

# Surgery on a Galapagos Giant Tortoise

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## INTRODUCTION

**Who is the patient?** The patient is a 50 year old female Santa Cruz Galapagos Giant Tortoise that weighs approximately 100 lbs.

**What happened?** The tortoise was hit by an automobile. The accident created fractures on the carapace and plastron and separated the connecting skin between the leg and the carapace. After the first reconstruction surgery, the tortoise suffered a massive inflection that led to an additional surgery.

### What was done?

A five hour reconstruction surgery was performed to put the carapace back together.



## MATERIALS & METHODS

The Galapagos Islands do not have access to many veterinary supplies due to its isolation from the mainland. Many of the materials that were used during this procedure were custom made. The materials consisted of the following:

- Needles
- Syringes
- Sutures
- Ketamine
- Surgery kit
- Epoxy
- Bactrovet
- Gauze
- Water
- Sandpaper
- Welded wire
- Metallic straps
- Pick-up truck tire
- Plastic probe
- Chlorhexidine gluconate solution

The tire served as the operation table while the wire and straps were used to keep the carapace from moving.

## PROCEDURE

- 1. Anesthesia:** Ketamine was used to tranquilize the patient while surgery was performed. Only 1 ml of ketamine was added every 30 minutes.
- 2. Cleaning and Debriding of Carapace:** Previous metallic straps and sutures were removed and wounds located on the carapace were washed with chlorhexidine. Dead tissue and bone were debrided.
- 3. Cleaning and Debriding of Plastron:** Patient was turned on her back and the plastron wounds were cleaned with chlorhexidine. Dead tissue and bone were debrided from the leg area.
- 4. Hydration:** A probe was inserted inside the tortoise's cloaca and water was flushed inside the cloaca to prevent dehydration.
- 5. Carapace Reconstruction:** Patient was stood on her back legs which allowed us to hold the carapace in the correct position while the carapace was secured with welded wire. Once the carapace was secured, the metallic straps were added to keep the fracture closed and were pasted to the carapace using epoxy, which allowed both ends of the fracture to fuse back together. Dental acrylic was also added to fill in the gaps and non-adherent gauze was used to prevent the wound from re-opening.



- 6. Final Sutures:** The patient was turned on her back one more time to suture the loose skin from the leg to the plastron. Sutures and epoxy were used to create an anchor point to keep the skin tight to the plastron, which helped the two areas attach back together. Some of the dental acrylic was also used to seal small gaps of plastron, but a major area was left open to let fluids drain. Lastly, the carapace was covered with a layer of gauze.

## FOLLOW-UP TREATMENT

Daily care was required to help this patient heal properly post-surgery. Wounds needed to be cleaned daily using a chlorhexidine solution to remove any dead tissue and bacteria. Scheriderm cream, a cream used to help reduce skin inflammation, was also applied on wounds. Bactrovet was sprayed over the cream to protect and seal the wounds. Finally, 1 ml of meloxican and 1 ml of oxytetracyclin were injected daily for a period of two weeks to fight off infection. The non-adherent gauze was changed every other day.

## CONCLUSION AND DISCUSSION

After I left the archipelago, the tortoise was handed over to the Galapagos National Park where she continued to receive medical care. At the beginning of 2015, she was finally re-introduced to the wild.



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