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CUTANEOUS FIBROMA IN A COMMON SNAPPING TURTLE (*Chelydra serpentina*)

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SUMMARY

This is a case report on the management of a common snapping turtle (*Chelydra serpentina*) with cutaneous fibroma which was managed surgically. An adult common snapping turtle was presented with a pink pendulous mass at the palmar of the left forelimb. The mass was pedunculated, pinkish-red in colour, round to oblong shape, 4 to 5 cm in diameter with central ulceration site. Microscopic examination revealed well-circumscribed and non-encapsulated mass in the dermal layer with stellate to spindle-shape cells dispersed throughout the tumour mass consist of collagen stroma. A diagnosis of cutaneous fibroma was made. In this case, the mass was removed surgically. Post-operatively, the turtle was managed with enrofloxacin antibiotics and carprofen as non-steroidal anti-inflammatory treatment. The snapping turtle recovered uneventfully.

Keywords: *Chelydra serpentina*, snapping turtle, fibroma, surgery

INTRODUCTION

The occurrence of neoplasm is rarely reported among marine or freshwater turtles. In a report by Garner, Hernandez-Divers and Raymond in 2004, the most common type of benign neoplasm reported in turtles & tortoises was fibropapilloma (10 cases) followed by papilloma (6 cases) and fibroma (2 cases). The same aforementioned study on neoplasm from turtles and tortoises evaluated on histopathology at a veterinary pathology laboratory revealed even lower occurrence of malignant neoplasm which include squamous cell carcinoma (3 cases), soft tissue sarcoma (4 cases including 2 fibrosarcoma); and 1 case each for pancreatic adenocarcinoma and lymphoma. The true occurrence in wild and non-captive animals is not known and this number could be an underestimation of the true occurrence.

Common snapping turtle (*Chelydra serpentina*) is a large, freshwater turtle native to North America and commonly found in Canada and United State of America. In Malaysia this turtle is commonly found in ponds and some are kept as pets at homes. To date, only a few published reports on neoplasm occurrence in the common snapping turtle, which include dysgerminoma of the ovaries (Machotka *et al.*, 1992), cutaneous papilloma (Raiti, 2008) and cutaneous fibroma (Gonzalez-Viera *et al.*, 2012). The following is a case report of a fibroma diagnosed on a palmar of a left forelimb of a snapping turtle which was managed surgically with good outcome.

CASE REPORTS

An adult, male, common snapping turtle, weighing 4 kg, developed a pendulous mass on the palmar of its left forelimb. The turtle was managed in captivity in an outdoor pond. The turtle had a history

of development of a mass on the right hindlimb which was surgically removed a year ago however that growth was not evaluated on histopathology. On physical examination, the snapping turtle appeared bright, alert and responsive. The mass was sessile, pinkish-red in colour, irregular in shape, approximately 4 to 5 cm in diameter with ulceration point at the central area of the growth (Figure 1). Based on the gross appearance and site of lesion developed, the differential diagnoses were benign tumour (eg. fibroma) or malignant tumour (eg. fibrosarcoma or squamous cell carcinoma) hence it was decided that the mass should be removed surgically.

The turtle was physically restrained and 20 mg/kg ketamine mixed with 1 mg/kg midazolam was



Figure 1. Tumour on the left forelimb of a snapping turtle

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administered intramuscularly as an induction agent. Isoflurane was used as inhalant anesthetic agent throughout the surgery (Goe *et al.*, 2016). The turtle was placed on ventral recumbent with the affected limb elevated slightly to facilitate surgery. The surrounding area of the mass was flushed to remove gross necrotic tissue and dirt with diluted chlorhexidine (10%) and normal saline. Surgical drape was placed surrounding the mass and tincture iodine was applied on and surrounding the growth that was to be excised. Incision was made adjacent to the mass with a surgical margin of 0.3 mm and the tissue detachment were undermined using a Mayo scissors to free the mass for excision. Skin closure was done using a non-absorbable, monofilament, synthetic Ethilon® Nylon of size 3-0 in a simple interrupted suture pattern. Sutures were pre-placed first before tightened to ensure that the tension was uniformly distributed. Minimal blood loss was observed during the procedure where the electrocauterizer was used to control haemorrhage (Figure 2A-D).

Post-operatively, enrofloxacin was administered at 5 mg/kg orally, once a day, for six days as a broad spectrum

antibiotic therapy which is routinely done in surgeries involving chelonians especially on the limbs where it is prone to contamination and possible infection. Carprofen was administered subcutaneously at 1 mg/kg, once a day for two doses as anti-inflammatory and analgesia. The turtle was assessed three weeks later when the sutures were removed and the surgical site healed completely within a month post-surgery where no regrowth or infections were observed.

Routine histopathology of the mass using haematoxylin and eosin staining confirmed a diagnosis of fibroma which is a benign neoplasm. The tumour extended to the dermis and was composed of loosely arranged stellate to spindle-shape cells (fibrocytes) with collagenous stromal throughout the tumour tissue. There were no mitotic figures observed and minimal evidence of necrosis and absence of mitotic figures and microvessel invasion. Based on the gross lesion and the microscopic examination, cutaneous fibroma was diagnosed in this case, which generally gives a good prognosis for this turtle.

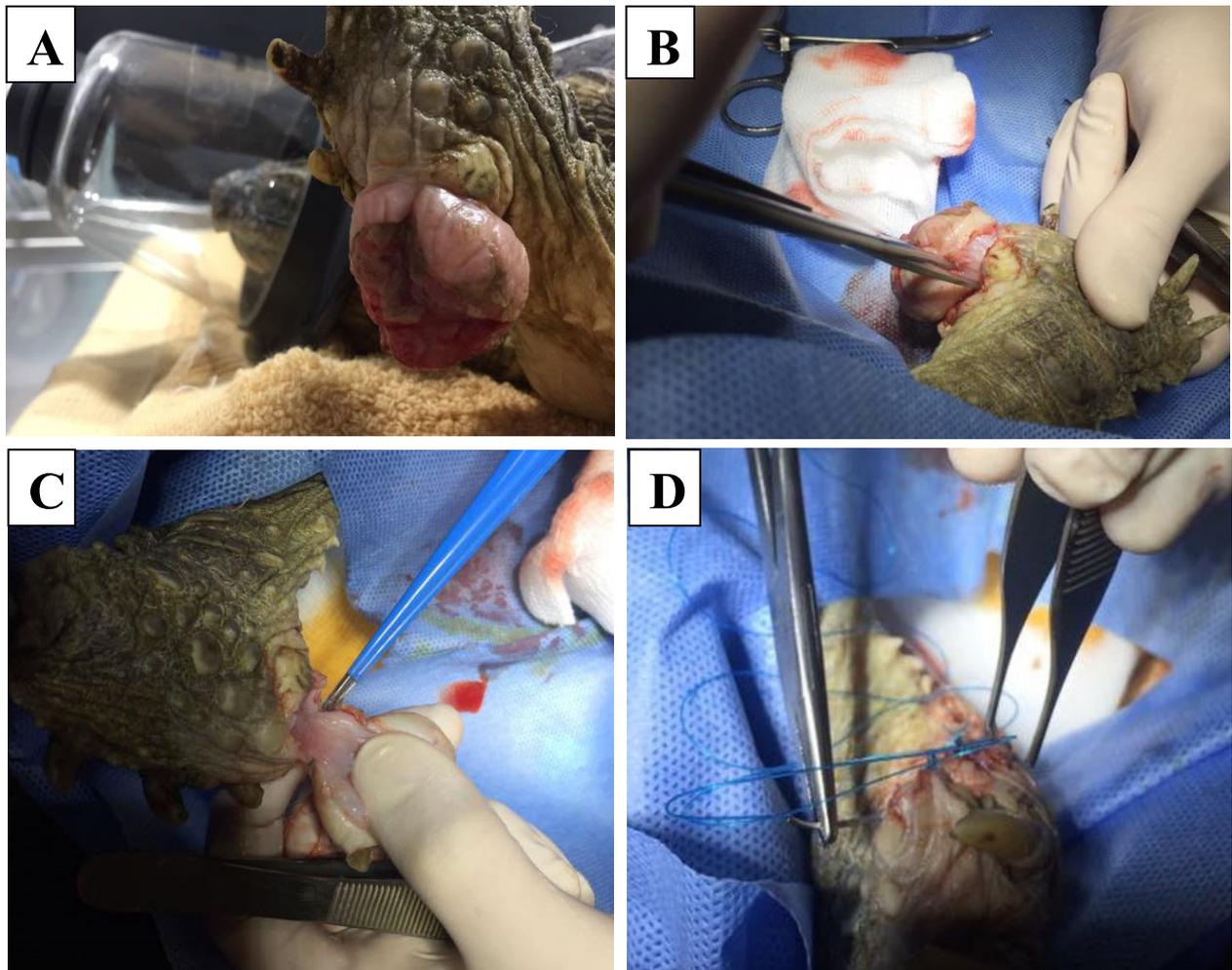


Figure 2. Surgical procedure to remove the mass. (A) isoflurane inhalation anesthesia; (B) undermining the tumour prior to excision; (C) blood vessels cauterized during excision and (D) closure of surgical site using a simple interrupted suture pattern

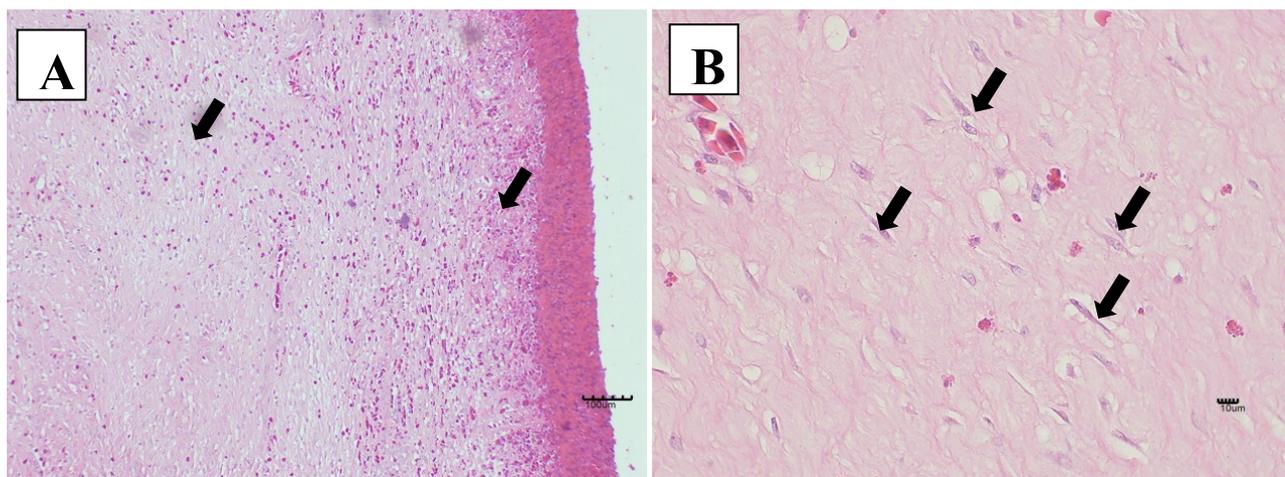


Figure 3.

(A) Areas of loosely and densely arranged fibrocytes surrounded by a dense collagenous stroma (arrow) within the dermis. HE. Bar 100µm

(B) Spindle shaped fibrocytes embedded in stroma (arrows) HE. Bar, 10µm

DISCUSSION

Neoplasia are rare in chelonians; the occurrence of neoplasm in chelonians is reported as low as 1.4% in tortoises and 3.2% among freshwater turtles (Garner, Hernandez-Divers & Raymond, 2004). Fibroma is a benign fibroblastic tumour that is commonly presented as a discrete mass with dermal fibroblast cellular proliferation. Cutaneous fibroma has been reported in an alligator snapping turtle (*Macrochelys temminckii*), and a common snapping turtle (Gonzales-Viera *et al.*, 2012). In the aforementioned case report in the common snapping turtle is very similar to the present report in terms of the location where the tumour developed which is the palmar surface of the forelimb which, it was diagnosed based on the gross lesion, microscopic examination (histopathology) and immunohistochemistry characterisation. In the present case report, the tumour was observed on the palmar surface and diagnosed on routine histopathology.

Surgical resection of the mass was necessary to improve the welfare of the turtle. If the mass was left untreated, it may promote infection and over time if the fibroma grows much larger, the gait and movement of the turtle will be affected as well as cause significant pain. Marine turtles have been reported to develop multicentric visceral fibroma as a component of fibropapillomatosis (Jacobson *et al.*, 1991; Herbst *et al.*, 1999) which is commonly associated with herpesvirus infection in these species (Jacobson *et al.*, 1991). In addition to that, other conditions such as water temperature, concurrent immunosuppression, marine biotoxins and pollutants from water source (Aguirre and Lutz, 2004) may be factors that can contribute and promote the development of such fibromas in turtles. In the present case, it was unknown how long the mass was present on the turtle and it can be related to or caused by chronic abrasion wounds or pressure sores at that site, which lead to the

development of fibroma over time. Both case reports, the present and by Gonzales-Viera *et al.* (2012) reported on fibroma occurrence on the palmar of a forelimb. This is a most likely site for development of benign tumours due to weight bearing points and caused by constant abrasion or punctured wound if chronically not managed can lead to neoplasm development such as fibroma.

CONCLUSION

This is a case report of a fibroma on a palmar of the left forelimb of a common snapping turtle which was surgically managed with uneventful recovery. The present case report should add on new data for occurrence of neoplasia in common snapping turtles and provide insights to veterinarians to manage such a case with confidence in future due to its good outcome and prognosis such as in this case.

CONFLICT OF INTEREST

The authors report no conflicts of interest.

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