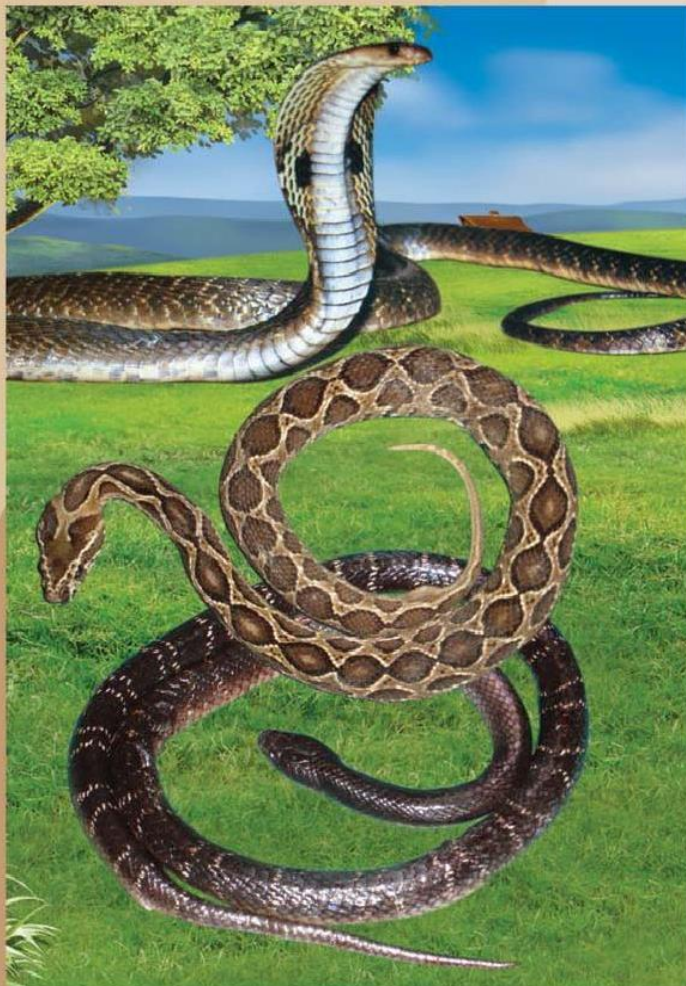


Facts & Myths on Snake bites

An encounter with snake bites : Select experiences



Dr. D.R.K. Prasad

Romulus Whitaker with King Cobra



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An encounter with snake bites : Select Experiences

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Foreword

Snakes are a part and parcel of this nature. The anecdotes of mythologists made them goddesses! These creatures can evoke feelings of surprise and fear in the minds of people whenever they appear. But in reality, these creatures are only protecting habitat and they are the essential links in the 'food chain' of this nature.

More often than normal, it is quite common in villages than it is in towns to discuss snake bites and the ways and means of treating them.

It is pathetic that treating snake bites didn't have a uniform protocol of its own in this country till 2009. Whoever was trying to treat these was doing so in his manner depending on their experience and understanding. They didn't have any prescribed methodology in treating the snake bites. In this background, this book was brought out in Telugu in 2006 just to create an awareness in the minds of the general public and medical professionals.

The names used in this book are fictitious but the incidents described in this book are real!

The writer of this book has interacted and shared his experiences and opinions with experienced doctors, officials, social and health activists, elderly people of the society in different regions of the country. It is laudable that some photos taken by this author have found a place in the "Textbook of Forensic Medicine & Toxicology" by Professor V.V. Pillai which all the medicos refer to, as a part of their study.

The discussions with this writer on several forums have been of immense use to the public. Hence, we appeal to all the concerned to become a part of this ardent effort. Such efforts are essential regarding the treatment of snake bites in the future also.

It is really good that the percentage of people who are trying to treat snake bites scientifically than in ways like traditional spells and incantations, leaf extracts, and country methods has risen in the Challapalli region from 0 to 95 because of the efforts of Jana Vignana Vedika.

Jana Vignana Vedika has been committed to popularising science. The organization believes that society makes science and people contribute to science. The making of science is empirical and can stand the test of time. It is always humble and assertive.

The efforts by Jana Vignana Vedika, Challapalli to popularise the scientific method of treating snakebites are strictly in the lines of the making of science. The experience is limited to a small area of 30 kilometers radius. But the lessons it offers are very valuable. To share these experiences with non-Telugu readers, this translated version is brought out. It is hoped that this booklet will contribute to treating snakebites successfully across India.

*Jana Vignana Vedika,
Challapalli.*

Facts & Myths on Snake bites

This happened when I was pursuing my MBBS course (1974). One farmer by name Paidayya used to work in my grandfather's farm. He was bitten by a cobra and was immediately taken to a country doctor at Pamarru (the nearest town), hoping that the doctor would save the farmer from an untimely death. He gave some medicine as a part of treatment and assured the kin of the farmer that there was nothing to worry and Paidayya would be all right. But, within an hour time, the condition of the farmer worsened. The so-called doctor informed the relatives of the farmer that it would be better to take the patient to an MBBS doctor. He further admitted that his attempts to save the farmer did not succeed. The farmer was taken to a qualified doctor. He lost his life immediately after going to the doctor. This incident... has been a nightmarish incident in our family- even to this day after a period of decades after the incident occurred.

Subsequently, I started my career as a practicing physician at Challapalli in Krishna District of Andhra Pradesh State. From the day one of my practice, I kept a stock of three doses of Anti Snake Venom (ASV) as a matter of precaution, for treating the patients who are bitten by poisonous snakes. Those days the ASV was not widely available in the market. The people who were in need of that had to buy it in black market. Experience taught us that three doses of ASV is hardly enough to save the life of a snake bite victim. It was a common experience in those days that whoever was bitten by snake, was taken to an occultist. Nobody noticed took such victims to a qualified doctor.

The first case of snake bite came to me in the form of a woman. I had to struggle a lot to get information regarding the treatment, Anti Snake Venom and its administration to a patient. Many questions started boggling my mind as I started the treatment, like -

- "When should we start administering ASV to the patient?"
- "How many doses of ASV are needed to treat the patient?"
- "How much time do we need to keep the patient in observation?"
- "When can the patient be discharged?"
- Such questions were many. They may go up to a hundred!

I didn't find even one snake bite case which was referred to the Guntur Government Hospital where I worked as a house surgeon or in Dr. Bethune Nursing Home in Ongole where I worked for two years. As a matter of fact, as a professional, I knew that a snake bite case can be treated only with the help of Anti Snake Venom. But when I actually came across a snake bite case, I found no ready answers for all the questions we discussed above.

For most people, treatment to snake bite means an extract of some leaves given orally, or a drug called Kalikam (some crude unguent preparation prepared by the native healer) applied to eyes or it is a mantra in the ear of the victim. Every three, four villages normally have a snake bite curer in the form of a quack or a person who chants some spell and incantations in order to cure the snake bite cases. He administers only Kalikam in the patient's eyes, makes the patient swallow the extract of some leaves, or makes the patient bite some root an efficacious unguent for terminally ill patient viz. in his attempt to cure (?) the snake bite.

Some people living in Challapalli believe that if a person is bitten by snake, whatever be the degree of the snakes poison is, he can be cured by a sheer phone call of spells and incantations from an occult practioner of Hanuman Junction (a place which is about 70 kilometres from Challapalli). It is said that, in those days of pre-STD days, the telephone exchange people were kind enough to connect the phone with lightning call facility on humanitarian grounds, in order to facilitate the so called treatment. Of course, some lucky people survived, while the unlucky died. There was a wide spread propaganda among the people that the victims survived just because the telephone mantra was effective. The people were sympathetic that those who died, did not have days to live on this earth, and as a result, does not come under the purview of the mantra or that it was the fate of the victim.

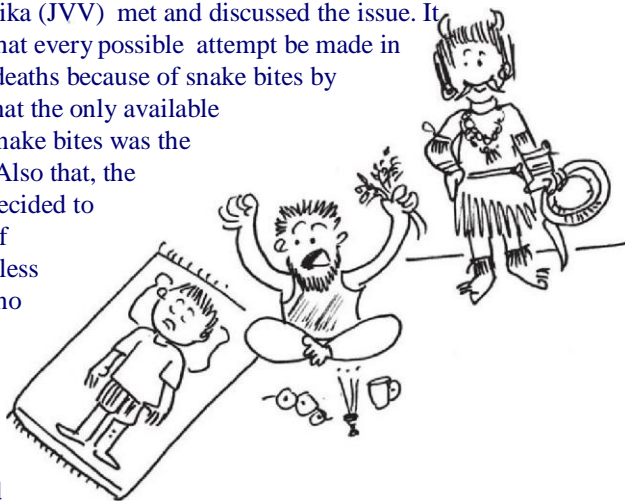
Is Death Inevitable?

The other day, I was in the O.P. and one renowned person of the village came in to me hurriedly and requested, "Doctor! Doctor!! One person in my village was bitten by a snake. Please, come with me, at once, sir!". He was insisting on my coming over there. I patiently tried to convince him that a snake bite can be treated by Anti Snake Venom, and that can be given only in the hospital and advised him to get the patient to the hospital immediately. I assured him that I would be ready with all the medicine and equipment by the time the patient was brought to the hospital. An hour later, they brought him in a lorry. They did bring! The lifeless body! Not the Patient.

When I asked the gentleman thoroughly, it was clear that the snake bit him 2 ½ to 3 hours ago. The family tried to treat the patient with the help of a charlatan from the neighbouring village. After trying all the means as usually the people do, as a last ditch attempt, they came to me. The life ended before a scientific remedy, which has been saving lives across the world, reached him. It was a twilight between life and death- a crucial period to save the life. It was really painful that I was unable to give the Anti Snake Venom, which would have prevented an untimely death. That death, really, was preventable.



It was 1989, the year when this incident took place, immediately, the local unit of Jana Vignana Vedika (JVV) met and discussed the issue. It was finally decided that every possible attempt be made in order to prevent the deaths because of snake bites by creating awareness that the only available remedy for treating snake bites was the Anti Snake Venom. Also that, the committee of JVV decided to campaign against leaf extracts and meaningless mantras which have no scientific basis in treating such cases. We launched a campaign to this end in Challapalli and



adjoining villages with the help of 7000 brochures. Wherever we went, we talked about scientific treatment of snake bites. We made use of all social events for this purpose. We suggested that every village panchayat should keep a stock of at least 2 vials of Anti Snake Venom and the relatives of the victim should take and handover them to the doctor for treating the victim. Unfortunately, all these efforts went largely unheeded by the public.

It was on the occasion of one school annual day that I talked about the problem and the ways to tackle snake bites. As I was coming down from the dais, a stranger held my hand firmly. With the second hand, he held the tuft of his (remaining) hair on his head and said, “Oh! mad doctor! I have treated these many patients (as many as his hair follicles). Not even one died. Do you want people to spend thousands of rupees on your injections? Your English medicine (allopathy) is a waste. Our native medicine is the best.” He laughed ridiculing Anti Snake Venom. I too laughed... helplessly. I came to know later that he was the local healer of the village!

Where did the amount of effort we put in to the campaign go? Did it go vain? If our campaign had showed any impact on the public, snake bite cases should have come to hospitals, which did not happen. Not knowing what to do, we stopped the campaign.

Rotary scheme came in as a Boon

A few years passed. I received a phone call from Dr. Narayana Rao, Secretary of Rotary Club saying “ Our club decided to supply medicines for dog bites and snake bites free of cost for one year. Vaccine for dog bite we will supply through our KCP clinic (KCP is a reputed organization in sugar industry - Rotary Club and

KCP work together in social service activities). You can take care of the snake bite cases. We will supply you with the ASV vials in the same manner.”

I could not readily agree to the proposal as I strongly believed from my experience that snake bite cases will never come to qualified doctors.



But because of the respect I have towards Dr.Narayana Rao, and his sincerity to the cause finally made me agree to be a part of the mission.

Surprisingly, snake bite cases started coming to us. The reason for this is : there are Russell’s vipers in sugar cane plantations in the Challapalli. As the agriculture workers cut the cane to be transported to factory, it is common that these vipers bite the workers. The KCP organization which owns a sugar factory in Challapalli, has a field worker in every village. These field workers spread the message in every village that the snake bite medicine is available in such and such a hospital. This showed the way to the victims and the kin of snake bite victims.

Naturally, I evinced interest in treating these cases. But as I took it seriously there were many questions which had no ready answers. Every disease has a protocol- a logical order to follow by any practitioner. For example, what to do as the first step in treating a heart attack patient, then what to do as the second step and so on. There is a clearly defined procedure for every disease in the medical books we refer to, as a part of our study of medicine. But, such protocol is nowhere mentioned in any of the medical books for snake bites at that time. Whenever I attended medical conferences, I had discussions with other doctors who attend those conferences. In spite of that, it took such a long time to get satisfactory information that could help me in treating these cases.

Finally, I got the answers for the questions that boggled my mind, in a conference in Chennai, wherein a doctor who had been practicing in rural Kerala and who had treated most of the snake bite cases successfully. Once the conference was over, I nagged that doctor with my questions for another half hour. Only after that

interaction, I got confidence in addressing the challenges resulting out of snake bites. Also, I closely observed the treatment of these cases in the emergency ward of the Ramachandra Medical College, Chennai. My understanding on the subject widened only after I had read the book “Fifteen years of Snake Bite Treatment - 1500 Cases”, published by “Thiruvella” hospital, Kerala.

The Rajeswari Episode

This happened before I went to Chennai conference in the year 1996. One night, at 11-30, as I was about to go to bed, I got a phone call from the compounder who said that a snake bite victim has come to hospital. Within five minutes I was there to attend to the patient. She was Rajeswari- carrying a 6 months baby in her womb. She was brought to the hospital 3 ½ hours after the snake had bitten her. As it happens in every case, Rajeswari did not straight away come to hospital after the snake had bitten her. The local healer of her village treated her with the usual unguent in her eyes, leaf extract orally etc. After one hour, she started vomiting at about 10 o'clock in the night, the quack directed her family to take her to a qualified doctor. She was brought to the hospital all the way from 4 kilometres in a rickshaw (rickshaw is a 3 wheel non automobile and is pulled or driven by a human being who owns or hires it). Rajeswari was not able to open her eyes. It was not clear whether it was because of unguent in her eyes or the poison. As things stand, and as our doubts remained doubts, she started vomiting. I was not able to make out what the reason was for the vomiting. Rajeswari stopped breathing. With the help of an endotracheal tube, she was kept on ventilation. Her pulse and blood pressure were normal. Apart from the three vials of ASV I had with me, I managed to arrange for another four vials in Challapalli. Still how many vials were needed for her was not known to me at that time. So, I sent one person to get some more vials from Machilipatnam, the Krishna district headquarters which is 25 kilometres away.



One compounder was devoted to see to the artificial ventilation to Rajeswari. There was no ventilator machine in my hospital. The said facility was available in intensive care units of the hospitals located in

Vijayawada (65 kilometres from Challapalli). But the patient was not able to afford to pay for it. All these reasons made us totally rely on ambu bag. For four long hours we were pressing the bag by taking turns. We were not quite sure about how much more time we would be able to continue that. The ASVs that I requisitioned from Machilipatnam did not reach us. It was a hide and seek of hope and despair!

Slowly... I noticed slightest movement in Rajeswari's eyelids..

"Rajeswari! Rajeswari!" When called by name, she started responding. There was a ray of hope in the middle of dark. We mustered confidence coupled with endless joy that she was coming into the life's way. Before it was morning, she started breathing on her own. We withdrew the endotracheal tube. She started speaking after some time. The happiness of the team of eight members knew no bounds!

Thus emerging as victor in her battle against death, Rajeswari subsequently developed an infection on her leg near the wound caused by snake bite. It took one month for her to become normal. Another two months... She gave birth to a healthy baby.

Lessons from Rajeswari's Case

1. The oral administration of leaf extracts and the unguent given in eyes hardly helps saving the life of the patient. In fact, they stand in our way to estimate the effect of poison. Hence, they lead the patient from risk to high risk.
2. The patient has to be rushed to the hospital of a qualified MBBS doctor. We could not have saved Rajeswari's life even if she had arrived at the hospital late by another few minutes.
3. We can keep on saving the life with the help of an ambu bag of Rs. 2000/-, even if we don't have a ventilator that costs us lakhs of rupees.

Time- The Life Saver

Koduru is a village that is 26 kilometres away from Challapalli. A boy was bitten by a snake there. He was brought to our hospital nearly after four hours- not before the usual local medicines had failed. The boy's case was a Death on Arrival (DoA). He died on the way, still 2 km away before they



reached the hospital. They brought the dead body of the boy to me. Not the boy!

Maybe the boy would have survived like Rajeswari, if he had been brought to hospital without trying for the quacks to treat the case.

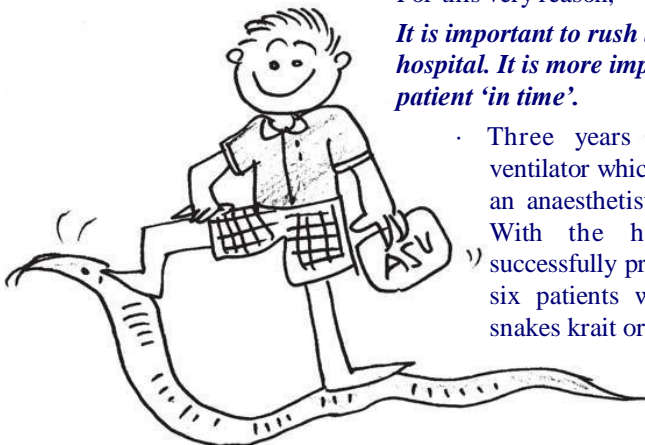
Rama Krishna's Story

Rama Krishna is a 12-year old boy who stays with his teacher Sri Prabhakara Rao. One morning, at about 3 o'clock in the morning he went out to the open for urination. He felt that something has bitten him. On his return, he told Prabhakara Rao all about this. He was immediately brought to hospital on a motor bike without any delay, as Prabhakara Rao sir rightly suspected that it could be a poisonous snake bite. He reached the hospital at about 3-30 am. After another 15 minutes he stopped breathing. We took no time to send the tube into his lungs to keep him on ventilation. We administered 10 vials of ASV after that. For two days the he was kept on artificial respiration with the help of the ambu bag. The team attending him had to literally struggle to keep the respiration on as they did in the case of Rajeswari. The total number of vials we used for this case was thirty! Now, that Rama Krishna is an upcoming drummer in a team of drummers participating in grand events like Brahmotsavam in Tirupati , while continuing his studies. Once he received appreciation from the District Collector.

It was a widespread belief that the death occurs only after one hour after the bite and if at all death occurs before one hour it is because of shock that resulted out of fear. With Ramakrishna's episode, that was disproved. Rama Krishna's breath stopped within 45 minutes after the bite. Had another 5 minutes elapsed, it would not have been possible to keep him alive even with artificial respiration. If the venom enters blood vessels directly, there is every possibility that the patient will die in just 15 minutes after the bite.

For this very reason,

It is important to rush the patient to a hospital. It is more important to take the patient 'in time'.



- Three years ago, we bought a ventilator which was improvised by an anaesthetist from Maharashtra. With the help of that, we successfully provided ventilation to six patients who were bitten by snakes krait or cobra.

A Case of Brain Death?!

One morning, at about 3-30, an eight year old girl Srilatha was brought to hospital. She was brought along with the krait that had bitten her and which was subsequently killed. She talked to me normally for some time. When she was normal, she prayed , “Don’t give me injections”. But, after a few minutes, she became silent and lay in the bed. Her arms and legs started shaking feebly. The Pulse Oxymeter that measures pulse recorded decreasing percentage of Oxygen levels.

While the normal level being 100, we started using ambu bag (after intubation) to provide ventilation, as the oxygen level came down to 90.

Srilatha’s parents had enough financial resources to go for a well equipped ICU and treat her there. They consented for admitting their daughter in an ICU immediately when I advised them they do so. We called for an ambulance which was equipped with a ventilator. The specialist who examined Srilatha, gave his opinion that the heartbeat was normal, but the brain had ceased to function. His conclusion was it was a case of ‘brain death’.

I explained to him that I had the experience of treating such cases and told him my opinion which was opposite to his. I also told him that if treated with the help of ventilator for 3 days she would become normal. Yes. It was not a brain death case.

The specialist said, “The pupils have completely dilated. The patient is not responding to the treatment. Given this situation, there will be no use even we spend a lot of money for the treatment in an Intensive Care Unit (ICU).” Having said that, the specialist and his superior officer, politely rejected my proposal. They went back with the ambulance.

The remaining story— It’s the usual ambu bag... endless efforts for two full days... the struggle with ambu bag... working by turns to keep the supply of oxygen going...!!

After a long drawn struggle- like treatment of ours and her travails ended successfully. There was a slightest movement in her eyelids! There were movements of similar intensity in her toes! Slowly, her eyes opened! She started responding to our conversation. She was trying to breathe on her own. Another five, six hours! We removed the ventilation and tubes from her lungs also. Next morning she sat on her own. She got off the bed and walked a bit. The next day, she was discharged from the hospital.

Another lesson we learnt from this case was that there is no relevance to the movements of pupils in the case of cobra, krait bites.

This has been a novel, exciting experience to us treating snake bite cases.

Ramasubbaiah's Renal Failure

There used to be a persistent smile on Ramasubbaiah's face. I was his family doctor. One Sunday, it so happened that Ramasubbaiah vomited many times, as a result of that, he became very weak. The members of his family brought him to hospital. He was bitten by a snake 32 hours ago! The relatives said to me, "Sir! We have taken care of the snake bite. Just give him an injection to control vomiting and some fluids to overcome weakness." Not paying any attention to their words, I examined the patient. He was in a state of renal failure! I inferred that he should have bitten by a Russell's viper. Only the venom of Russell's viper has the property of affecting kidneys.

I advised his family to take him to a nephrologist without any delay. As Ramasubbaiah's condition was deteriorating, the relatives of the patient said in unison, "No need of any treatment sir! The same healer treated Ramasubbaiah's wife when a snake bit her last year! Look! she is as safe as you and we are. Do you know how many lives had the same doctor saved in our villages? He did whatever was needed to save Ramasubbaiah. You just give him some fluids so that he would become normal". Saying so, they tried to assure me. I was totally convinced that Ramasubbaiah was in a danger of renal failure and insisted on taking him to a nephrologist. They took him. They spent a huge amount of one and a half lakh rupees for the treatment. The treatment also was remarkable. But, since the patient was taken to the hospital in the eleventh hour, even the expert doctors were able to keep him alive for just one more week. Ramasubbaiah is no more!

If consulting a doctor is delayed, there will not be any use how much expertise the doctor has ! Deferred treatment leads to rapid deterioration of patient's condition.

A Case of Delayed Administration of ASV

Dr. Ravindra is a practicing physician in Thiruvuru (Thiruvuru is a border town to Telangana and is more than 150 kilometres from Challapalli). One night, at about 11 O'clock in the night, a snake bite case came to Dr. Ravindra. The relatives who accompanied the patient said, "The snake bit him at about 8 o'clock in the morning. We got him treated in the morning it self. He had vomiting in the evening. So, he is weak. Give him some medicine. He will come out of the weakness. Dr. Ravindra tried to convince them that ASV should be given immediately. All the relatives unanimously demanded Ravindra, "Saline is enough. Give that!" Ravindra seriously warned, "If you don't follow my advice, you go to another doctor. But even if it is delayed by a minute, the patient will be in danger". Not caring a bit, they took the patient back home. They did not even take the advice of another

doctor. At 4 o' clock in the morning, they took the patient to another doctor. He gave ASV to the patient and asked them to take the patient to Hyderabad. What was the outcome? They spent 40 thousand rupees! Along with the money the life of the patient also was spent!! Their last ditch attempts to keep the patient alive yielded no result.

Two More Cases-

A gentleman by name Jaganmohana Rao was brought to the hospital as he was bitten by a Russell's viper. About 30 companions who came along with the patient were moving freely in the hospital hall and thereby creating obstacles to the staff of the hospital in the background of the emergency arising out of the snake bite. The condition of the patient was deteriorating. He was not able to recognize anyone. His limbs were shaking vigorously and restlessly. He was in a highly irritable state.

The members of the staff were trying to treat the patient while pacifying his attendants. Then his legs and arms were held tightly and staff recorded his BP. He was kept on I.V fluids. Immediately he was given 10 doses of ASV. As there was no improvement in the patient's condition, we gave him another 10 doses of ASV. Everybody was hopeful that there was some improvement in his condition. In five minutes, he vomited. Again we gave 10 injections of ASV to the patient. The intensity reduced drastically. After some time, he recognized his relatives, friends and along with them, us- the hospital team.

One of my friends, who happens to be another practicing doctor, observed the whole sequence and questioned the veracity of the process. He was of the opinion that giving 30 injections with out much gap could be a cause for drug reaction. He felt that it would be better and safer to give the ASV injection along with the saline.

It should be noted in this context that the instruments that can measure the exact dose of poison and its impact on the patient are still out of our reach in our country. The number of injections to be given to the patient is very specific to each patient and his condition. The dose depends on the patient's condition and the need to neutralize and detoxify the venom. Out of experience, I came to understand that 5 to 35 vials of ASV are needed to treat the bite by Russell's viper. If the patient's general condition is stable, usually 10 doses are given and the patient is kept under observation.

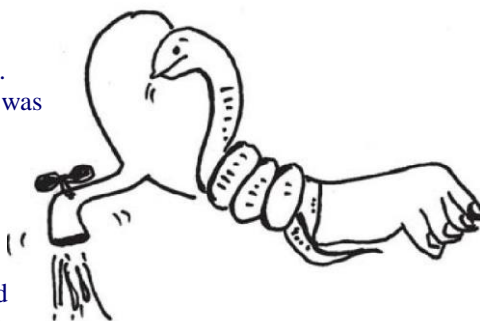
If the patient's condition is serious, 35 doses of ASV may be needed . Giving ASV through I V fluids is technically not enough to save the patient. Instead, the intravenous injection has to be given in order to save the patient.

Two days later, another patient, Raghavamma, who also was bitten by the same type of viper, came to hospital. Her BP was just 40 at that time. Immediately we kept her on I.V. fluids. After her BP came up to 100, we gave her 20 doses of injections. In half hour time, she became normal and started talking. She was sent back after two days of observation.

Doctor's Dilemma

One night, at 11-00, I received a phone call from a doctor. The friend said, "A snake bite case has come. The type of snake that bit the patient is unidentified. He is suffering from acute pain at the place of bite." I asked him to conduct some tests including the test to find out the time taken for the clotting of blood.

I got the information on phone from the doctor that the time taken for blood clotting is 4 minutes. Also that, there was a swelling in the groin region of the leg that the snake bit. When pressed in the region, there was excruciating pain. That is a clear indication that the victim was bitten by a Russell's viper. It should be noted that the patient gets swelling in the groin if the Russell's viper bites on the leg and in the arm pits when it bites on the arm. Keeping this in view, I again told the doctor that there was something wrong with the test report and asked him, "There is a possibility that the test report is incorrect. So, conduct the same test again for yourself." Again the doctor conducted the test. This time it was not 4 minutes- it did not clot even after 20 minutes. Now, it is beyond any doubt! The patient was bitten by a Russell's viper. I asked the doctor to give 10 injections of ASV. That way, the patient was successful after a battle with death for 6-7 hours.



The treatment should not solely depend on the laboratory tests. Depending on the need, the doctor should personally ascertain the facts very carefully before treating the patient. It is more important that whenever there is a discrepancy between the clinical condition and the laboratory results, the treatment should strictly go in the lines of clinical evaluation, and not by the laboratory report.

Venomous Snakes in Concrete Jungle?

Once I attended a medical conference in Hyderabad, where I met the hospital superintendent of the emergency department of a corporate hospital. I asked him, “Sir! What is the protocol for snake poison treatment in your hospital?”. His reply came in the form of a laughter. I asked him the reason for his laughter. His reply was, “Will a snake manage to enter this city and survive? We don’t get any snake bite cases. And, we don’t have any experience in treating snake bites.”

Very much true! Snakes are not that frequent in towns and cities as they are in villages. Snakes are found mostly in Villages. They bite also! But, those bite cases go to either quacks or persons who use mantras as treatment. This is the plight!

In that very conference, which was attended by 50-60 doctors from all states who were specially interested in snake bite treatment, we arrived at certain conclusions. The essence of the discussions is :

All the doctors who are treating snake bites are doing so depending on their understanding and experience. But there is no specific protocol. All the participants expressed their opinion in unison: The only available treatment to snake bite is only ASV and there is no other treatment available.

The Validity of Occult Medicine

“We have seen so many people who survived snake bites with the help of country medicine and spells and incantations!”. This is the statement commonly heard in many parts of the country. We might have seen such cases for ourselves.

It may be well understood that all the snakes are not poisonous. There is no danger if a person is bitten by snakes which are harmless. Whether we treat them or not, there is no danger at all. Sometimes the bite might cause swelling or pain. Occult medicine or spells and incantations only give psychological strength to such people. Practically there is no use of any kind with such treatments.

It may be noted out of 250 species snakes in our country, there are 52 kinds of poisonous snakes. Of these, there are 5 kinds of snakes that can cause harm to human life. They are -Cobra, krait, Russell’s viper, saw scaled viper and hump-nosed pit viper. Of these varieties only the first 3 kinds are seen in our region (Andhra Pradesh). Saw-scaled viper is found in Northern part of India. The fifth one is seen in the forests of Kerala only. All the sea snakes are poisonous. But their bite is a rare phenomenon in our country.

“We have seen people who were saved by spells and incantation and native medicine even when they were bitten by poisonous snakes.”- this is the claim of some people. Maybe this is true! We can understand this from the following case.

One day, at about 6 o' clock in the morning , a young man brought a dead Russell's viper that had bitten him. Generally we keep such cases in observation for 24 hours. We don't allow the patients to take food orally. Similarly, this young man also was treated with saline and



a dose of 'Tetvac'. On the same day evening at 6 O'clock, another person who was also claimed to have been bitten by the Russell's viper was admitted in our hospital. We kept him also in observation. He also brought the snake that was killed by him. In two hours time, the second patient started vomiting.

This is the symptom of the poison in action.

It might bleed- in the regions of gums, the mouth, urinary tract, anus, the point where saline is administered, and at the region of snake bite. In this particular case, it bled in the bowel (gizzard), and the same resulted in the

patient vomiting blood. Then we started giving 10 ASV injections. After midnight, he came back to normal condition. This person was out of danger as ASV was given in a right time. Such cases cannot be treated successfully by native medicine or spells and incantations.

Let's come back to the first young man. Though he was kept in observation till the next morning, there was no change. Yes! he was also bitten by Russell's viper ...There can be no doubt about it. The wound caused by the snake bite and the snake that he brought were proofs that he was certainly bitten by it. But how did he survive without any special treatment?

The snake bit him. But the poison did not enter his body. He would have been safe... even with the help of country medicine...mantra chanted by any person...or even with the help of a fistful of dust or water...in the name of treatment... he would have survived! We discharged him after 24 hours! Such cases claim the upper hand by these practicing native medicine or spells and incantations.

Dry bites

Because of various reasons nearly 30- 50 percent of the bites by the poisonous snakes will not harm anybody. Though the snake bites, no poison enters the victim's body. Such bites are called dry bites. These are the cases that make the country medicine successful and make such doctors famous overnight!

If the poison enters the human body in sufficient dose, it may be emphasized such cases can only be treated with ASV, only with ASV, and there is no other drug available in the world that can treat snake bites!

Snake bites and signs of poison effect

The poison that is found in the bites of cobra or krait is ‘neurotoxin’. The poison affects the nervous system and muscular system. The muscles will not function normally because of that.

- ☐ The victims of the bite tend to lose control over the muscles. They cannot open the eyes. Even if they try they can only frown. As a result, the eye lids tend to close.
- ☐ The patient either has a vomiting sensation or vomiting.
- ☐ One object appears as two objects.
- ☐ Limbs shake feebly.
- ☐ Respiratory muscles stop functioning resulting in respiratory failure.
- ☐ The heart beat stops after which brain death takes place in after three minutes.
- ☐ A Russell’s viper bite causes swelling in the region of the body that it bites.
- ☐ The lymph glands that are near the bite also swell. There is swelling in groin region or armpits. Pain accompanies swelling. The pain is excruciating. Bleeding follows. Bleed can be found in any part of the body. If it occurs in the brain, the patient is in ‘coma’.
- ☐ At times, Russell’s viper bite affects renal system. If kidneys are affected, waste material accumulates in blood and death occurs because of ‘uraemia’.
- ☐ When a krait bites, drowsiness, weakness, lack of balance are likely to occur. Such condition should not be taken as paralysis, fall of sugar levels in blood in the body, or symptoms of alcohol consumption; and waste valuable time in just keeping the patient on I.V. fluids. Most importantly, the bites in the early morning time should be suspected as krait bite and the patient be treated accordingly with ASV.

Social Background

Our experience tells us that 80% of the snake bite victims are agricultural workers who have to earn their living on a daily basis. They fall prey to snake bites while working in sugar cane plantations, paddy harvests or pulse crops. At times women engaged in domestic responsibilities also become victims to snake bites. The people who live in thatched houses and tiled houses become victims to snake bite. Some times the people who live in RCC buildings also become snake bite victims just because they sleep on the floor.

In most of the cases, we need to give 10 vials of ASV. In such cases, the expenditure incurred touches Rs 6,000/- at a rate of Rs 600/- a vial. The other expenses are expected to be around Rs 5,000/-. The total expenditure for the whole treatment amounts to Rs. 10,000/- to 20,000/-. Many families of that background, cannot earn that amount even if they work for a whole year. If the Government hospitals maintain one or two vials of ASV, how will these cases be treated? If the victim is taken to a private hospital and gets the treatment, it is only possible after jeopardizing the family interests, as the whole family will be in a debt trap.

The Story of a Poor Patient!

Koteswaramma is from Kokkiligadda Kothapalem (near by village of Challapalli) village. She was 40 years old. She was bitten by a Russell's viper. She was brought to hospital within an hour of the bite. After three hours, there was a swelling near her wound and in her groin region. Blood stopped clotting. She was out of danger after giving 10 doses of ASV. But her kidneys were affected. I told the family that she had to be put on dialysis at Vijayawada. I made it clear that she will not live longer unless she is treated properly. Koteswaramma is a landless labourer. She earns her meagre amounts of money from one or two cattle she had. The family was prepared to go back home as they had no other option. I stopped them and conveyed the condition of the patient to a nephrologist in Vijayawada. He was generous enough. He promised to take care of her treatment free of cost, if they can buy the medicines. I told them that they need not pay anything to me. With that money they propose to pay to my hospital, they would be able to get the needed medicines at Vijayawada. She was treated (by the nephrologist); now she is leading her life on her own.

The point to note is – The same Koteswaramma came back to me when another Russell's viper bit her in less than a year. She is safe now after being treated with 10 ASV vials.

A Ray of Hope

People were successfully treated for three years, thanks to the Rotary scheme. People started coming to hospitals whenever there is a snake bite. It is to be noted that there is a significant change in the attitude of the people in the recent times. There was a belief that snake bite can only be treated with only country medicine and English medicine (Allopathy) is a waste of money. This belief seems to have lost currency. Now people of Challapalli region believe that snake bites can be treated only with the help of ASV. Unfortunately, there are people still going for occult medicine. But, an impressive 95% of the people are approaching hospitals

and they are being successfully treated. The positive trend that developed in this region is just because of the efforts put in by organizations like Rotary Club and Jana Vignana Vedika (JVV). In the recent times, a 'senior local healer' in Challapalli sent one of his relatives to me for treatment as the person was bitten by a poisonous snake.

In a school called 'Jeevana Vikasa Vidyavanam' run by Sri Parimi (an educationist) we conducted an awareness camp regarding 'Snake Bite Treatment'. After that programme, a snake came to their school campus and the children let it go without harming it. It is an indication that there is an improvement in the awareness level on the importance of snakes in protecting the environment.

I have treated hundreds of snake bite cases successfully. Usually the symptoms of a snake bite can be observed in 6 hours time. Also that, In one particular instance, the venom has started showing its symptoms on the patient nearly after 11 hours and 30 minutes. This is one interesting case to make note of. May be an exception! Every rule in the universe has an exception!

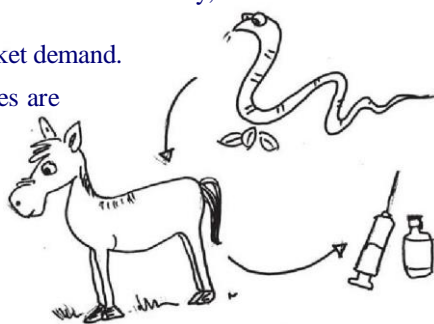
We counted the deaths caused by snake bite in Krishna district of Andhra Pradesh based on the newspaper items. The number was around 55. We really do not know the number of snake bites which do not come to the notice of public through news papers. It is our estimate that at least 52 cases can be treated with ASV successfully.

The remaining three cases need the treatment of a specialist- particularly whenever the kidneys are affected or whenever there is a respiratory failure. All the remaining cases can be successfully treated by the MBBS doctors and the rural primary health care centres. The total expenditure for buying equipment certainly will not exceed four to five thousand rupees.

What is ASV...??

It is Anti Snake Venom. It is the medicine to treat victims of poisonous snake bites. It was not freely available at one time. Fortunately, now the medicine is being manufactured by 3, 4 companies and the number is able to meet the market demand.

The main types of poisonous snakes are Cobra, Russell's viper, Saw-scaled viper (Fursa), and Krait. The poisons of these snakes are injected into the bodies of horses in low doses and 'anti bodies' are produced. These four types of anti bodies are integral part in



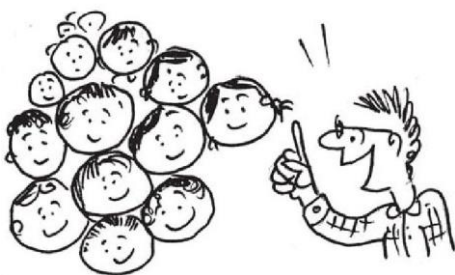
the ASV (Anti Snake Venom). This ASV will act as a remedy for the 4 types of poisons mentioned above. Pregnant women, and children are treated with this drug only. There is no separate medicine for this.

The government should maintain a minimum stock of 10 doses of ASV to meet any kind of emergency.

The pressure should come from people to make the governments to respond to this demand. All the people's representatives including Panchayat ward members, sarpanches, District Board Members, MLAs and MPs all should be well-informed about the snake bites and the deaths they cause. If this happens, certainly the deaths because of snake bites can be brought down in two to three years.

The basic information about snake bite and the techniques of first aid should be made known to every one in the society. The knowledge is essential to the school going children also. The people should discuss that fact about ASV. It is the only drug that can treat snake bites. At the time of real danger of a snake bite, only such informed people can effectively respond to the useless suggestions (to take the patient to a snake bite occult expert, and quacks) extended by the people who gather around a snake bite victim.

Once, there came a case from Lankapalli (a nearby village). A boy was bitten by a poisonous snake. The neighbours around started asking the family to take the boy to a an occultist. As they were about to take the boy to a country doctor, only one person objected that act. He strongly argued that the boy should be treated by a qualified doctor and sent the boy to Challapalli. After they had reached the hospital, the boy's condition worsened. He was treated with the help of 10 doses of ASV.



Then who saved the life of the boy?... was it the doctor who treated him? Or was it the man who sent the boy to hospital? Un-doubtedly the credit goes to the person who sent the boy to hospital. The doctor has attended to his duties. But, the villager helped the boy with his unsolicited humanistic act. We need

such people in more and more numbers to save the snake bite victims. The more the number is, the more the arguments are in favour of scientific treatment.

Jana Vignana Vedika has been arguing from the beginning that the snake bite deaths can not be minimized unless the people are made aware of facts about the snake bite treatment.

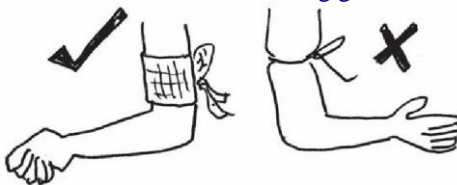
Snake Bite - the First Aid

The first and foremost thing to do is to identify the type of snake that bit the victim. But in process of identification of the snake type, much time should not be wasted. The snake need not be chased or killed and taken to the hospital. Even the doctor will not start giving ASV to the patient unless it is really needed. The doctor, only after finding the symptoms of poison in the patient, will only start treating that. Then there is a question! Why this identification of the type of snake? If the snake is identified as a non-poisonous snake, the patient can be relaxed and be free of fear !

- The snake bite victim develops sudden fear. When the patient starts talking about his responsibilities, debts, properties (to be shouldered by the other survivors of the family), the neighbours should not shout or cry in the top of their pitch. They should ask the patient not to be disturbed. They should keep on assuring the patient that there is treatment to snake bite and he will be successfully treated and will lead a normal life thereafter.
- A cloth should be tied tight in a point just above the bite wound in such a manner that the cloth does not prevent blood supply and the poison does not spread to the remaining parts of the body. Tying cloth in this manner is called 'tourniquette'. It should not be tied too tight. If tied too tight, the blood supply may be completely arrested . That part of body may be affected by complete stoppage of blood supply which might lead to gangrene. So the cloth is tied in such a manner that even after it is tied it should be loose enough to pass a finger through it . If the bite is on the head and neck region, no cloth needs to be tied.

Even if we don't tie the tourniquette there will be no harm.

- In region of bite, there is nothing to be done specially. It is enough if the bite is identified for subsequent examination by the doctor. **It is very important to note that if there are two or three marks of bite, we have to take that as a bite by a poisonous snake. If the marks are several, we can take that to be a non poisonous snake.**
- It is very common in films that , whenever there is a snake bite, the actors suck out blood from the wound with the help of mouth and spit it out. It is not correct on two counts. First - The total amount of poison can not be taken out like that. Second – it is dangerous to the person who sucks out the blood even if there is a small wound in mouth or bleeding gums.



- ☐ It is also shown in films that the snake comes in a rhythm of its own when prayed by the victim's wife or husband and will take back the poison again with its own fangs. Such things will never happen. I have never seen people singing prayers rhythmically when their family member is in danger.
- ☐ Some people cut a larger part of flesh from the body near the bite in an attempt to remove the poison. It is of no use. It might lead to additional treatment to the wound.
- ☐ The patients who are bitten by a snake should not be made to walk. They should be taken to a qualified (MBBS) doctor by any available vehicle like bicycle, scooter, car and the like.... that can reach the patients to a hospital.
- ☐ The patients should not be given any food orally.

Protocol suggested to a physician

- ☐ Treating a snake bite case is not that complicated when compared to the other cases.
- ☐ The patient should be admitted to a hospital and made confident that he would get proper treatment and get well.
- ☐ The patient should be kept on IV fluids. No food should be given orally.
- ☐ In order to prevent Tetanus, tetvac vaccine should be given.
- ☐ The patient should be kept in observation. Whenever there are symptoms of poison, we need to give the patient ASV injections.
- ☐ If there is no symptom of poison in 24 hours, the patient can be discharged from the hospital.
- ☐ Some times the wound may be infected where the snake had bitten. The doctor will take the appropriate measures.
- ☐ In very rare conditions, if there is problem in the functioning of kidneys or if the patient slips into coma because of bleeding in the brain, the doctor will refer the patient to a nephrologist or a neurologist. But that situation usually will not arise in 98% cases.

Prevention of Snake Bites

Total prevention of snake bites is not possible because this is a country where agriculture is the occupation for most of the people. There is always a possibility of snake bite whenever the person is not so alert while working in the middle of greenery, he sleeps in the fields near trees or plants, or whenever the person walks without light during night time. It is always better that the agricultural workers should wear gloves and gum boots to cover the hands and legs.

Relatives and their Approach

Every tradition, irrespective of the fact that the tradition is good or bad, it has a strong influence on people. The following is an example to show this influence.

Two years ago a well-built gentleman has brought a relative of his, saying that the latter was bitten by a snake. I was happy that the patient was brought to hospital and he was not taken to a quack. But surprisingly, the gentleman changed his decision yielding to the pressures of the relatives and said, “Doctor! We have our own beliefs. There is a native doctor in the next village. We will get the patient there in half- an- hour and get him back, then, you can start the treatment..”. with an equal degree of firmness I told them, “If you want that country medicine you take the patient there. But that would lead the patient’s life into risk. You first decide which treatment you want.” They discussed the matter among themselves, and finally decided that the patient should be treated in the hospital. But the well-built gentleman had warningly said, “If your treatment can not cure my relative, I will see...”. To this day, I cannot forget the threatening way he looked at me! However, every thing ended well, as the patient was cured and he returned home happy.

This is a classical example for the dilemma of people in choosing only one from the occult medicine and the modern medicine!

Most of the snake bite cases I treated came to hospital only after being treated by the traditional medicine that includes leaf extract treatment, spells and incantations etc. Some people chose the traditional way even after getting the patient to hospital. There are some people who try both the modern medicine and conventional treatment by bringing the specialists in occultism to the hospital.

It has two problems. First- the treatment by quacks consumes time. Second- the administration of the inefficient drug called kalikam makes the eyes red, leaving the doctor no chance to estimate the influence of poison and effectiveness of the traditional medicine and the western medicine. It is difficult to find out whether the patient vomited because of giving the leaf extract orally or because of the effect of poison. In both cases, the patient is in danger.

I treated the patients who were earlier treated in traditional methods outside, before being brought to the hospital, but I never allowed the traditional treatment after the patient is admitted in the hospital.

A LAST WORD...

Change is the inherent law of the world. There has been a sea change in the attitude of public about the treatment to snake bites. Thanks to the efforts put in by organizations like Jana Vignana Vedika, Rotary Club and the KCP Sugars.

It is my request that the educated people need to initiate a discussion to make people understand the reality and deaths. I feel that the objective of writing this book is met if, over a period of time, the understanding of people increases and deaths because of snake bites reduce in number. Romulus Vitekar, the famous herpetologist in India feels that...



“Half of the victims will survive, even if we don’t treat the victims. You treat whatever the way you want to in the case of other diseases; but snake bites should be treated with ASV only. We have to call that occultist a murderer who treats the snake bites in the traditional way with spells and incantations and leaf extracts and becomes the cause for the death of the patient.”

Interview with
Dr. Kalai Arasan (Director, Snake Park, Chennai)

My question: Dr. Arasan ! What is the use of the venom extracted from poisonous snakes?

Answer: 99% of the venom extracted from the snakes is used in the manufacture of Anti Snake Venom. The remaining 1% is used in researches. Previously, venom was used in the manufacture of Botrapase, a medicine used by the doctors in the treatment of bleeding in the olden days.

Question: How many doses of ASV are manufactured in India every year? How many of them are actually used?

Answer: In India, presently 10 lakh doses of ASV vials are manufactured every year. Of these, one- and- a half lakh doses are purchased by the Tamilnadu government, an equal number of vials is purchased by Maharashtra Government. Whereas Kerala Government and A.P Governments are purchasing a fifty thousand doses each.

Question: What is 'Herpetology'?

Answer: It is the study of reptiles and amphibians.

Question: What is 'Ophiology'?

Answer: 'Ophiology' is the study of snakes. Ophis - snake, logos - science. Dr. Patrick Russell is called the father of 'Ophiology'.

He was born in England in 1727. He worked in Visakhapatnam (Andhra Pradesh) for some time. He graduated in medicine and later researched on a type of "viper" that is widely found in Visakhapatnam region. That is the reason why the name Russell's viper is given to that particular species of snake. He died in 1805 at the age of 85.

Question: Could you give us some information about the sea snakes?

Answer: All the 20 species of sea snakes found in India are poisonous. But in our country, the snake bites because of sea snakes are very rare. In countries like Australia and Japan sea sports are widely played. Sea snake bites are also frequent in those countries. In India we don't get ASV for treating sea snake bites. But, in Australia and Japan such venom is available.

Question: Which is the most poisonous snake in the world?

Answer: The most poisonous snake in the world is 'Tipan'. It is also known as tiger snake. It is found in Australia. Second most poisonous one is- krait. It is found in India.

Question: Do you think that the people's belief about cobra's ability to remember people and to avenge is correct ?

Answer: Absolutely not! Cobras don't have developed brain that is needed to remember and avenge them.

Question : Some people are of the opinion that cobra does not have that ability, whereas king cobra has. What is your opinion on this?

Answer: No snake in the world has that ability to remember and take revenge on some one.

Question: What shall we do, if a king cobra bites?

Answer: King cobra is of a very big size. Naturally, it can inject more poison as it bites. The chemical structure of a king cobra venom is similar to that of cobra. But king cobra's poison is a bit dilute.

Even for a king cobra bite, the ASV available in the market can be used as a remedy.

Question: What is the objective of your snake park?

Answer: It is to educate people about snakes. In the 'food chains' of the world, the snakes are essential creatures. The snakes need to exist for the maintaining the ecological balance. So we ask people not to kill them unnecessarily.

Thank you Mr. Arasan!

Namaste doctor!



Poisonous Snakes



Cobra



Krait



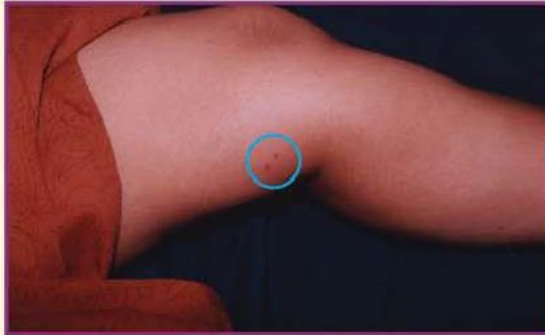
Russell's Viper



Hump nosed Pit Viper



Saw scaled Viper (Fursa)



**If the wound has two or three marks of fangs,
it is an indication that it is a poisonous snake bite**



**Ventilation to the patient when the respiration stops
because of a bite by a cobra or a krait**



**The patient who recovered after 24 hours
with the help of ASV and ventilation**



Ramakrishna's eyes tend to close as the first symptom of ptosis (drooping of upper eye lids) because of a cobra or a krait bite



Ramakrishna in natural respiration after 48 hours of ventilation with the help of ambu bag



Ramakrishna after complete recovery in 3 days



**Bleeding in the eye-
The effect of bite by a Russell's viper**



Swollen leg because of Russell's viper bite



**Death of tissue below the elbow region because of
Russell's viper venom**



**Bleeding in gums as a result of
a bite by Russell's viper**



**Bleeding from kidneys after
the bite of a Russell's viper**



**The condition of Ptosis
(eyelids tending to close
because of the failure of
muscular system)**



A wound should be not bandaged like this

- ◆ The role of snake is essential in the “Food Chain” of the nature. Let the snakes live for the protection of the environment-

- *Kalai Arasan, director, Snake Park, Chennai.*

- ◆ You can treat other diseases in the manner you like. But if, there is a single death because of occult treatment, such country doctor should be called a murderer.

- *Romulus Whitaker, famous herpetologist.*

- ◆ Taking revenge by a snake is a great fiction. The brain of any snake is not that developed to remember things or persons and to take revenge on them.
- ◆ Don't hate snakes! And don't kill them!! Don't worship them!!! They are a part of the nature just like us.
- ◆ The local scenario we counted the deaths caused by snake bite in Krishna district based on the newspaper reports . The number was around 55. We really do not know the number of snake bites which do not come to the notice of public through news papers. It is our estimate that at least 52 cases out of these 55 can be treated with ASV successfully.
- ◆ Nearly 30- 50 percent of the bites by the poisonous snakes will not harm anybody . These are the cases that make the country medicine successful and make such doctors famous overnight!
- ◆ No other treatment has ever treated snake bite successfully. There is no such evidence in the world to show that a patient has survived with the help of a medicine other than ASV.
- ◆ The diamond on a snake's head! There have been countless serials and films on 'Nagamani'. Nagamani is nothing more than a fiction.
- ◆ We should advance a demand from the side of people that every primary health centre should maintain a minimum of 10 doses of ASVs.