

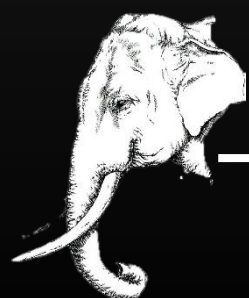


# Dental complications secondary to mandibular fracture in a sub-adult Bornean elephant

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## History

Report: A tusked wild Borean elephant was emaciated, weak and drooling in Tawau, Sabah (North Borneo)

- A rescue team found undigested plant material in the dung while investigation at the reported location
- The wild elephant was tracked down and sedated with 0.38 mg/kg xylazine intramuscularly by tranquilizer darts and restrained

## Patient signalment

Species : Asian elephant

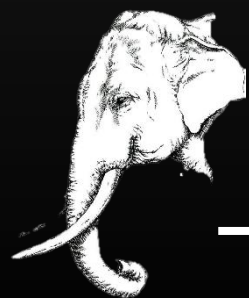
Scientific name : *Elephas maximus borneensis*

Sex : Male

Bodyweight : 800kg

Age : 6-8 years old

BCS : 3/10



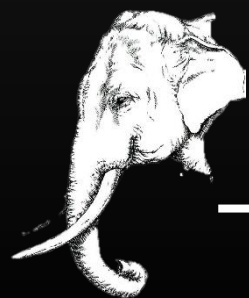


## Physical examination

- Coconut-sized abscess on left mandible
- Asymmetric buccal margins
- Tongue ulceration
- Periodontitis
- Endodontitis
- Foul-smelling caseous material
- Malocclusion

## Hospitalization

- Borneo Elephant Sanctuary (BES)
- Radiographs
- Routine treatment
- Specialized diet (soft)
- Consultant dentist



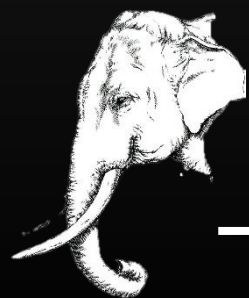
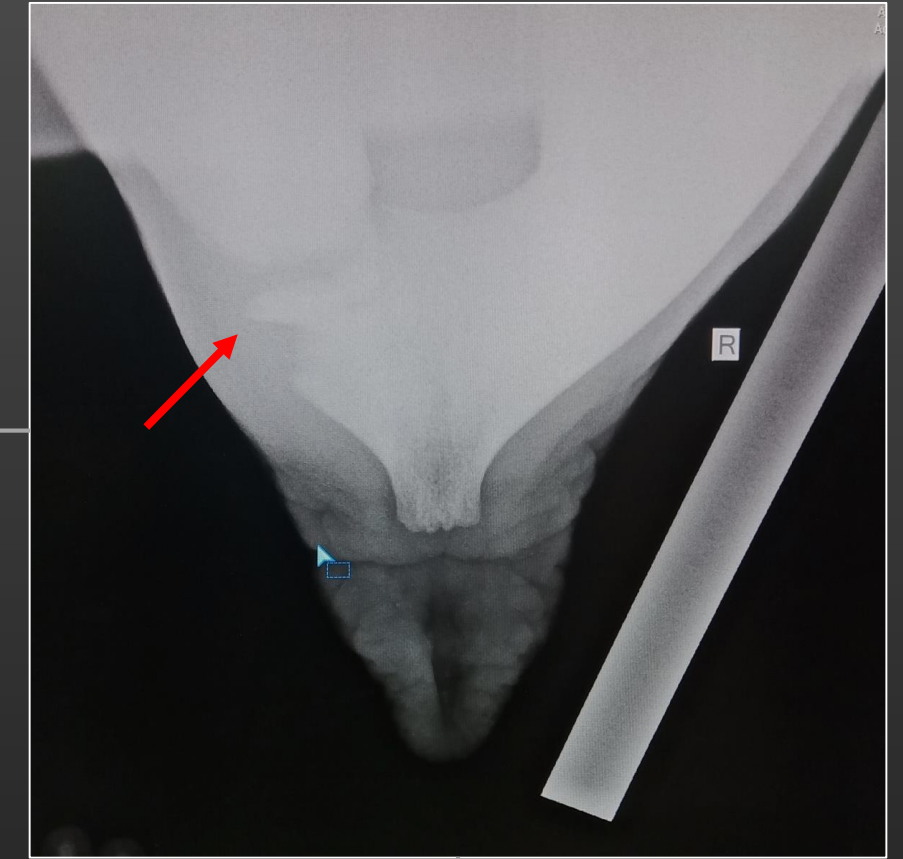


## Diagnostic work-up

- 70kVp, 10mAs
- Lateral and intraoral bisecting angle
- Soft tissue swelling
- Callus formation
- Left sided comminuted fracture at the body of the mandible

## Update:

The animal was not a release candidate, and keeping the animal in captivity for a prolonged period nor permanently was not an option. Therefore, the authorities opted for euthanasia.





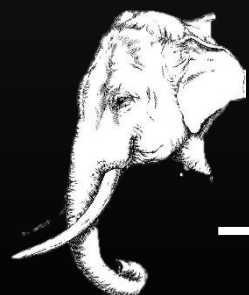
# Discussion

## Elephant Dentistry

- Polyphyodont
- Lophodont dentition
- 6 set of molars in lifetime ( $M_1$ - $M_6$ )
- Molars erupt at caudal jaw and progressively migrate forward before crown falls off

## Pathophysiology

Unilateral mandibular fracture on left side →  
Malocclusion → Failure of  $M_3$  extrusion on right side →  
Impeded eruption of caudal molar on right side →  
Abnormal eruption of  $M_5$  on right side → Excessive  
molar abrasion on the left side → Compromised  
mechanical digestion of food → Anorexia →  
Malnutrition



## Conclusion

- Malunion of the fracture resulted in a permanent deformation of the jaw, causing malocclusion and ultimately affecting the teething of the elephant, named “Toothie”
- Mandibular fractures can lead to dental disease in elephant, impacting survival of the animal in the wild
- Mandibular fracture cases are rare in captive and wild elephants
- Effective treatment or correction of mandibular fracture in elephants is still unknown
- Life-long captivity with specialized diet and routine veterinary check-ups may be the best solution for elephants with mandibular fracture

## Reference

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