

# *Panceriella emiratensis* sp. nov. (Eucestoda, Linstowiidae) from desert monitor lizard, *Varanus griseus* (Daudin, 1803) in the United Arab Emirates

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## Abstract

Two hundred and twenty seven cestodes of the genus *Panceriella* were detected in the small intestine of a desert monitor lizard, *Varanus griseus* in the Dubai Emirate of the United Arab Emirates. *Panceriella emiratensis* sp. nov. is considerably shorter than the type species *P. varanii* and can be easily distinguished by the presence of an unsegmented neck, smaller numbers and smaller diameter of testes. Gravid segments contain a distinctly lower number of egg capsules.

## Keywords

*Panceriella emiratensis* sp. nov., Eucestoda, *Varanus griseus*, United Arab Emirates

## Introduction

Cestodes of the grey monitor (*Varanus griseus*) had been reported independently by two Italian naturalists from material collected in Egypt. Stossich (1895) gave a description and figured the scolex of *Taenia varanii*, a tapeworm that was found by A. Valle in 1893. In the same year, a second description was made by Sonsino (1895) from material he collected during his stays at the Khedival laboratories in Cairo between 1873 and 1885. He named his species *Panceria arenaria* in honour of Paolo Panceri of Pavia, not knowing that the genus name *Panceria* was already preoccupied. Although the descriptions were superficial Braun (1894–1900) suggested that both scientists had dealt with one and the same parasite, an unarmed tapeworm with two sets of female reproductive organs in lateral positions surrounded by numerous testes.

When establishing the genus *Oochoristica*, Lühe (1898) mentioned the closely related and already existing *Panceria* that had an ephemeral uterus and eggs singly embedded in the parenchyma of gravid segments. This statement is interesting since neither Stossich (1895) nor Sonsino (1895) gave details of the mature segments.

The later genus name *Pancerina* was created most probably as a result of a typing mistake when Fuhrmann (1899) at

the end of his article on bird cestodes summarized the genera of tapeworms: *Oochoristica*, *Davainea*, *Monopylidium*, *Dipylidium*, *Pancerina* and *Taenia dispar* in which the uterus dissolves and egg capsules are found. Evidence for this typing mistake is that in a later publication Fuhrmann (1908) called the genus again *Panceria*. However, later authors have continued to use the genus name *Pancerina* (eg Spasskij, 1951).

Braun (1894–1900) highlighted the presence of egg capsules embedded in the parenchyma of gravid segments and combined both names *Panceria arenaria* Sonsino and *Taenia varanii* Stossich to create *Panceria varanii*<sup>1</sup>.

The first detailed drawings of *Pancerina varanii* (Stossich, 1895) Sonsino, 1895 of the genus *Pancerina* Fuhrmann, 1899 were published without further written description by Southwell (1926). These images were later copied and redrawn by Spasskij (1951) and Beveridge (1994), respectively.

The systematic position of this tapeworm remained unclear for quite a long time. Braun (1894–1900), Fuhrmann (1908) and Ransom (1909) allocated it to the subfamily Dipylidiinae despite the unarmed scolex. Later, Baer (1927) transferred the genus *Pancerina* into the subfamily Linstowiinae of the family Anoplocephalidae. This disposition was later adopted by others: Spasskij (1951), Wardle and McLeod (1952), Yamaguti (1959) and Beveridge (1994) while Joyeux and Baer (1961)

<sup>1</sup> Some authors (Braun 1894–1900, Lühe 1898 Spasskij 1951) incorrectly called the species *P. varani*. According to the principle of priority (Ride *et al.* 1999) the valid name is *P. varanii* despite the incorrect use of Latin grammar.

assigned both *Pancerina* and *Oochoristica* to the subfamily Davaineinae of the family Davaineidae.

Stunkard (1969) discovered that also the name *Pancerina* was already preoccupied by a sponge and suggested to replace it by *Panceriella* with the only properly described species *P. varanii*.

The aim of this paper is to describe a second representative of the genus *Panceriella* that differs strikingly from the above mentioned species.

## Materials and methods

A fresh dead grey monitor lizard (*Varanus griseus*) with severe injuries (carnivore bites) to the head was found in the desert of the Dubai Emirate, south east of Dubai city (24°51'41.35"N, 55°24'01.36"E). The emaciated subadult female reptile measured 700 mm (SWL: 305 mm) and had a

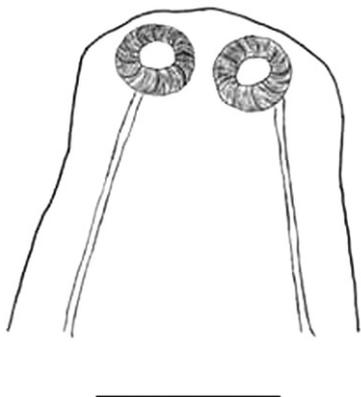


Fig. 1. *Panceriella emiratensis*, scolex. Scale bar = 500  $\mu$ m

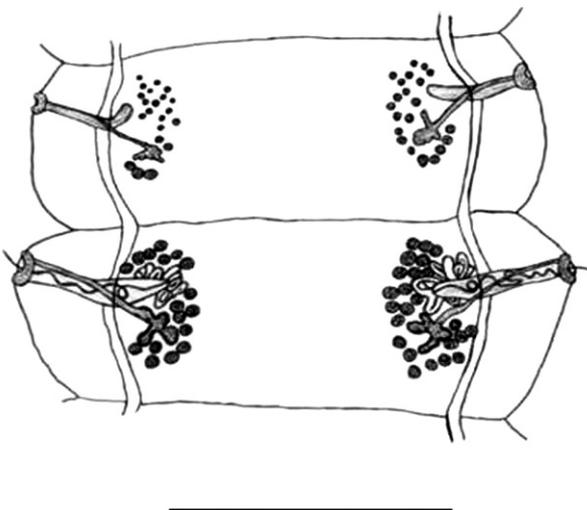


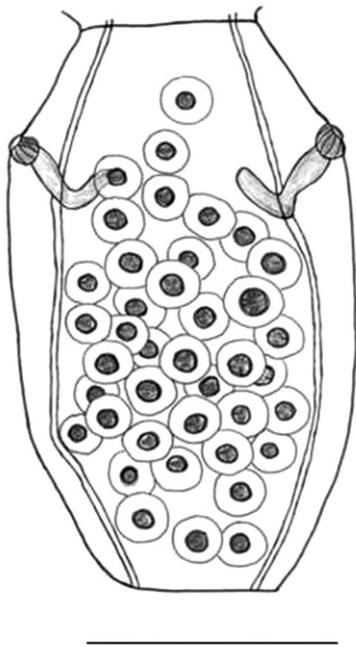
Fig. 2. *Panceriella emiratensis*, mature segment. Scale bar = 500  $\mu$ m

body weight of 307 g. The stomach contained remnants of black desert beetles and 227 small cestodes were found in the small intestine. Fifteen tapeworms were washed and kept in tap water at room temperature until completely relaxed and were stained with lactic carmine. They were dehydrated in increasing concentrations of alcohol, cleared in xylene and mounted in DPX. Drawings were made from photographs taken with a digital camera (Olympus DP 71) connected to a microscope (Olympus BX61).

### *Panceriella emiratensis* sp. nov.

#### Description

*Panceriella emiratensis* with characters of *Panceriella* Stunkard, 1969. Strobila ( $n = 15$ ) acraspedote, 14 (9–20) mm long and up to 1.3 mm wide, consisting of 22 (14–35) segments. Unarmed scolex 550 (350–750)  $\mu$ m wide with four round suckers 185 (160–220)  $\mu$ m wide. Unsegmented neck 760 (400–1000)  $\mu$ m long and 778 (550–1050)  $\mu$ m wide (Fig. 1). Primordia of reproductive organs occur in the first segments and there are only one or two fully developed mature proglottids (Fig. 2), wider than long: 910 (750–1100)  $\times$  490 (320–750)  $\mu$ m. While premature segments are rectangular in shape, mature and following segments becomes hexagonal with the greatest width at the symmetrical genital openings situated in the anterior third. Genital glands are median to longitudinal excretory vessels. Testes number between 16 and 28 (23) are grouped anterior, median and posterior around the complex of female reproductive glands and base of cirrus sac on each side. Diameter of testes in mature segments varied between 15 and 25  $\mu$ m. Remnants of testes are visible in gravid segments. Vas deferens is coiled before entering and the cirrus sac. Cirrus sac is elongated, slightly banana shaped, bent towards the genital opening, 173 (150–200)  $\mu$ m long and 41  $\mu$ m (30–50) wide extending between longitudinal excretory vessels. The everted cirrus can be seen in most of the mature and gravid segments. It reaches a length of up to 200  $\mu$ m with a diameter of 10  $\mu$ m. Female reproductive glands are situated on the ventral aspect of the segments and posterior to the base of cirrus sac, difficult to observe in mature segments because they are overlapped by testes. The structure of these glands can be observed best in the last immature segments where ovaries are small and bilobed and followed by small spherical vitellarium. Receptaculum seminis is present. The vagina crosses the cirrus sac ventrally at the level of the longitudinal excretory vessels and enters the genital atrium anterior to cirrus sac. Uterus ephemeral. Gravid segments 1015 (770–1300)  $\mu$ m long and 650 (500–800)  $\mu$ m wide (Fig. 3). Spherical uterine egg capsules between 23 and 76 in number, median to longitudinal excretory vessels are embedded in 3 layers into the parenchyma. These capsules measure 150  $\mu$ m and contain a single round and double-shelled egg of 80–100  $\mu$ m in diameter (Fig. 4). The oncosphere inside the egg has six embryonal hooks arranged in three pairs. The hooks are 30  $\mu$ m in length.



**Fig. 3.** *Panceriella emiratensis*, gravid segment. Scale bar = 500  $\mu$ m

#### *Taxonomic summary*

Type host: desert monitor lizard, *Varanus griseus* (Daudin, 1803) (Reptilia, Varanidae).

Type locality: Dubai Emirate, United Arab Emirates.

Site of infection: Small intestine.

Intensity: 227.

Type specimens: Holotype (No. 7505) and 3 paratypes (No. 7506) deposited in the Museum für Naturkunde Berlin, Germany.

Etymology: The specific epithet is derived from the country of origin of the host, the United Arab Emirates.

#### **Remarks**

Beside *P. varanii*, Meggit (1927) mentioned *Pancerina* sp. in *Psammus arenaria* (syn. *Varanus griseus*) in Egypt but described only the features of the genus (double set of female reproductive organs, distribution of eggs in the parenchyma). The most comprehensive description of *P. varanii* is given by Baer (1927). According to this, the strobila measures 30 to 60  $\mu$ m and is up to 1.5 mm large. Thirty to 40 testes of a diame-



**Fig. 4.** *Panceriella emiratensis*, egg embedded in a uterine capsule. Scale bar = 50  $\mu$ m

ter of 52 µm each are grouped in a crescent around each set of female reproductive glands. The cirrus sac is 0.13–0.15 mm long and 0.07 mm in diameter.

Mature worms of *P. emiratensis* have a maximum length of only 20 mm and contain an average of 23 (maximum of 28) testes on each lateral margin in mature segments. The cirrus sac in the new species is longer and more slender. Both Sonsino (1895) who saw only an immature specimen 50 mm in length without eggs in the terminal segments, and Baer (1927) described the vagina as posterior to the cirrus pocket. Spasskij (1951) and Beveridge (1994) doubted this position and referred to a figure drawn by Southwell (1926) where the vagina crosses the cirrus sac to enter the genital atrium anteriorly. According to Southwell's drawing of the mature segment, *P. varanii* possesses marked ovaries consisting of two lobes with a vitellarium in posterior position surrounded by testes. The female reproductive glands in *P. emiratensis* are also bilobed but as an indistinct annex of the vagina. Ovaries and vitellarium are overlapped by testes and are ephemeral, quickly disappearing in the following segments where first signs of a uterus can be seen. Gravid segments of *P. emiratensis* contain far fewer than 100 uterine egg capsules mainly situated posterior to the genital openings while the number of eggs in *P. varanii* exceeds 300 according to Southwell's drawing. While *P. emiratensis* has a distinct unsegmented neck of 400–1000 µm in length the presence of a neck in *P. varanii* is unclear and was also not described by later authors. Sonsino (1895) mentioned that the scolex is separated from strobila by a basal narrowing without a neck but Stossich (1895) described a short neck.

*P. varanii* was found in *Varanus griseus* in Egypt, Algeria, Libya, Palestine and Jordan and specimen were deposited in the Museum für Naturkunde in Berlin, Germany, the Muséum d'Histoire Naturelle, Genève, Switzerland, the Natural History Museum in London, the School of Tropical Medicine in Liverpool, UK and the Parasitological Institute of the Czech Academy of Sciences in Ceske Budejovice, Czech Republic.

*Panceriella* is a cestode genus specific to the desert monitor lizard and only Sharpilo (1976) has listed the Caucasian meadow lizard (*Lacerta praticola*) as host for *Pancerina* sp. without further description. Another unusual host is Bell's dhab lizard (*Uromastix acanthinurus*) that inhabits deserts in northern West Africa. A subsequent specimen of *P. varani* from *U. acanthinurus* is held in the collection of the Muséum National d'Histoire Naturelle in Paris. It originated from E. Brumpt's collection but there is no indication on date, collection site and collector.

*Varanus* species can also be host to representatives of the closely related genus *Oochoristica*. Thus, Hughes *et al.* (1941), Spasskij (1951) and Della Santa (1956) listed the grey monitor as a host of *O. tuberculata* without giving the original reference and Sharpilo (1976) who examined 11 grey monitor lizards in Uzbekistan and Kirgistan mentioned *O. tuberculata* as the only cestode. Nama and Khinchi (1972) de-

scribed *O. varani* in an Asian monitor lizard (*Varanus monitor*) from Rajasthan, India.

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