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RESEARCH ARTICLE

BILATERAL PTOSIS AND SEVERE RESPIRATORY DISTRESS AS NEUROTOXIC SYMPTOM AFTER KRAIT ENVENOMATION IN CENTRAL INDIA: CASE REPORT AND REVIEW OF LITERATURE

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Abstract

Snake bite is a very well-known medical emergency presented in an Emergency Department, leading to life threatening condition if not treated adequately. Snake bite is very common in rural areas of central India where medical facilities are not well developed, so mortality rates are higher from respiratory arrest is evident compared to developed cities of state. Among the several snake families, krait bites are known to result in neurological symptoms, including ptosis, external ophthalmoplegia, paralysis of pharyngeal muscles, followed by respiratory and generalised muscle paralysis. We report a case of 45-year-old female from rural area presented to us with Snake bite followed by a bilateral ptosis and respiratory muscle paralysis with abdominal pain after getting primary treatment, she was managed in our hospital with mechanical ventilation, anti-snake venom and other supportive measures.

Introduction:-

India is a country known to the western population as a country of snake charmers and snake over centuries. Despite generation after generations some families in our country who play with snakes (snake charmers), we fail to protect the community from snake bite which requires at least education of the common people, how to protect themselves from snake bite as well as what to do after the bite has occurred.[1] Most poisonous is Common Indian Krait, which is about 10 times more poisonous than cobra. It is 1 to 4 feet long, with enlarged hexagonal vertebral scales, uniform white, or red belly and narrow white more or less distinct cross bars on the back, which usually absent near the head and neck region (Munjal and Association of Physicians of India, 2012).[2]

After neurotoxic envenomation caused by a common Krait bite, the patient requires a very large dose of polyvalent anti-snake venom (ASV) to overcome the neurological manifestations [3]. High mortality from toxic snakebite is a serious health issue. It is a source of concern for medical professionals. Clinically, snakebite envenomation is divided into two categories: neurotoxic and vasculotoxic. Cobra and Krait are both neurotoxic. It is primarily composed of a highly strong presynaptic neurotoxin that prevents impulses from nerve terminals from being transferred to muscle receptors. Although the venom contains a few additional neurotoxic ingredients, it has no cytotoxic, haematotoxic, or other component.[2]

Currently, the anti-snake venom is administered to patients with suspected snakebite with signs of systemic envenomation (spontaneous bleeding, prolonged clotting time, neurotoxic signs, acutekidney injury) or local

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swelling involving more than half of limbs. The anti- snakebite venom should be given immediately and repeatedly until the 20WBCT returns to normal.[4] However, the administration of ASV is not without risks. More than 10% of the patients who receive ASV develop some reaction varying from mild urticarial rash to severe anaphylactic reaction. [5] These call for thorough examination of patients before the administration of ASV in snakebite cases. Moreover, inappropriate usage can also lead to shortage of this scarce, relatively costly antidote.[6] In modern India, snakebite remains an underestimated cause of accidental death.

Case Presentation

A 45-year-old female brought by her son to the emergency department in dull and drowsy state with history of Snake bite (dead snake was brought by relatives and identified as Krait) on right forearm near elbow on lateral aspect showed two fang marks with no local sign of inflammation at around 5 AM near home located in rural area of Chhattisgarh. Initially the patient had been taken to nearby hospital where she started developing difficulty in swallowing, followed by chest pain with difficulty in breathing. Patient was put on non-invasive Ventilation support and initial management with Polyvalent anti-snake venom was started along with Injection Neostigmine and Atropine. Patient was referred to higher Centre for further management.

On arrival to Ramkrishna care Hospital's Emergency department, the patient was dull and drowsy. She subsequently developed drooping of both eyelids on the way, difficulty in breathing and difficulty in swallowing. She did not have any pre-existing comorbidities and was apparently well until above mentioned incident.

Vitals on arrival was BP-140/90 mm Hg, PR-132 bpm, SpO2 -75% on RA, RR-45 breath/min, RBS-142mg /dL and Temp-38.5 F. On Respiratory examination/L equal air entry present, Neurological examination showed B/L pupils were 1.5 mm equally reacting to light, but bilateral planter reflex was extensor. Immediately patient was intubated and put on mechanical ventilator support in view of Severe respiratory distress then started with Polyvalent snake venom and other supportive measures. Then patient was shifted to intensive care unit.

Serum CBC showed Hb-13.4mg/dL, Platelet count-310000, TLC-18000, Renal function test, liver function test, Serum electrolytes and coagulation profile were all normal.ECG showed SinusTachycardia and no other abnormalities. Cardiac profile was negative parameters were normal. Echocardiography showed left ventricular ejection fraction of 50 % with no evidence of valvular abnormalities, pulmonary hypertension, and regional wall motion abnormalities. Chest radiograph demonstrated a cardiac silhouette appearing normal in size, shape, and contour with no opacities.

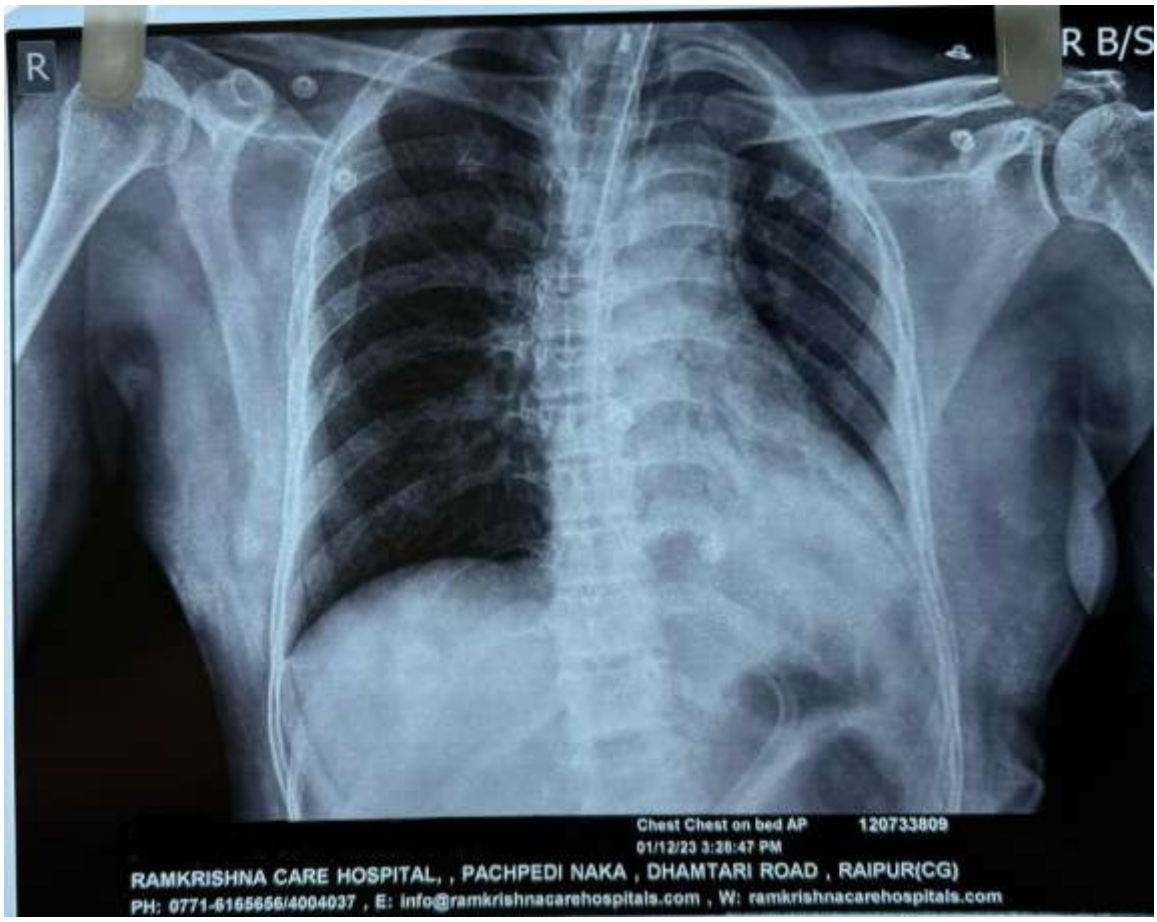
Supportive treatment was continued, and patient gradually improved over the next 72 hours with improvement in dropping ofboth eyelids, Chest radiograph showed resolution of pulmonary oedema. The patient was successfully extubated from mechanical ventilation on fourth day. The patient was improving, and vitals become stable till fifth day. Patient was shifted to HDU So on seventh day patient was being discharged with advice to continue prescribed medication and regular follow-up.

Discussion:-

In modern India, snakebite remains an underestimated cause of accidental death. Many superstitions and myths regarding snake bites cause a delay in receiving emergency treatment modalities to the patient. The neurotoxic snake bite is significantly associated with a high death rate due to immediate respiratory failure, mostly in rural areas [7]

Krait venom comprises a variety of different neurotoxins of multiple distinct forms. It also has a kappa subunit, whichattaches to the neuronal nicotinic acetylcholine receptor at the postsynaptic level in autonomic ganglia cholinergic synapses, in addition to the previously known alpha and beta subunits. Many neurotoxic individuals experience ptosis and extraocular muscle weakness, while a few experiences weakness in the respiratory muscle. It is unclear what factors contribute to respiratory muscle weakness in some people. The long-held belief is that it is connected to venom dosage and intensity of envenoming. The effects of neurotoxic substances are reversible, that is, they disappear, either immediately in reaction to antivenom within 30 minutes or after one to seven days.[8]

A patient with a snake bite requires immediately ASV, proper ventilation, primary emergency management, and maintaining anormal blood pressure range; these can all improve the patient's prognosis and mortality [9]



Conclusion:-

In a developing country like India, Krait snake bite has high mortality rate in rural areas due to the lack of awareness and education regarding the importance of early hospitalisation. Mostly rural people were treated first in the village by the local practitioner(quacks) or the local person. There is a need for education to the people regarding primary treatment having to be given as early as possible to reduce the systemic poisoning and life- threatening symptoms. In above mentioned case patient was brought to primary health centre immediately and referred to higher centre after giving Polyvalent anti snake venom with NIV support. The patient got a standard line of treatment during the golden period. Because of that, her life was saved, and the patient's prognosis was good.

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