

The cause of death seven weeks after endoscopy is unknown. Any damage that occurs during endoscopic retrieval of foreign bodied should be closely monitored. It may have been prudent to administer antibiotics due to gastric mucosal tear.

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## Unique External Fixation for a Fracture of a Veiled Chameleon's, *Chamaeleo calyptratus*, Casque

**C**ase History - An eight-month old, male veiled chameleon, *Chamaeleo calyptratus*, was presented for a closed fracture of the casque, the dorsal crest from the calvarium. Prior to routine cleaning, the owner had attempted to restrain the chameleon to remove him from the cage. The chameleon resisted the restraint and the owner accidentally caught and fractured his casque. The chameleon had no prior history of disease or illness. Both the diet and husbandry appeared appropriate.

**Fracture Assessment** - The veiled chameleon's casque consists of a tripod of thin bones attached to the calvarium (Figure 1). The inner spaces of the casque contain muscles, which would contract when the chameleon closed his mouth causing the broken casque to fold into a "S" shape (Figure 2). The angle of the fold appeared to be the result of fractures of the left and right

lateral bones. No other fractures were noted during the exam and no radiographs were taken due to the visible nature of the casque fractures.

Metabolic bone disease has been reported as a common underlying cause of fractures in young chameleons (Jenkins, 1992, Stahl, 1996). In this case, no other fractures were noted during the physical exam and the long bones, maxilla and mandible palpated normally. Additionally the lighting and diet seemed adequate. Therefore, pathological fractures from metabolic bone disease were thought to be unlikely.

**Fracture Fixation** - Traditional external coaptation with bandaging or casting might have been sufficient to stabilize this fracture. However, it was likely that any bandage applied would slip off due to the conical shape of the casque. The bones of the casque (0.5 to 1 mm thick by 1-2 mm wide) were too thin for any type of internal fixation by pins or plating. Small 30 gauge needles might have been used to create a type I or type II external Kirschner device (Bennett, 1996). This method was not chosen due to the relatively large apparatus that would have to be applied. The chameleon would have a portion of his visual field obstructed, thus potentially causing stress leading to morbidity.

Instead, a small section (15 mm) of the end of a wooden cotton swab was adhered across the rostral fracture site with Vetbond® (3M Animal Care Products, St. Paul, MN). The device seemed to adhere well to the chameleon's skin and acted as a splint (Figure 3). The fixation of the rostral bone had secondary effects. The stabilization prevented the excessive muscle contracture and its folding effects on the lateral fracture sites. The small size of the splint did not seem to bother the chameleon. The device was left in place for three weeks at which time the wooden splint was removed. The splint was easily removed from the casque along with a superficial layer of skin. A small callus was evident and the bone appeared healed and no longer folded.

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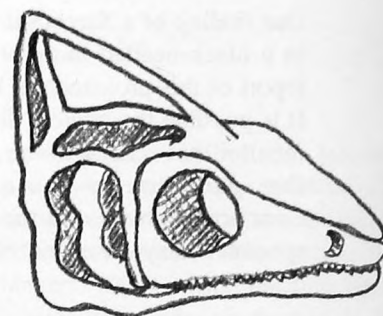


Figure 1

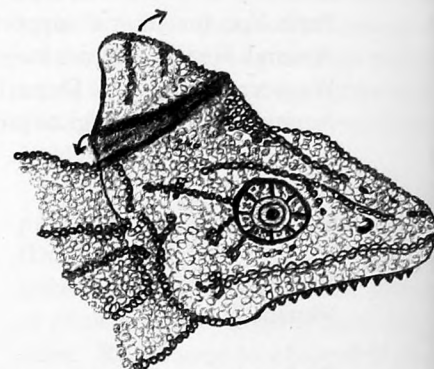


Figure 2



Figure 3

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