

## RARE CASE OF METASTATIC PRIMARY HEPATIC NEOPLASIA IN A PARTHENOGENETIC SMOOTH-HOUND SHARK

Giuseppe Esposito\*, Elisabetta Antuofermo, Marzia Pezzolato, Paolo Pastorino, Giovanni P. Burrari, Silvia Colussi, Flavio Gagliardi, Matteo R. Di Nicola, Alessandra Maganza, Elena Bozzetta, Marino Prearo, Elena Biasibetti

Istituto Zooprofilattico Sperimentale del Piemonte, Liguria e Valle d'Aosta, Via Bologna 148, 10154, Turin, Italy.  
\* [giuseppe.esposito@izspltv.it](mailto:giuseppe.esposito@izspltv.it)



### Background

- Neoplasms are rare in elasmobranchs (0.4–0.5 % prevalence).
- Low occurrence could indicate reduced cancer susceptibility or underreporting.
- Hepatobiliary tumors are extremely uncommon; only three cases reported in sharks (Gerlach *et al.*, 2024).
- Importance of screening especially in threatened or captive species.

### Case Description

- Species: *Mustelus mustelus* (Smooth-hound shark)
- Individual: Female, facultative parthenogenetic (Esposito *et al.*, 2021)
- Location: Cala Gonone Aquarium, Sardinia, Italy
- Clinical findings:
  - Multifocal whitish liver masses (0.5–10 cm)
  - Lesions also observed in spleen and myocardium

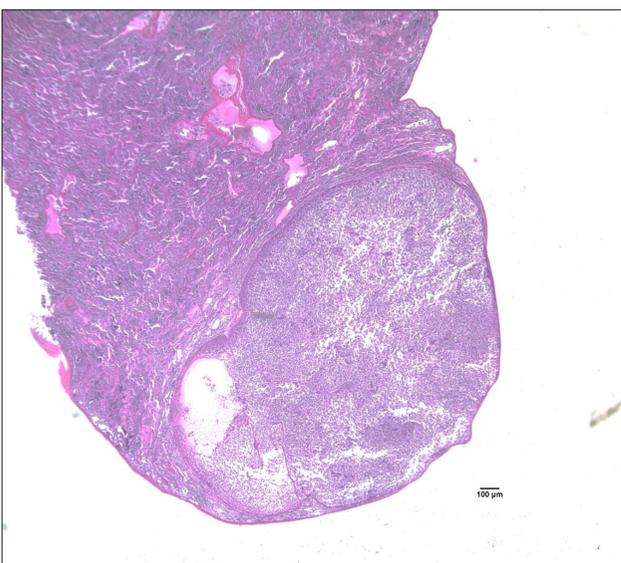


### Gross Examination

- Liver: Multifocal, well-demarcated, whitish, firm masses
- Spleen & myocardium: Similar lesions
- Masses showed increased consistency

### Histopathology

- Liver: Poorly demarcated, non-encapsulated, infiltrative neoplasm
- Cell characteristics:
  - Polygonal cells in nests/cords
  - Eccentric nuclei, dispersed chromatin, scant cytoplasm
  - Marked cellular atypia, anisokaryosis, anisocytosis
- Adjacent liver: Necrosis + increased melanomacrophage aggregates
- Spleen & heart: Similar morphology, metastatic infiltration of myocardium



### Significance

- First documented hepatic neoplasm with metastases in *M. mustelus*
- Highlights need for:
  - Enhanced neoplastic screening in chondrichthyans
  - Early detection in captive and threatened individuals
  - Targeted management interventions