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Harmful practices: Use of insecticide to treat a child with tinea capitis

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Abstract

The global call for the general public and citizenry to go back to the grass-root had led to a mass increased desire for the people all over the world to go back to farming. In many localities, most available land spaces has been cleared of bushes and converted to farmlands. The different national governments has been supportive, helped in providing fertilizers at reduced costs, gave out soft loans to these farmers and even allowed their soil scientists to test the various soil samples and thereby advised on the best crops to plant locally. But the widespread bush clearing has led to changes in the bio-diversity of the lands and the possible eradication or migration of several species of wild animals and plants types. Also, these clearing of bushes causes exposure of the topsoil and leads to increased erosion and landslides in vulnerable localities. More importantly, the increased farming practices leads to the proliferation of several kinds of pests on these farms produces which in many ways impacted negatively on the final yields of the farms. This has also led to the manufacturing of several kinds of pesticides that are to be used on these farms. These pesticides contain several kinds of chemicals that are active against different types of farm pests, but that do not harm the crops themselves. These pesticides were meant for use only on the farms and not in the homes, but they have now been found for other non-indicated uses. They have been reported to be used in family homes to eradicate rodents, mosquitoes, cockroaches and even bed-bugs amongst several others. The index case report is that of the use of one such named pesticide to treat tinea capitis on a young boy by his parents with a devastating end report. Apparently, the child's parent had applied the said pesticide on the cleanly shaved head of the boy on a daily basis for several days but only reported to the hospital when events had taken a turn for the worst. These harmful practices are seen in many communities with devastating consequences.

Keywords: Farming; Pesticide; Tinea Capitis; Harmful practice

1. Introduction

Tinea capitis infection is a fairly common fungal infection in tropical region of the world. It is one of the commonest skin problem seen in young children and it is popularly known as ringworm because of the shapes of the rashes on the scalp of patients. It is not caused by any worms despite the name but is caused by a fungal organism known as dermatophyte [1]. These organisms affect different parts of the body such as the fingernails, toenails, skin and hair. Since the fungi grow well in warm and moist areas, so ringworm often develops between the toes, in the groin area, or in skin folds such as under the breasts. The different names therefore are based on where the infection is found, thus we have tinea corporis (ringworm of the body), tinea pedis (athletes foot), tinea cruris (fock itch), tinea unguium (toe-nail) amongst others [2]. Tinea Capitis is the variety that is seen on the scalp of mostly children in urban areas with poor hygiene and in those who are living in over-crowded residential areas, in those who are living in warm and damp environment [2]. Overcrowding and poor hygiene encourages the spread of the infection.

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Ringworm is a highly contagious infection and is known to spread through person-to-person contact, by sharing combs, towels, hats or even pillows [3]. It can also be contacted by coming in contact with infected animals such as dogs, cats, (puppies and kitten), cows, goats, pigs and horses and even from contaminated soil sample, [2,4]. Tinea capitis is found in toddlers and school-aged children aged between 3 – 14 years old and is said to be rare in adults but may occasionally be seen in the elderly patients [2, 4, 5].

The lesion presents as one or more circular rashes on the scalp with some hair loss, scaling, itch and often pus filled lesions surrounding the circles [2, 6]. These patches may gradually get larger in size and hair located inside of them becomes brittle and fragile and are easily pulled out.

The usual treatment for this ubiquitous infection is a prolonged regimen of a combined oral antifungal and topical shampoo washing of the scalp. Treatment is usually for at least a period of eight weeks and up to six months. Treatment failures are very high and recurrences are common in up to 50% of cases. Usually, oral antifungal drugs in combination with topical drugs has been reported to be highly effective in eradication of this infection [7, 8].

As against this demonstrated and tested orthodox regimen/treatment modalities, there are also many home remedies that have been used by the community at large. It is the use of one of these home remedies that our index patient engaged in, that had necessitated this report and therefore a call for intervention by the Regulating Authorities.

2. History of the index patient

Master AB, was a seven year old boy, the fifth child in a seven membered family. He was said to have been an active and brilliant child when everything was going on well. Apparently, he contracted tinea capitis, and his mother accepted that this scalp disease was common in their neighborhood. She suggested that her son must have contracted the disease from his numerous playmates. For the treatment, his parents shaved the boy's hair several times and applied local ointments that had been used as the traditional treatment for ringworm, but all to no avail.

They had also used several un-named oral drugs that were bought from chemist shops, again with poor results. The lesion was said to be getting wider and even was spreading to other parts of the head and body. There was a fear that the lesion might spread to other children in the house, and so the parents were open to any suggestions from anybody. At this point, a family friend told them that she had a similar problem in her home and that another friend introduced her to the use of the pesticide called "SNIPER". This she said healed her own child. She was to mix the sniper in blue-seal Vaseline and apply the mixture on the scalp of the child on a daily basis.

This was strongly recommended to the parents of master AB, who readily agreed and bought one bottle of the sniper and one medium sized blue-seal Vaseline and the concoction was then prepared for use. The scalp of master AB was shaved and the mixture was applied on his head daily for about two to three weeks but he developed a reaction on his head with bullous eruption that ruptured and left draining sores on his head. This latter became infected and started draining frank pus. The parents believed that the mixture was working and despite the wounds on his head, kept applying the mixture for "better results". AB overtime became very sick, was not eating, was running a high fever and had a foul odour from his discharging wounds on the head.

But, surprisingly he was not brought to the hospital for proper care since his parents thought that this was the manifestation of the cure of his infection. He was eventually brought to the emergency room of a popular missionary hospital in the south-south region of Nigeria and he was reported to have been semi-conscious, very ill-looking, severely dehydrated, febrile to touch, pale, and had offensive discharge and offensive odour from a dirty dressing wrapped around his head. And he was said to been talking irrationally. Active resuscitative measures were quickly started but all efforts were not successful as the boy died soon after admission and his remains was removed by his grieving family members.

3. Discussion

Sniper is a pesticide and a miticide that contains an active ingredient Bifenthris [9]. It is applied on plant foliage to treat plant destroying pests. It is a DDVP, 2, 2 – Dichlorovinyl dimethyl phosphate compound marketed for use on farms and lawns and greenhouse, but is very popular also to be active for uses in homes to drive away mosquitoes, cockroaches and other household pests [10].

Sniper is a restricted use pesticide (RUP) that controls over 30 foliar and soil borne pests and gives a residual activity needed to fight insects.

It is a highly toxic chemical, widely used for agricultural pest control, but unfortunately has been converted to other uses in several homes as an insecticide because of its high efficiency in eradicating house pests [10].

It is not to be sprayed on edible food products as it can be poisonous and can cause respiratory paralysis and even death [10]. It is only to be used for outdoor purposes and even then properly diluted with plain water to reduce its concentration [10].

Exposure can result by skin absorption, by inhalation, by swallowing it and by eye contact. The Centre for Disease Control (CDC) quoted that the effect of such exposure includes irritation of the eyes, skin, miosis, eyes pain, headache, chest tightness, wheezing, laryngeal spasm, salivation, cyanosis, anorexia, nausea, vomiting, dizziness, ataxia, convulsion, low blood pressure and cardiac irregularity [10].

Sniper is preferred as an insecticide in our homes because it is readily available, cheap and very effective in eradicating household pests, but this is not the advertised use.

It is effective against plant-damaging pests such as fall armyworms, cutworms, stick-worms, aphids, crickets, corn earworms and several others. This is the proper use and requires a certified application license to be able to buy it and persons must wear PPE (gloves, eye glass, masks, long sleeved clothing and proper shoes) when applying it. And afterwards, nobody should be allowed to enter sprayed and treated areas until after 12 hours has elapsed [10].

Farmers and salesmen alike had reportedly used sniper to treat and preserve beans product and the World Safety Organization warned health agencies to educate people to desist from such unwholesome practices [11]. Saying again that the chemical is dangerous and can cause death [11].

The United State Environmental Protection Agency added its voice to the mayhem by warning that sniper is a Restricted Use Product [RUP] and that it should not be used in any way that contacts worker or other persons directly [12]. This is because of the toxic nature of the pesticide.

But because of the availability, and low cost of the agent, many persons with suicidal ideations have made sniper a notorious choice and there are many reports of completed suicide that used sniper as the chosen agent [13]. Report had it that a candidate who was seeking for university admission killed herself by drinking three bottles of sniper only because she did not make the qualifying marks to get admitted into the university. The emptied bottles were found by her lifeless body.

Another case of a student who drank sniper and died only because he failed some courses. Two other students took their lives out of shame by using sniper because they were wrongly accused of stealing clothes in their hostel. While yet a young female banker committed suicide by drinking sniper because her husband was said to be cheating on her [14].

There may be several other un-reported cases. The first thing that comes to people's mind when the thought of suicide comes is "sniper" says a respondent [14].

An alarm was raised by health experts over the indiscriminate use of this now notorious pesticide in the control of household pests. This re-emphasises the known concerns of the danger and routes of exposure [14].

Furthermore, despite the usually written warnings that are posted on the containers of the pesticide, people still ignore the warnings and use them for domestic uses to kill household rodents and insect.

This explains its availability for suicides as sniper is ranked amongst the most available tools for suicide [15] and the WHO said that over 20% of suicides reported globally were through self-poisoning using pesticides [15].

The Lagos University Teaching Hospital (LUTH) reported that of the 66 completed suicide cases in that institution seen by 2018, that 62.10% were through the ingestion of poisons mostly sniper and that only 37.90% were through other means [15].

It is because of all these incriminating facts that the Nigerian government banned the manufacturing and sales of the small bottles of sniper in the country.

Now, this is the dangerous chemical that the parents of AB applied on his scalp and that may have led to direct absorption. He needed to have a toxicology study done to determine how much or the quantity of the chemical that he might have absorbed through his skin. Unfortunately, this was not done and the remains had since been buried. This case was never reported, adding to the probable numerous unreported cases nationwide.

4. Conclusion

In conclusion, harmful practices abound in our society due to ignorance, poverty, lack of proper education amongst other things. We hereby call for a more aggressive community education, radio announcements and television reports advising against such uses of this pesticide for curative purposes.

Compliance with ethical standards

Disclosure of conflict of interest

There is no conflict of interest.

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