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CASE REPORT

A Huntsman's Bite: Envenoming from the Malaysian 'Black & Gold', *Thelcticopis sp*. Spider (Arachnida: Araneae: Sparassidae: Sparianthinae)

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ABSTRAK

Kebanyakan spesies labah-labah di Malaysia dianggap tidak berbahaya kepada manusia dan kes gigitan labah-labah jarang dilaporkan. Ini adalah disebabkan oleh kesan dari gigitan yang tidak serius dan mangsa tidak mendapatkan rawatan di hospital. Sehingga kini, hanya terdapat beberapa kes gigitan labah-labah yang didokumentasikan dari Malaysia. Di sini, kami melaporkan gejala gigitan, kaedah perawatan dan hasil perawatan dua pesakit yang digigit labah-labah pemburu 'Hitam & Emas' dari genus Thelcticopis di Malaysia yang masih belum dinamakan spesisnya. Kes pertama melibatkan seorang lelaki berusia 42 tahun yang telah digigit di hujung jari tengahnya, menyebabkan kesakitan dan bengkak setempat. Beliau dirawat secara simtomatik dan pulih tanpa sebarang komplikasi. Kes kedua melibatkan seorang wanita berusia 57 tahun, yang telah digigit pada jari kelingking, menyebabkan kesakitan berdenyut dan kebengkakan progresif. Dia dirawat secara simtomatik dan dibenarkan pulang selepas 24 jam di wad perubatan. Walau bagaimanapun, beliau mendapat sakit di leher dan sendi terutamanya pinggul dan lutut. Beliau telah dirawat dengan ubat tahan sakit dan semua gejala sembuh dalam tempoh dua hari.

Katakunci: bisa, kecemasan, labah-labah

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ABSTRACT

Most spider species in Malaysia are considered harmless and spider bites are rarely reported. This is partly due to the mild effects from the bite and victims do not seek medical treatment in the hospital. To date, there are few well-documented cases of medically significant bites from indigenous spider species in Malaysia. Here, we report the presentation, clinical management and outcome of two patients following a bite by the yet to be described 'Black & Gold' Huntsman spider from the genus *Thelcticopis* in Malaysia. The first case involved a 42-year-old man who was bitten on the tip of the distal phalanx of his right middle finger and presented with severe pain and local swelling. He was treated symptomatically and was discharged well. The second case involved a 57-year-old woman, who was bitten on the proximal phalanx of her right little finger and presented with severe throbbing pain and progressive swelling. She was treated symptomatically and was discharged after 24 hours observation in the medical ward. However, she noted moderate neck and generalized joints pains especially affecting the hips and knees, one day prior to discharge. She was treated with oral analgesia and symptoms resolved within two days.

Keywords: emergency, envenomation, spider

INTRODUCTION

To date, there are greater than 42,000 described spider species worldwide (Platnick 2011). Some species of spiders specialised in seeking and destroying mosquitoes are beneficial to humans (Muhammad Luqman et al. 2018; Ndava et al. 2018). However, approximately 200 spider species from 20 genera cause most of the serious or lethal envenomations of humans (Diaz 2004; Kuhn-Nentwig et al. 2011). These include the widows (Genus *Latrodectus*, Family Theridiidae), the funnel webs (Genera *Atrax* and *Hadronyche*, both Family Hexathelidae), fiddle backs or recluse spiders (Genus *Loxosceles*, Family Sicariidae) and the banana spiders of the genus *Phoneutria* (Family Ctenidae). Bites and envenomation by *Missulena* (Actinopodidae) and *Sicarius* (Sicariidae) may be very serious but are less frequently reported. Less serious effects may occur after bites by brush-footed trap door spiders (Barychelidae), wolf spiders (Lycosidae), Chinese and Spanish funnel webs spiders *Macrothele* (Hexathelidae), sac spiders *Cheiracanthium* (Miturgidae), jumping spiders *Mopsus* (Salticidae), the comb-footed spider *Steatoda* (Theridiidae), huntsman spiders (Sparassidae), true tarantulas or bird spiders (Theraphosidae), and *Uliodon* (Zoropsidae) (Diaz 2004; Isbister & Gray 2002; Watt 1971). The medical significance of white-tailed spiders (Lamponidae) remains doubtful as the reputed necrotic effect of bites by this

Figure 1: Acute presentation of the bitten area by a *Thelcticopis sp.* spider (A) The bite mark and swelling of the right middle finger; (B & C) The bite mark with surrounding hyperemia and swelling of the hand prior to the administration of medication in the emergency department.

species is unsupported by available evidence (Isbister & Hirst 2003). Most other spiders are considered harmless to humans even if bites from many of these species could penetrate human skin (Kuhn-Nentwig et al. 2011; Nentwig 2013).

Most spiders of the family Sparassidae are large and fast moving free ranging hunters. The genus *Heteropoda* Latreille, 1804 consists currently of almost 200 species distributed mainly in Asia and Australia and tend to enter human domiciles. Hence, they are generally well-known (World Spider Catalog 2018). Sparassids of the genus *Thelcticopis* are quite common and are also distributed worldwide within the tropical belt, occurring throughout much of South East Asia and possibly in northern Australia (Jäger 2001; Jäger 2005; Jäger & Praxaysombath 2009; Liu et al. 2010; Moradmand et al. 2014). Currently, there are 47 known *Thelcticopis* species and to date, there are no revision of the genus (Jager 2005). The literature on *Thelcticopis* is scanty with most species having been described in the nineteenth century, and since then, they have not been subjected to recent study or review (Murphy & Murphy 2000; Jäger 1998; Morandmand 2014).

We present here the clinical manifestations of envenoming by a possibly undescribed *Thelcticopis* sp. in Malaysia

CASE REPORT

Case 1

While tapping a rubber tree in a plantation area, a 42-year-old man with no relevant past medical history, was bitten on the tip of the distal phalanx of his right middle finger (Figure 1) by a black and golden coloured spider. He then knocked the spider off the rubber tree and killed it. There was an almost immediate severe throbbing pain at the bite site. He sought medical care at the Emergency Department (ED) of a nearby hospital and brought along the dead spider for identification (Figure 2).

He arrived 20 minutes after the bite

Figure 2. Specimens of the *Thelcticopis sp.* (A) The dead adult female specimen of Case 1; (B) The eight eyes arrangement (enhanced); (C &D) The live adult male spider of Case 2; (E & F) The intricate webs spun by the male spider while in captivity.

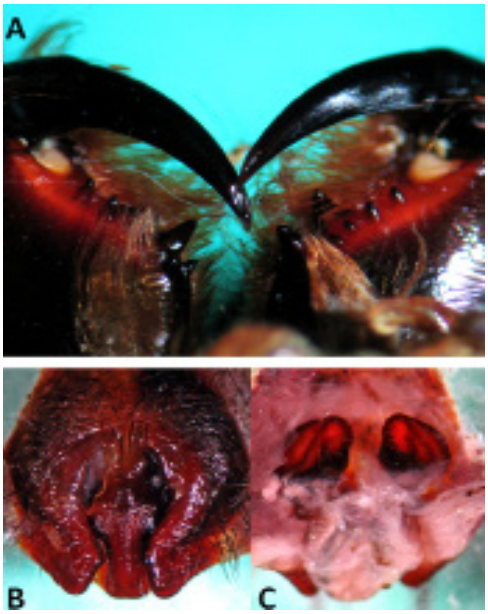

Figure 3: Fangs and morphology of female *Thelcticopis* sp. copulatory organ. (A) Ventral view of fangs and cheliceral teeth (note: posterior row has significantly smaller teeth). Chelicerae (fang base) length 6.3 mm and fang length 4.1 mm; (B) External copulatory organ (Epigyne); (C) Internal duct system with spermathecae.

and reported a verbal numerical rating pain score (VNRS) of 8/10. The bitten finger had mild-moderate oedema and a small amount of dried blood was observed at the bite site. Initial vital signs were normal with heart rate of 78/min, blood pressure of 140/80 mmHg and oxygen saturation (SpO_2) 98% on room air. The VNRS reduced to 5/10 and the swelling began to subside approximately 30 minutes after the administration of intravenous (IV) morphine 2 mg, oral Tab chlorpheniramine maleate 4 mg and IV hydrocortisone 100 mg. The baseline blood investigations (full blood count, urea and electrolyte, and coagulation profile) were unremarkable and the ECG was normal. The swelling and pain resolved completely without any compromise in the dexterity/range of motion of the affected finger. He was discharged following an uneventful 12-hour observation. A follow-up phone call 48 hours later, confirmed full recovery, and his return to work.

The spider specimen was identified as an adult female *Thelcticopis* sp. with overall body length 27.2 mm, carapace length 14.3 mm (width 8.5 mm), abdomen length 13.6 mm (width 10.1 mm), and maximum leg span (left leg 2 claw tip to right leg 2 claw tip) 79.7 mm. It was preserved in 70% alcohol and deposited at the Lee Kong Chian Natural History Museum for analysis

and future reference.

Case 2

A 57-year-old woman, with underlying controlled mild hypertension, was bitten on the proximal phalanx of her right little finger by a large black and yellow coloured spider while putting on a shirt in her house in a village. The bite produced an almost immediate severe throbbing pain (VNRS 7/10) which she described as "worse than a wasp sting". Within a few minutes, the hand progressively became oedematous (Figure 1). She caught the spider using a plastic container and brought it to the ED for identification (Figure 2).

She arrived at the ED 40 minutes after the bite, and her vital signs were normal. The bite site was gently irrigated, and the forearm immobilized. Gradual resolution of pain and swelling was achieved 30 minutes after the initial administration of IV tramadol hydrochloride 100 mg, IV hydrocortisone 200 mg and IV chlorpheniramine maleate 10 mg. Baseline blood investigations and ECG were unremarkable. There were no signs of systemic envenomation. She was admitted to the medical ward for 24 hours observation.

On a follow-up phone call 24 hours after discharge, the patient noted moderate neck and generalized joints pains especially affecting the hips and knees. She did not complain of fever. Oral paracetamol 1 gm every 6 hours was recommended for pain relief as necessary. The symptoms resolved after 2 days and she remained well on subsequent follow-up via phone call.

The spider was identified as an adult male *Thelcticopis* sp. with overall body length 22.5 mm, carapace length 8.5 mm (width 9.5 mm), and abdomen length 14.0 mm (width 9.0 mm). The spider was kept alive for several months for observational purposes. It was subsequently preserved in 70% alcohol and deposited at the Lee Kong Chian Natural History Museum for analysis and future reference. Tissue samples were obtained for genetic analysis.

DISCUSSION

The spiders responsible for the bites reported here probably belonged to the genus *Thelcticopis* of the family Sparassidae, subfamily Sparianthinae. Because the *Thelcticopis* group is due for a comprehensive taxonomic review, the specific taxa involved in these cases could not be ascertained. Extensive search of the literature did not find prior publication of bites and envenomation by *Thelcticopis* spp. in Malaysia. Although several species from Southeast Asia described in the 1800s may be of this species, we were unable to identify it with any certainty. The early descriptions are vague. None of the more recently studied and described species are anywhere near a match (Jäger 2005; Liu et al. 2010; Logunov & Jäger 2015; Jäger & Praxaysombath 2009; Ahmed et al. 2015). Genetic analysis of this specimen is currently underway and may reveal a possibility of a new undescribed species.

The clinical effects of bite

envenoming reported here appear to be more severe than those that have resulted from the bites by Australian sparassids. Cases of *Thelcticopis* spp. biting humans are extremely infrequent and likely under reported. This is probably because *Thelcticopis* is a predominantly nocturnal forest spiders and is seldom encountered by humans. The effect of their bites, with little or no injection of venom, may be self-limiting in healthy adults who may not seek medical intervention. Isbister & Hirst (2003) reviewed documented bites by sparassids in Australia and concluded that pain and discomfort occurred in all cases and was severe in 27%. The median duration of pain was 5 minutes with or without minor systemic effects such as nausea and vomiting. Other symptoms include oedema, pruritis and redness.

The clinical features of the local envenomation reported here was limited to moderate to severe pain and progressive oedema without blistering, dermal necrosis or ulceration. There were no systemic effects, nor was there development of secondary bacterial infection. The largest phylogenomic analysis (using transcriptomics) of spiders to date, provides an interesting perspective of the current case (Fernández et al. 2018). Firstly, the Family Sparassidae to which *Thelcticopis* belongs is not at all related to the notorious venomous families Atracidae (Atrax=Sydney Funnel Web Spider and relatives), Sicariidae (Loxosceles=Fiddle-back spider and relatives) or the Theridiidae (Latrodectus=Black widow spider and relatives). Instead, the Sparassidae is included in the many thousands strong Retrolateral Tibial Apophysis (RTA) Clade. The great majority of this clade are completely harmless to humans but there are at least three RTA families that have produced medical case reports. These include some 'Marranoids' e.g. Desidae (such as *Badumna*, the Black House Spider Australian, now introduced to several countries), the Ctenidae (e.g. the dangerous *Phoneutria*=Banana Spider of South America) and the Eutichuridae (*Cheiracanthium* species=Sac spiders worldwide). Although the Sparassidae is a member of the RTA clade, it is not particularly closely related to any of the aforementioned RTA families. *Thelcticopis* is likely to possess a rather distinct set of venom components.

Following the resolution of the presenting symptoms of spider envenoming, polyarthralgia lasting for a few days may develop. This delayed presentation may have been due to an immune complex mediated reaction. These sequelae resolved with adequate analgesia, antihistamine and steroid medications. However, it is uncertain if the resolution of signs and symptoms were due to the medication administered, volume of delivered venom (e.g. small yield), prey-specific lethal potency of venom (e.g. low toxicity for humans) or the transient effect of the venom on an otherwise healthy adult. We have no data on the effects of true envenomation in children, the elderly or compromised adults. In order to facilitate identification of this spider in possible future bites or envenomings, more images are provided for reference

(Figure 3).

A recent online search showed that this spider is rather popular in the international arachnid pet trade. They are referred to as the Malaysian 'Black and Gold' Huntsman spider. Their aggressive disposition and willingness to bite, together with their attractive coloration, have made this species desirable to private collections. A review of the Malaysian Wildlife Conservation Act 2010 did not reveal any restrictions in the collection and trade of this species.

CONCLUSION

There are not many well-documented cases of medically significant bites from the *Thelcticopis* species spiders or comprehensive research on their venom properties and toxinology. Due to the severe pain that may result from an envenomation from this *Thelcticopis* spider, we recommend that free handling of live specimens should be discouraged and it should be protected with the appropriate wildlife licensing and regulations. Any person maintaining the species should remain cognizant of its capacity to inflict a medically significant envenoming with potentially serious consequences. Therefore, all bite incident should be managed in an emergency care unit.

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