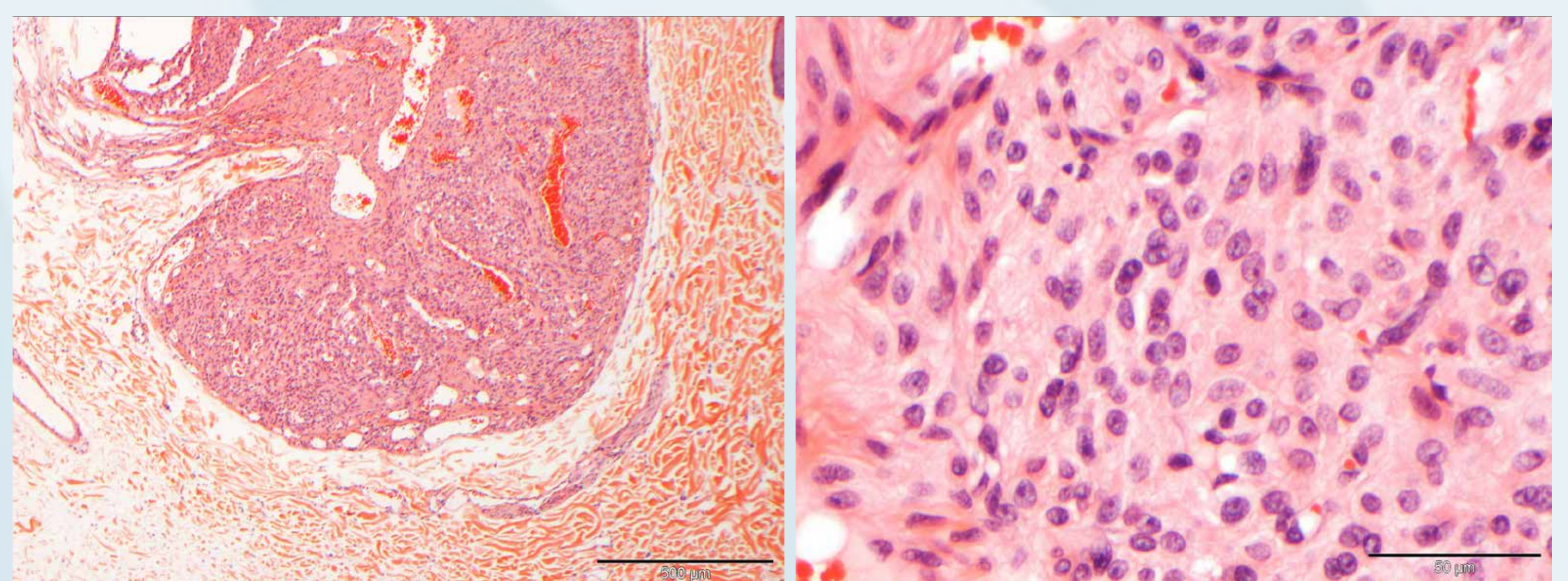
On histopathology, the neoplasm was composed of aggregates of uniform round/polygonal and occasionally spindle cells surrounding and entrapping frequent blood vessels (**Fig. 2**).

The neoplastic cells contained abundant pale eosinophilic cytoplasm and single round, central open nucleus with one distinct nucleolus (**Fig. 3**).

On immunohistochemistry, more than 95% of the neoplastic cells were strongly immunopositive for vimentin, muscle actin (MA), smooth muscle actin (SMA) (**Figs. 4 & 5**), neuron-specific enolase (NSE) and immunonegative for cytokeratin, S100, desmin and Von Willebrand factor.

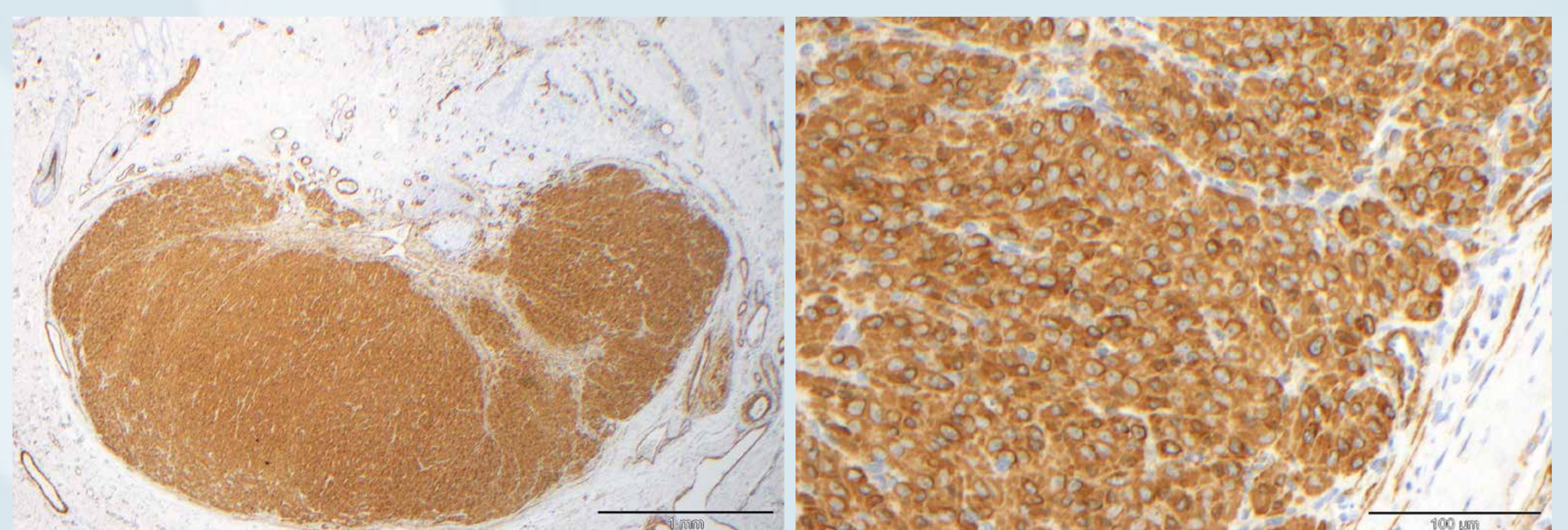
Notwithstanding the NSE positivity, the immunohistochemical profile was that typically described in association with glomus tumours and did not support epithelial, vascular endothelial, smooth muscle or a Merkel cell tumour.

After three years of follow up the cat is free of local recurrence of the tumour.



**Fig. 2.** Glomus tumour characterised by a discrete non-encapsulated mass associated with numerous blood vessels. Hematoxylin and eosin (bar = 500µm).

**Fig. 3.** Higher magnification showing the densely-packed round/polygonal cells containing single nucleoli and moderate amounts of pale eosinophilic, mildly vacuolated cytoplasm. Hematoxylin and eosin (bar = 50µm).



**Fig. 4.** Immunohistochemistry for SMA shows diffuse strong immunopositivity. DAB as chromogen (bar = 1mm).

**Fig. 5.** Higher magnification of the immunohistochemistry for SMA. DAB as chromogen (bar = 100µm).

## STATEMENT:

To the best of our knowledge, this is the first case of a glomus cell tumour on the head of any small animal.

Specific immunohistochemistry (SMA) is of fundamental importance in the correct diagnosis of this tumour and should be considered for masses when cytology and histology results are inconclusive or uncertain.