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A Suture Method to Optimize the Condition of Snake Specimens in Herpetological Collections

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Data derived from the dissection of preserved specimens in herpetological collections have contributed immensely to our understanding of the biology of snakes (e.g., Fitch 1940; Allen and Neill 1957; Hoge and Romano-Hoge 1978; Diller and Wallace 1984; Salomão et al. 1995; Almeida-Santos and Salomão 2002; Pizzatto et al. 2007; Marques 2011; Barros et al. 2012; Rojas et al. 2013). Some museums contain historical specimens that have incalculable value; deciding whether to grant permission to dissect such specimens is a challenge for curators. Regardless of age, many specimens require special care such as when the specimens are damaged prior to collection (such as in roadkills), where body parts are sprawled, or when tissues have been manipulated during prior dissection (e.g., stomach contents, developing follicles, embryos, or eggs). As such, previously dissected specimens that have not been sutured may disrupt future data collection of anatomic features.

Despite such a long history of using preserved specimens for scientific study, little attention has been paid to the best ways

FIG. 1. Specimens dissected: longitudinal incision in which the ventral scales are divided into two relatively equal halves (A). The suture is anchored under the epidermal layer on the right side of the animal between two ventral scales (B). Begin the whip stitch by tying a knot in the end of your thread and alternatively the needle is placed from outside to inside with one bite then going from inside to outside on the next bite (C, D). The suture in the skin of the snake represents a simple continuous pattern or whip stitch (E). The muscular layer and subcutaneous layer are incorporated in the suture and the distance from one point to another is 5–10 mm. The needle used to close the incision was a straight surgical needle with taper point, size 2-3. Kite string was used to suture which when completed, is imperceptible to the naked eye (F). Li: longitudinal incision L: left; R: right; SS: scale space; Ssc: simple suture continues; f: fixation (anchor) point.

to minimize damage to specimens. The focus of this paper is to present a simple method of closing and securing dissected coelomic cavities of snakes that minimizes damage of the specimens in scientific collections.

After dissection (Fig. 1A), a continuous suture is initiated to close the coelomic cavity, by anchoring the suture on one side of the skin (Fig. 1B–D). This suture is characterized by a simple continuous pattern or whip stitch commonly used in medicine (Fig. 1E). In individuals that have been run over or in which the organs were collected from other sources, the pleuroperitoneal cavity is usually fragmented. This disruption causes the drying of tissues, making them fragile. It is important to note that the point of suture is not visible to the naked eye, which provides an aesthetic benefit, and avoids disruption of scale orientation (Fig. 1F).

With the adoption of this technique, researchers can obtain valuable information from specimens of varying condition while minimizing damage and prolonging their usefulness in collections. Scientific collections that do not allow or have restricted access to the dissection of specimens could consider this technique as a model for the upkeep of specimens that might be dissected in the future.

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