



Tuberculous pericarditis in a captive sloth bear (*Melursus ursinus*): A case report

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ABSTRACT

Tuberculous pericarditis (TBP), an uncommon extrapulmonary manifestation of *Mycobacterium tuberculosis* complex infections, is rarely documented in bears. A 25-year-old sick captive male sloth bear (*Melursus ursinus*) was presented to the Agra Bear Rescue Facility for necessary investigation. The animal exhibited progressive weakness, respiratory distress, drowsiness, and arrhythmias, culminating in cardiovascular failure. Ante-mortem investigations, including Ziehl–Neelsen staining, MycoPac dual kit, and thoracic radiography, revealed acid-fast bacilli, seropositivity for *Mycobacterium* spp. leading to pneumonic changes, and cardiac enlargement. Post-mortem examination revealed granulomatous pericarditis with necrosis, epithelioid cell granulomas, histiocytic infiltration, and acid-fast bacilli. Supportive care along with antitubercular therapy was provided. This case highlights the rarity of TBP in ursids, underscores the diagnostic challenges in captive wildlife, and emphasizes the importance of routine screening, quarantine, and stress-reducing management strategies to mitigate disease risk.

Key words: Diagnosis, histopathology, preventive measures, sloth bear, tuberculous pericarditis

INTRODUCTION

Tuberculosis (TB) is a transmissible zoonotic disease and remains one of the leading causes of morbidity and mortality worldwide. It is caused by members of the *Mycobacterium tuberculosis* complex (MTBC), which includes *M. tuberculosis*, *M. bovis* and related species. While human cases predominate, TB also affects domestic and wild animals, which may serve as reservoirs or spillover hosts at the human–animal interface (Teppawar et al., 2018; Marinaik et al., 2022). The sloth bear (*Melursus ursinus*), a vulnerable species native to the Indian subcontinent (Dharaiya et al., 2016), is particularly susceptible to infectious diseases under captive conditions. Several studies have documented TB in sloth bears through histopathology, bacterial isolation, molecular characterization, and drug-susceptibility testing of *M. tuberculosis* isolates in both free-ranging and captive populations

(Hedau and Kamdi, 2016; Menon et al., 2021; Marinaik et al., 2022; Sharma et al., 2022). In humans, tuberculous pericarditis (TBP) accounts for approximately 1–2% of pulmonary TB cases and typically manifests as pericardial effusion, constrictive pericarditis, or cardiac tamponade. Diagnosis is often challenging due to non-specific clinical signs (Lucero et al., 2022; Wang et al., 2022). While pulmonary TB is relatively well characterized in ursids, extrapulmonary involvement, particularly of cardiac structures, is exceedingly rare. To date, cardiac tuberculomas have been reported in dogs (Szaluś-Jordanow et al., 2016). Given the rarity of this condition, early diagnosis and intervention are critical for prognosis and disease management. Here, the authors described this particular case of TBP in a captive geriatric sloth bear, detailing the clinical presentation, ante-mortem and post-mortem diagnostic findings, pathological features, and therapeutic approach.

MATERIALS AND METHODS

Clinical examination

A 25-year-old rehabilitated geriatric male sloth bear maintained at the Agra Bear Rescue Facility, Wildlife SOS, was presented with reduced appetite, mucopurulent ocular discharge, progressive weakness, respiratory distress, lethargy, and irregular cardiac rhythms. A detailed clinical evaluation was performed, which included thoracic radiography using a portable digital radiography unit (EP-CORSA 2.4, Epsilon Healthcare Solutions Pvt. Ltd., India) with a Focus 35C detector (Carestream, India), to assess pulmonary and cardiac structures.

Laboratory investigations

Hematological parameters were evaluated using an automated hematology analyzer (ProCyte Dx, IDEXX Laboratories, Inc.) and serum biochemical analyses were conducted with a clinical chemistry analyzer (Catalyst One, IDEXX Laboratories, Inc.). Serological screening for tuberculosis was performed using the MycoPac dual kit for the detection of antibodies against *Mycobacterium* spp.

Therapeutic management

The animal was isolated and treated with conventional antitubercular drugs in combination with oral multivitamin supplementation. Supportive therapy was continued; however, the clinical course remained progressive.

Necropsy and histopathology

The animal eventually succumbed to the disease, and a complete necropsy was performed in accordance with standard protocols. Representative tissue samples were collected and fixed in 10% neutral buffered formalin for histo-pathological examination. Ziehl–Neelsen staining was used on tissue samples to confirm the presence of acid-fast bacilli (AFB).

RESULTS AND DISCUSSION

Despite supportive therapy with anti-tubercular drugs and multivitamins, the clinical course remained unfavorable, culminating in cardiovascular failure. Hematological analysis

revealed microcytosis with anaemia, while serum biochemistry indicated reduced blood urea nitrogen level (Table 1). Thoracic radiography demonstrated diffuse pneumonic changes with focal nodular opacities in the pulmonary lobes and cardiomegaly with indistinct margins suggestive of pericardial involvement (Fig. 1). Serology (MycoPac dual kit) was positive for *Mycobacterium* spp. (Fig. 2). Necropsy revealed granulomatous inflammation with caseating tubercles on the pericardium, and disseminated lesions including splenomegaly, hepatomegaly, pulmonary nodules, renal infarcts, and lymphadenopathy (Fig. 3). Histopathology of pericardial tissue demonstrated necrosis, epithelioid granulomas, histiocytic infiltration, and multinucleated giant cells, while Ziehl–Neelsen staining confirmed presence of acid-fast bacilli (Fig. 4), thereby establishing a diagnosis of tuberculous pericarditis with systemic dissemination.

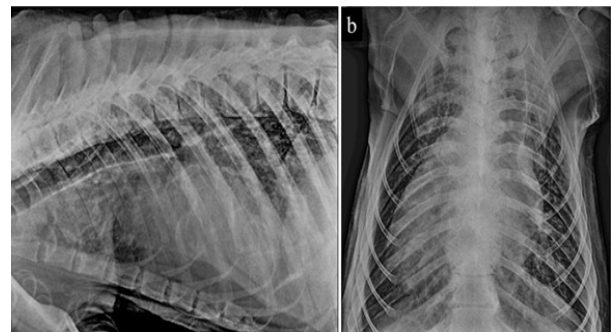
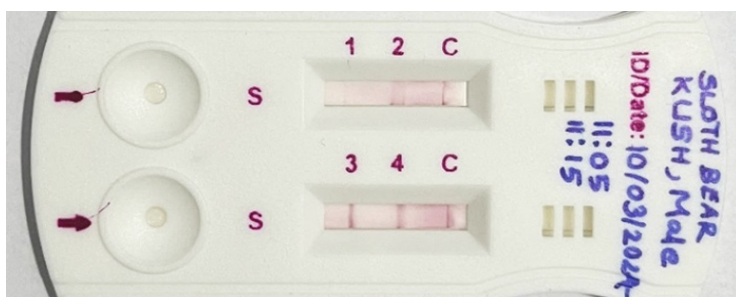
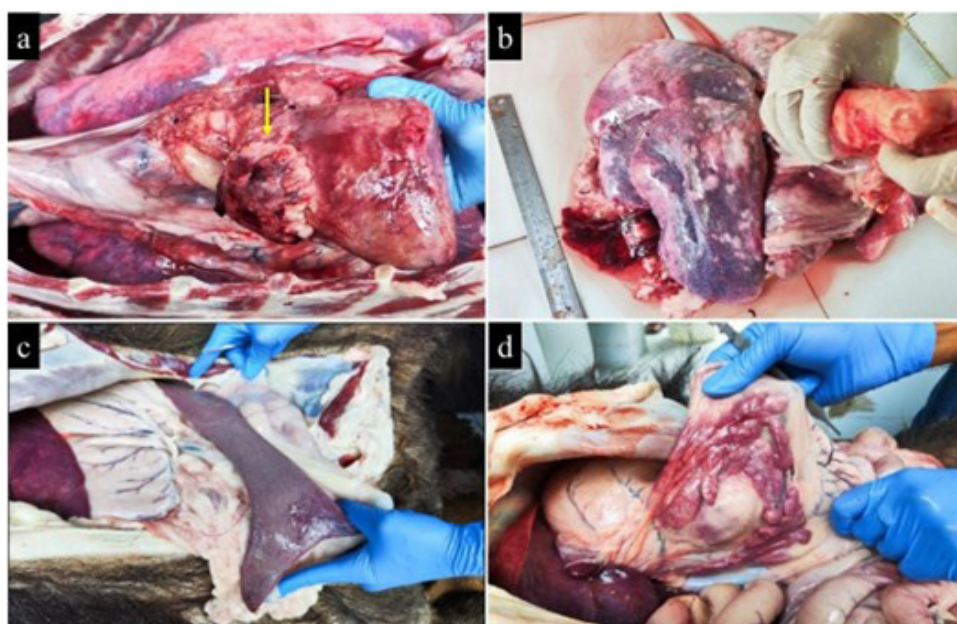


Fig. 1. Thoracic radiographs showing (a) diffuse pneumonic changes in the pulmonary lobes with nodular lesions and (b) cardiomegaly with indistinct cardiac margins

The case underscores the diagnostic challenges posed by extra-pulmonary tuberculosis in wildlife, particularly when clinical signs are nonspecific. Comprehensive evaluation integrating clinical examination, hematology, biochemistry, radiography, and serology was essential for establishing the diagnosis. The findings emphasize the need for routine tuberculosis screening, quarantine and biosecurity protocols in captive settings, and supportive therapy with immune modulators is also essential to minimize stress thereby enhancing the wellbeing.

Table 1. Representative hemato-biochemical values

Measurand (unit)	Results	Measurand (unit)	Results
Red blood cell count ($M \mu L^{-1}$)	4.68	Basophils ($K \mu L^{-1}$)	0.06
Haemoglobin ($g dL^{-1}$)	12.2	Platelets ($K \mu L^{-1}$)	583
Mean corpuscular volume (fL)	64.5	Glucose ($mg dL^{-1}$)	65
Mean corpuscular haemoglobin (pg)	26.1	Blood urea nitrogen ($mg dL^{-1}$)	3
Mean corpuscular haemoglobin concentration ($g dL^{-1}$)	40.4	Creatinine ($mg dL^{-1}$)	1.0
White blood cell count ($K \mu L^{-1}$)	8.73	Total protein ($g dL^{-1}$)	6.7
Neutrophils ($K \mu L^{-1}$)	5.99	Albumin ($g dL^{-1}$)	2.2
Lymphocytes ($K \mu L^{-1}$)	1.70	Globulin ($g dL^{-1}$)	4.5
Monocytes ($K \mu L^{-1}$)	0.28	Alanine aminotransferase ($U L^{-1}$)	< 10
Eosinophils ($K \mu L^{-1}$)	0.70	Alkaline phosphatase ($U L^{-1}$)	24
		Lactate dehydrogenase ($U L^{-1}$)	845

**Fig. 2.** Serology (MycoPac dual kit) revealed TB sero-positive against *T. mycobacteria***Fig. 3.** PM lesions demonstrating (a, b) granulomatous inflammation with caseating tubercles on the pericardium, (c) disseminated lesions including splenomegaly and hepatomegaly, and (d) renal infarcts

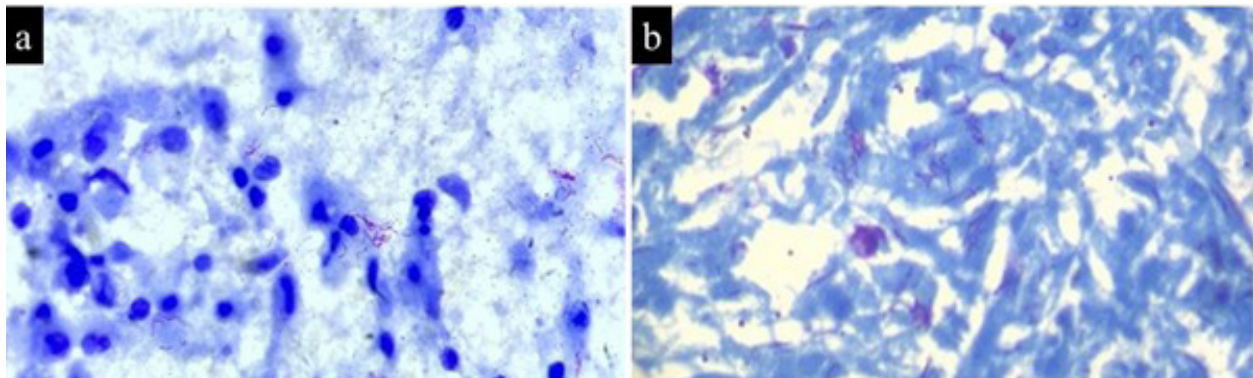


Fig. 4. Ziehl-Neelsen stain revealed presence of acid-fast bacilli in (a) lung and (b) affected pericardial tissue under magnification (X100)

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REFERENCES

- Dharaiya, N., Bargali, H.S. and Sharp, T. 2016. *Melursus ursinus*. IUCN Red List Threat. Species. e.T13143A45033815: 1–19.
- Hedau, M. and Kamdi, B.P. 2016. Tuberculosis in captive sloth bear (*Melursus ursinus*). *Int. J. Sci. Res. Manag.* **4**(12): 4941–4943.
- Lucero, O.D., Bustos, M.M., Rodríguez, D.J.A. and Perez, J.C. 2022. Tuberculous pericarditis: A silent and challenging disease—A case report. *World J. Clin. Cases.* **10**(6): 1869–1875.
- Marinaik, C.B., Sha, A.A., Manjunatha, V., Shylaja, S., Rathnamma, D., Rizwan, A. and Nagaraja, K. 2022. Isolation, characterization and drug sensitivity of *Mycobacterium tuberculosis* in captive sloth bears (*Melursus ursinus*): Unnatural habitat with human environment may predispose sloth bears to tuberculosis. *Front. Vet. Sci.* **9**: 844208.
- Menon, N.G., Bipin, K.C., Deepa, P.M., Rathish, R.L., Pradeep, M. and Arun, A.S. 2021. Gross and histopathological lesions associated with tuberculosis in two sloth bears (*Melursus ursinus*) in India. *J. Vet. Anim. Sci.* **52**(2): 161–165.
- Sharma, M., Karikalan, M., Kumar, M.A., Lakshmi, P.S., Sharma, K., Ilayaraja, S., Mathur, A. and Pawde, A.M. 2022. A study on clinical diagnosis of tuberculosis in free-ranging and captive wild animals of India. *Iran. J. Vet. Res.* **23**(4): 369–374.
- Szaluś-Jordanow, O., Augustynowicz-Kopeć, E., Czopowicz, M., Olkowski, A., Łobaczewski, A., Rzewuska, M., Sapierzyński, R., Wiatr, E., Garncarz, M. and Frymus, T. 2016. Intracardiac tuberculomas caused by *Mycobacterium tuberculosis* in a dog. *BMC Vet. Res.* **12**(1): 109.
- Teppawar, R., Chaudhari, S., Moon, S., Shinde, S., Khan, W. and Patil, A. 2018. Zoonotic tuberculosis: A concern and strategies to combat. In: *Basic Biol. Appl. Actinobacteria*. 1st ed. London, UK: IntechOpen. pp. 23–38.
- Wang, S., Wang, J., Liu, J., Zhang, Z., He, J. and Wang, Y. 2022. Tuberculous pericarditis with pericardial effusion as the only clinical manifestation: A case report and review of literature. *Front. Cardiovasc. Med.* **9**: 1020672.