



SNAKE POISONING & MANAGEMENT



Disclaimer

“This presentation is solely intended for educational purpose only and not for any commercial activity.

The ownership and copyright to the materials remain with the actual owner of the content. No claim for the originality of the content is made”

✓ 3500 species all over the world

✓ <350 venomous

✓ 330 species in **INDIA**

✓ 50 venomous

CLASSIFICATION

5 families

1) *Colubridae* 78% of all species

2) *Boidae*

3) *Atractaspididae* moles & asps

4) *Elapidae* cobras,
kraits,
coral snakes,
mambas

4) *Viperidae*:

@ *viperinae/true vipers-*
vipers, adders

@ *crotalinae/pit vipers-*
rattle snakes

IDENTIFICATION



Poisonous Snake



Triangle-shaped head



Elliptical pupil

Pit

Fangs



Anal plate

Single row of sub-caudal plates

Rattle (rattlesnake)

Non-Poisonous Snake



Rounded head

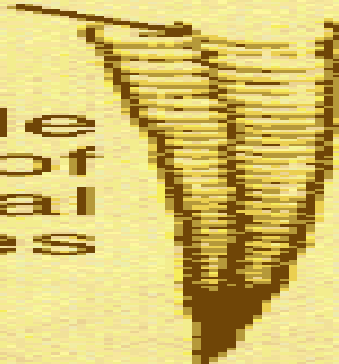
Round pupil



No fangs

Anal plate

Double row of subcaudal plates



Features of venomous snakes

- ✓ Compressed tail
- ✓ Broad belly scales extending across entire width
- ✓ Small scales on head
- ✓ Hood with or without markings
- ✓ Fangs
- ✓ Rattle

BELLY SCALES



VENOMOUS

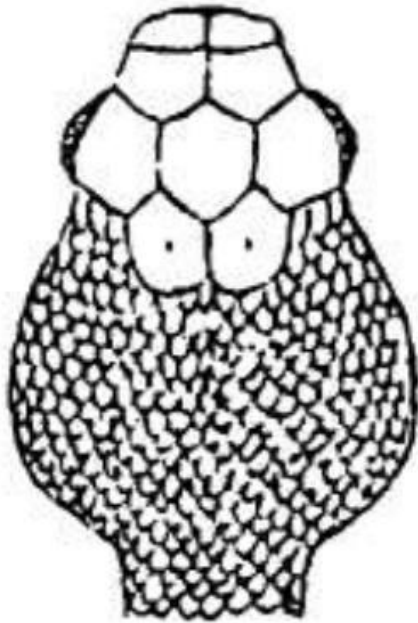
FMT JIPMER



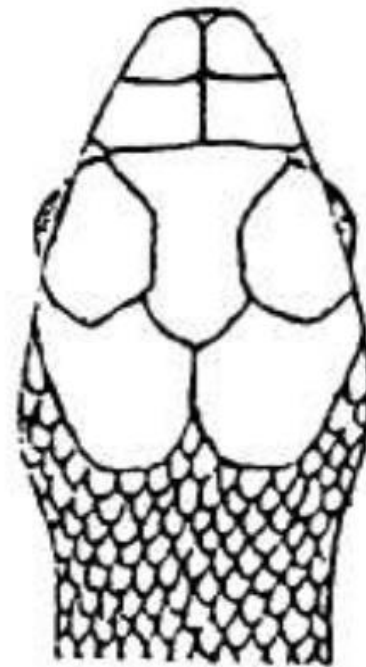
NON- VENOMOUS

04-Nov-17

TOP OF HEAD



Poisonous



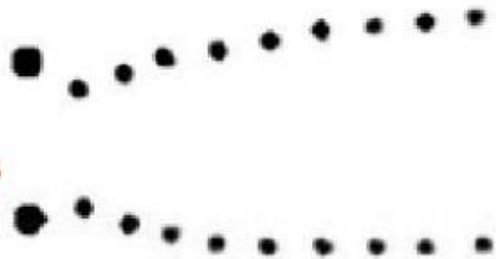
Harmless / poisonous

BITE MARKS

Venomous Snake

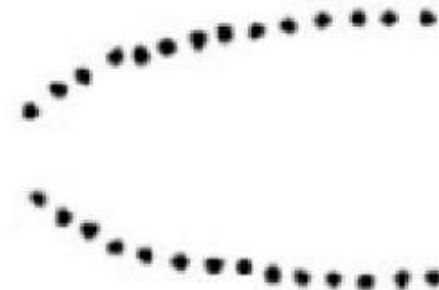
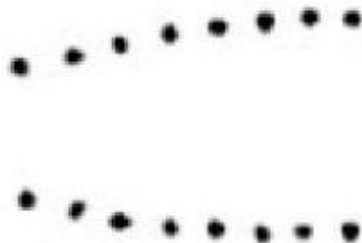
Non-venomous Snake

Fangs



Upper Jaw

Upper Jaw



FMT JIPMER Lower Jaw

Palate teeth

Lower Jaw

04-Nov-17

THE BIG FOUR

➤ ***COMMON COBRA***

➤ ***COMMON KRAIT***

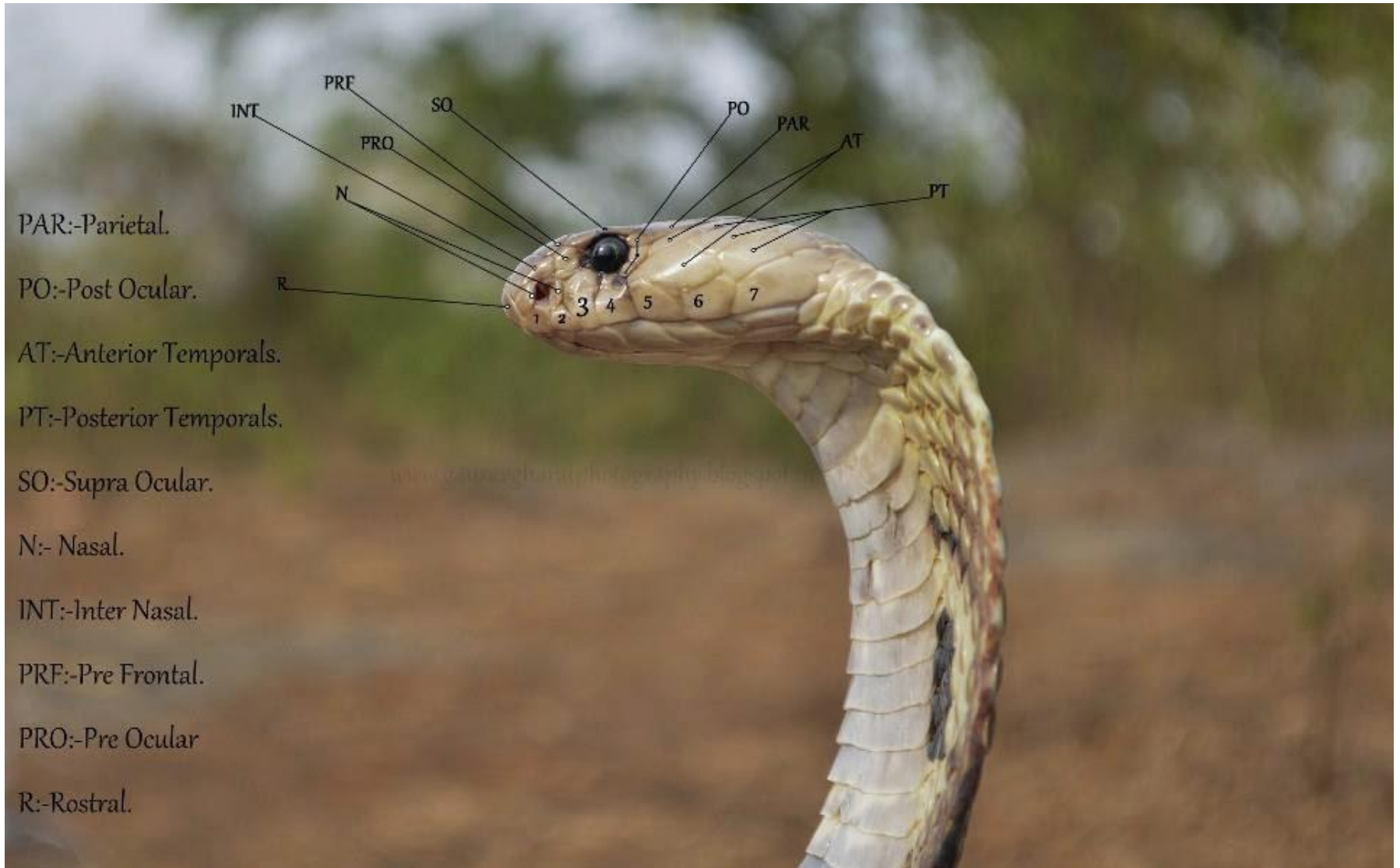
➤ ***RUSELL'S VIPER***

➤ ***SAW SCALED VIPER***

COMMON COBRA

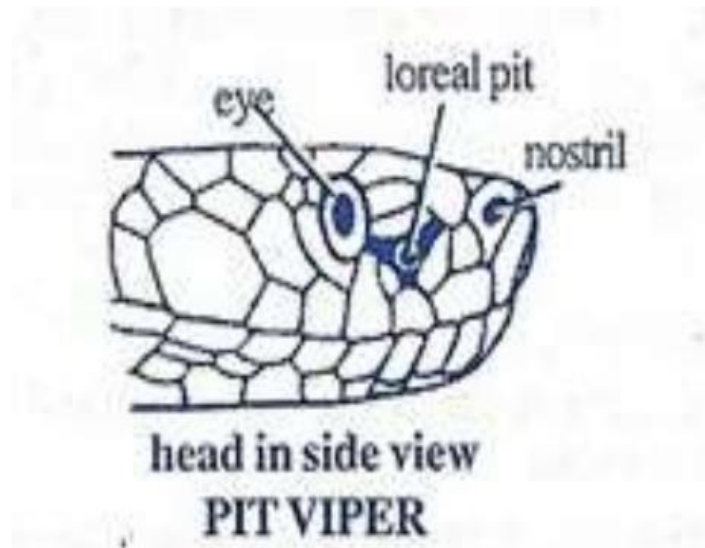
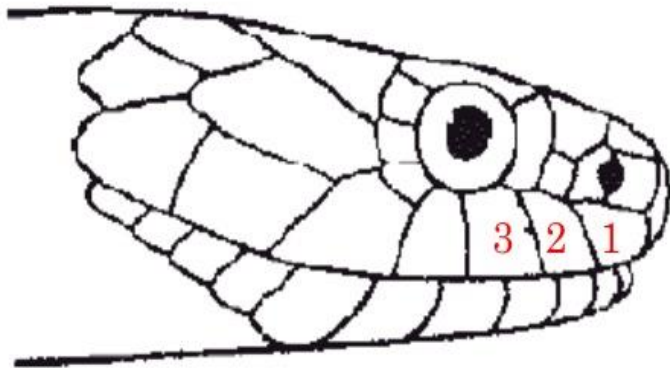


3rd supralabial touches eye and nasal shield



SIDE OF FACE

Look for third supra-labial and pit



A small wedge shaped scale (**cuneate**)
is +nt b/w 4th and 5th infralabials



✓ 3 small scales just behind each eye.

✓ Venom- **Neurotoxic**

COMMON KRAIT

- Whitish half rings throughout its back
- Creamy white belly
- Hexagonal large scales throughout mid dorsal aspect
- Sub caudals are undivided
- 4th infralabial is the largest of infralabials
- Venom- **Neurotoxic**



Common Krait :*Bungarus caeruleus*
Indian Krait



© Vivek Sharma/Indiansnakes.org



Vivek Sharma/Indiansnakes.org

RUSELL'S VIPER

- Triangular head with 'V' shaped mark
- 3 rows of diamond shaped dark spots along the back
- Entire broad plates on belly



Rusell's Viper : *Daboia russelli*

SAW SCALED VIPER

- Waxy white lines along the entire length with diamond shaped areas b/w lines
- Head triangular with small scales characteristic white arrow/crow's foot mark +nt on head
- Broad belly plates and entire shields beneath the plates
- Scales are serrated



Saw scaled Viper : *Echis carinate*

OTHER COMMON VENOMOUS SNAKES

King Cobra
Banded Krait



King Cobra;
Ophiophagus hannah

Banded Krait



SNAKE VENOM



MOHAMMAD AL-SALEH 2007

Toxic saliva by modified parotid.

Concentration shows diurnal and seasonal variation

CONSTITUENTS

Protein

- ✓ Enzymes
- ✓ Non enzymatic toxins
- ✓ Non toxic proteins

Non protein

- ✓ Carbohydrates
- ✓ Metals
- ✓ Lipids
- ✓ Free AA
- ✓ Nucleotides
- ✓ Biogenic amines

SNAKE BITE

1) NON VENOMOUS

2) VENOMOUS

- with envenomation
- without envenomation (20-50%)



- Dry bite
- Protective gear
- Leakage of venom
- Superficial bite

When venom has been injected

- Fang marks
- Local pain
- Local bleeding
- Lymphangitis
- Lymph node enlargement
- Inflammation
- Blistering

L
O
C
A
L

When venom has been injected

- Nausea
- Vomiting
- Malaise
- Abdominal pain
- Weakness
- Drowsiness

S
Y
S
T
E
M
I
C

ELAPID BITE

- Minimum local manifestations
 - swelling & local pain
 - local necrosis & blistering
 - serosanguinous discharge
 - Venom ophthalmia

• Systemic: Neurotoxicity

- Drowsiness
- Paresthesias
- Abnormalities of taste & smell
- Heavy eyelids, Ptosis, Diplopia, Ophthalmoplegia
- Paralysis of facial muscles, Nasal voice, Aphonia
- Difficulty in swallowing
- Generalized flaccid paralysis

- Convulsions
- Coma
- Respiratory arrest

VIPERID BITE

Marked local manifestations

- Swelling around bite site-> whole limb-> adjacent trunk
- Pain, tenderness, lymphadenopathy
- Persistent bleeding from the bite site

L
O
C
A
L

- Spontaneous systemic bleeding – epistaxis, hemoptysis, hematemesis, melaena, hematuria, vaginal bleeding
- Cardiovascular – dizziness, collapse, shock, hypotension, cardiac arrhythmias

almost synonymous with
incoagulable blood

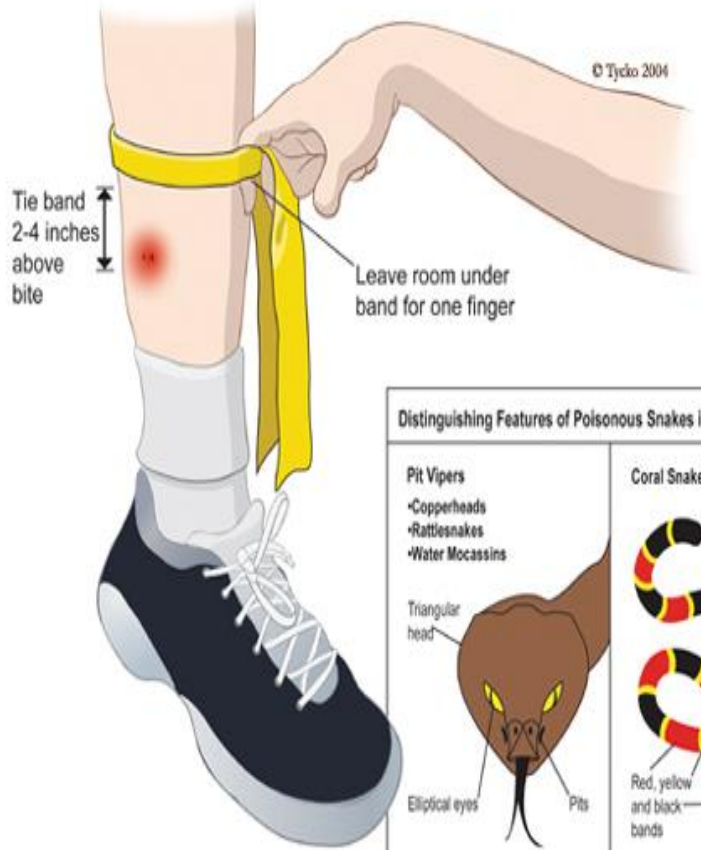
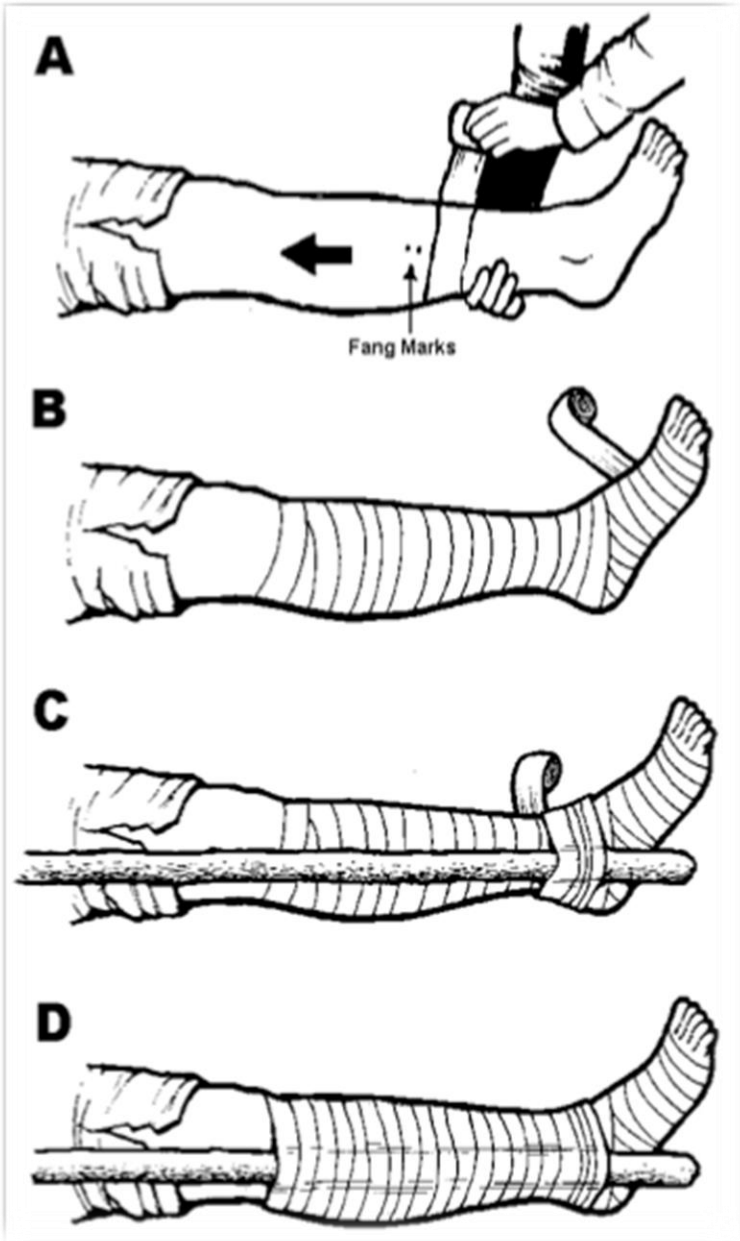
S
Y
S
T
E
M
I
C

MANAGEMENT OF SNAKE BITE

- ✓ First aid
- ✓ Hospital measures
- ✓ Additional measures

FIRST AID

- ✓ Verbal reassurance
- ✓ Immobilization
- ✓ Transfer the patient to hospital
- ✓ Drugs: Analgesics
Antiemetic
Antibiotics
Tetanus toxoid



Distinguishing Features of Poisonous Snakes in the United States

Pit Vipers	Coral Snakes
<ul style="list-style-type: none"> •Copperheads •Rattlesnakes •Water Moccasins 	
<p>Triangular head</p>	<p>Black head</p>
<p>Elliptical eyes</p> <p>Pits</p>	<p>Red, yellow and black bands</p>

HOW NOT TO TREAT A SNAKE BITE

- Tight tourniquet which occludes arterial supply
- Cauterization
- Multiple deep incisions through bite site
- Suction by mouth, vaccum pump or syringe
- Application of subs like pot.permangante, phenol etc.
- Application of electric shock
- Application of ice

HOSPITAL MEASURES

➤ Emergency care

- Airway, Breathing, Circulation, Consciousness

➤ History

Examination

- Local signs

- General Signs

- Draining lymph nodes for tenderness or swelling

- Pulse, BP

- Specific Signs

- Evidence of paralysis

- Evidence of coagulopathy

- Evidence of myolysis

- Evidence of renal impairment

Investigations

- 20 Whole Blood Clotting Test (WBCT)
- Forced expiratory peak flow rate
- Prothrombin time(PT); Activated Partial Thromboplastin time(aPTT); Platelet count
- Complete and Differential blood count
- Se Electrolytes; BUN; Creatinine; Urine examination
- Creatine phosphokinase (CPK)

AntiSnakeVenom

Indications for anti venom therapy

Systemic envenoming

- Hemostatic abnormalities
- Evidence of Neurotoxicity
- Cardiovascular abnormalities
- Acute renal injury

Severe Local Envenoming

Pregnant women & Children

Timing

Dose

Name	Manufacturer; Antivenom	Approx Average initial Dose
Common Krait	Indian manufacturers polyvalent	100 ml
Western Rusell's Viper	Indian manufacturers polyvalent	100 ml
Indian Saw Scaled Viper	Indian manufacturers polyvalent	50 ml
Indian Cobras	Indian manufacturers polyvalent	100 ml

METHOD OF ADMINISTRATION

1. I.V. Push injection

Given by slow IV injection (not more than 2ml/min)

2. Intravenous infusion

Anti venom diluted in 5-10 ml/kg body weight of isotonic fluid and infused at constant rate over one hour

Repeating Anti venom...

- Blood in coagulable after 6h or bleeding after 1-2 hr
- Deteriorating neurotoxic or cardiovascular signs after 1-2 h
- Initial dose should be repeated and patient should be reevaluated for need of supportive treatment

REACTION/ADVERSE EFFECTS

❖ Early (anaphylactic) reaction

- within 10 to 180 mins of 1st dose
- Urticaria, dry cough, fever, nausea, colic, diarrhea, tachycardia

❖ Pyrogenic reactions

- within 1-2 hr
- Chills, fever, fall in BP

❖ Late (se.sickness) reaction

- 7 days after t/t

Postmortem findings

- Fang marks
- Puncture wound 1.5-2.5 cm deep
- Discoloration, swelling & cellulitis around the bite site
- Hemorrhages in bowel & lung
- Kidney inflamed
- Purpuric spots on pericardium
- Internal organs congested

Thank you