

Henbane (Hyoscyamus Niger) Poisonings in the Vicinity of Erzurum

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Introduction

In Erzurum and the surrounding communities poisoning of children by medicines, insecticides and detergents are not often seen. But every year in the spring we frequently see children that have been poisoned by eating henbane. Even though in literature various articles concerned with plant poisoning may be found, the basically important social-economic causes underlying the henbane poisonings have not been treated sufficiently. Therefore, we considered it necessary to make a study of the cases diagnosed as henbane poisonings and hospitalized in the pediatric clinic connected with the medical school hospital from 1966 to 1969.

Henbane which belongs to the Solanaceae family and has been given such names as Infidel Opium, Jusquame and Hyoscyamus is known in this region as "Deli Bat Bat" (Figure 1). Henbane which is widely found in rocky areas, uncultivated land and especially along roadsides, is 80 cm. in length, light green in color, covered with fuzz, sticky when touched and with a two year life span (Figure 2). It's leaves are large, and dentated with pointed ends. The flowers are found at the edge and the petals are yellow with reddish purple veins. The fruit is in the shape of a thimble, with a narrow throat, swollen receptacle, and hard covering with sharp pointed stickers (Figure 3). The mouth of the thimble is closed and there are many greyish brown seeds inside.^{7 8} Alkaloids such as hyoscyamine, atropine, atropamine, and tropine are found in the leaves, seeds and especially in the roots of the plant.^{7 8} These alkaloids complete the typical atropine poisoning picture by paralyzing the

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Figure 1. Henbane (*Hyoscyamus Niger*)



Figure 2. Leaf of henbane

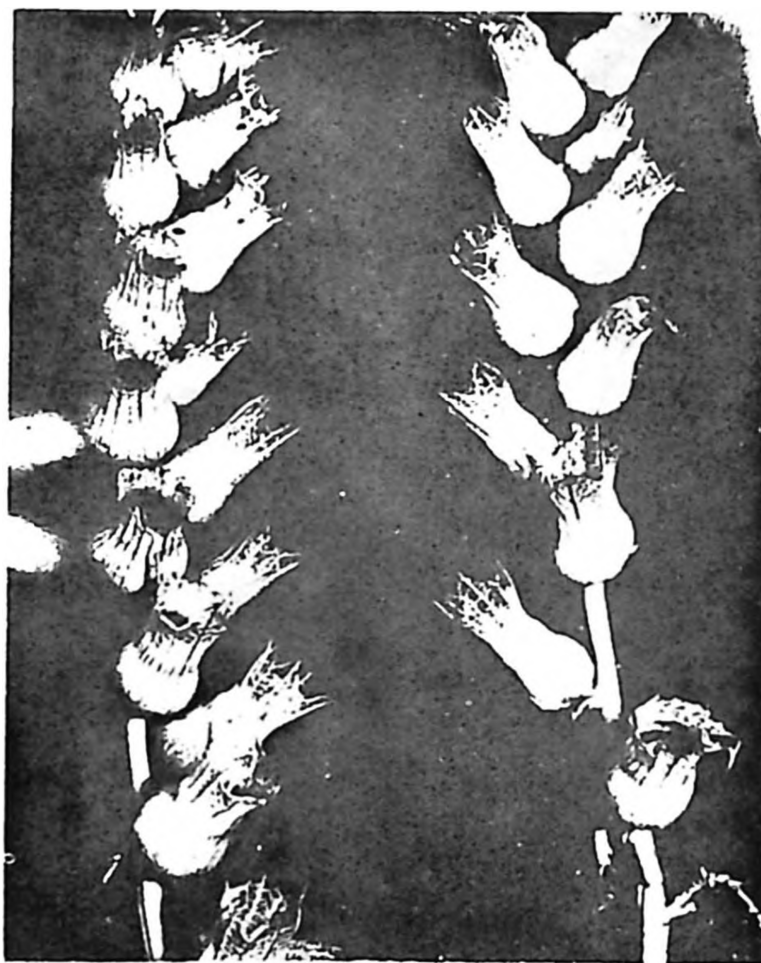


Figure 3. Fruit of henbane

nerve endings of the parasympathetic system. Compared to other *Hyoscyamus* species more alkaloids are found in the roots and leaves of *Hyoscyamus niger* (Table I).

Clinically, the first symptom of atropine poisoning is usually burning in the throat and dryness of the mouth.⁵ Later on the following symp-

TABLE I
HYOSCYAMUS SPECIES ALKALOID CONTENT
(According to A. Baytop and M. Tanker)

Species	Part of Plant	Total Alkaloid %
H. albus	Leat	0.039
	Root	0.038
H. aureus	Leaf	0.050
H. niger	Leaf	0.107
	Root	0.133
H. pusillus	Leaf	0.026
	Root	0.133
H. reticulatus	Leaf	0.027
	Root	0.717

toms may be seen; speech and swallowing difficulties, occasionally hoarseness, mydriasis of the pupils, photophobia, blurred vision, difficulties in accommodation, warmth, dryness and flushing of the skin, sometimes rashes and desquamation, tachycardia, increase in body temperature (in infants and aged up to 42°C)⁵, abdominal distention, retention of urine in the bladder, headache, nausea, dizziness, difficulties in muscular coordination, tremor, ataxia, mental confusion with visual hallucinations, agitation, delirium, convulsions and finally coma, circulatory and respiratory deficiencies ending in death.¹⁻¹⁰

In developed countries most atropin poisonings are caused by excessive use of eye drops containing atropin, by using these eye drops for the nose or by attempts at suicide. Poisonings from plants are rarely seen.^{1 3 6 8 9 11}

The resistance of older children to atropine is greater, but delicate children can not stand a dose of 0.2 mg. In children a fatal dose is reported to be between 10 - 20 mg.^{5 8 9 10}

There is no specific treatment for atropine poisoning. Usually symptomatic treatment is sufficient.^{5 6 8 11}

Findings

Between 1966 and 1969, 31 children poisoned by eating henbane were hospitalized in the Pediatric Clinic of the Medical School Hospital. The age and sex distribution of the affected children can be seen in Table II and the age distribution, in Figure 4.

TABLE II
THE DISTRIBUTION OF AGE AND SEX IN THE CASES OF
HYOSCYAMUS NIGER POISONINGS

Age in Years	No. of cases for each sex		% of Cases
	Female	Male	
3	2	1	9.6
4	—	5	16.2
5	3	5	25.8
6	2	3	16.2
7	3	2	16.2
8	—	—	—
9	—	1	3.2
10	1	2	9.6
11	—	1	3.2
Total	11	20	100.0

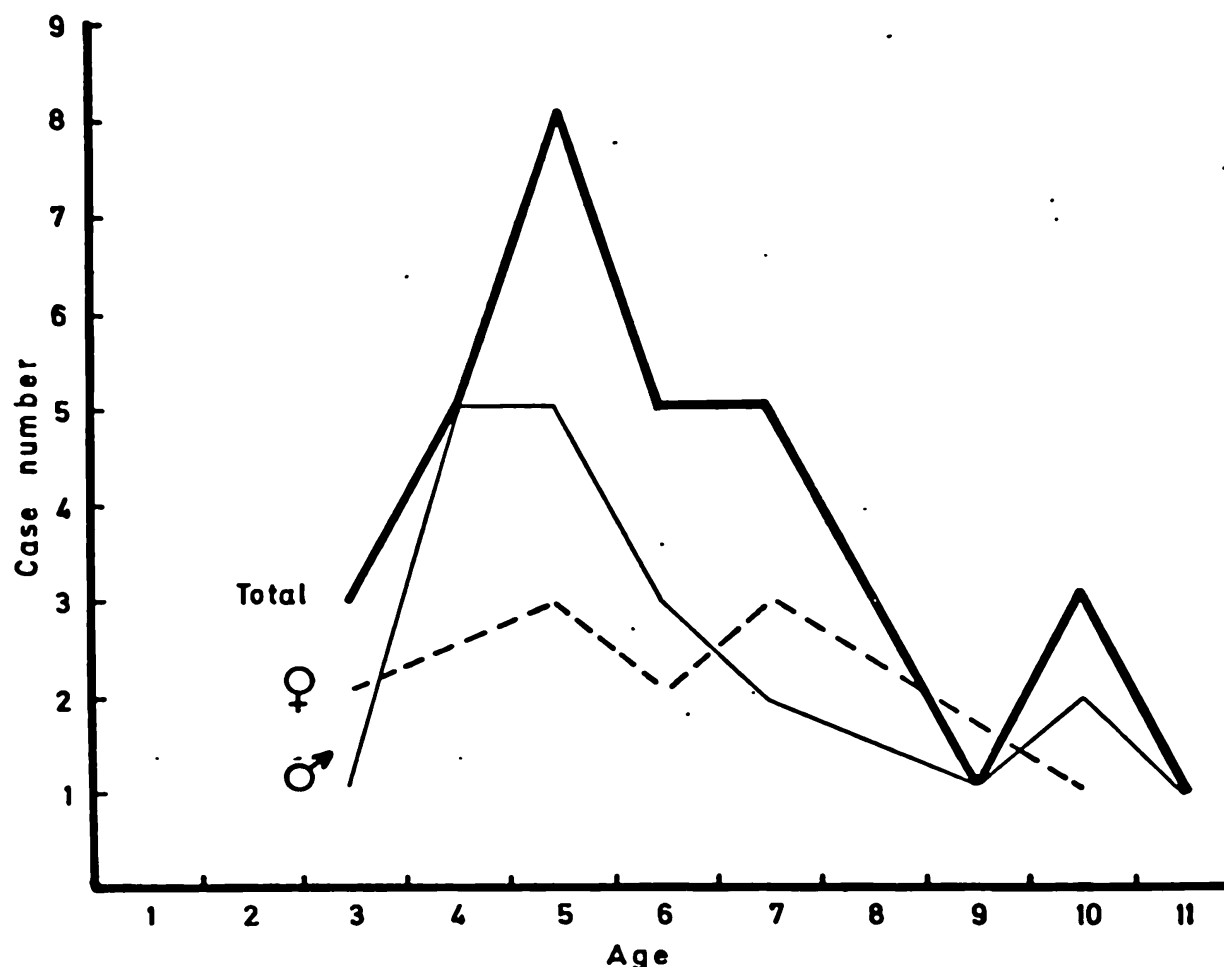


Figure 4. Distribution according to sex of hospitalized patients poisoned by *hyoscyamus niger*.

Of the children aged between 3-11 years, 20 were male and 11, female. Of the 31 children, 17 came from villages and towns near Erzurum, 7 from the city's squatter house district and the remaining 7 from a group that were poisoned by eating the weed in the garden of the Orphanage Home (Figure 1).

The distribution of the symptoms that were found in the patients at the time of admission to the hospital can be seen in Table III.

During our investigation, it was discovered that children showing mild symptoms had not been brought to the hospital. Considering the fact that poisoned children in villages far from our hospital were not brought in or that they died before they could reach the hospital it can be stated that the number of poisonings by eating henbane is much more than that indicated by the number seen in the hospital. For example, the father of a 10 year old patient revealed that he and another child 7 years of age who had eaten henbane with the patient and the 7 year old child in a state of coma, had died while being brought to the hospital.

TABLE III
DISTRIBUTION OF ATROPINE POISONING SIGNS IN OUR CASES

Atropine Poisoning Signs	Distribution In Our Cases	
	%	No. of Cases
Flushing	96	30
Dilatation of pupils	96	30
Dizziness and ataxia	87	27
Agitation	80	25
Tachycardia	74	23
Visual hallucinations	58	18
Dryness of mouth	58	18
Thirst	48	15
Fever	35	11
Blurred vision and photophobia	32	10
Difficulty in swallowing	19	6
Nausea and vomiting	13	4
Delirium	13	4
Tremor and convulsion	9	3
Distention of the bladder and abdomen	6	2
Headache	6	2
Hoarseness and speech difficulty	3	1
Skin rashes and desquamation	3	1
Coma	3	1

Since the hospitalized patients had been brought in after all the symptoms had made their appearance, none of their stomachs were washed. In fact, since atrophine is so readily absorbed by the digestive system, such a procedure is probably of little value.⁸ Agitated and convulsive patients were given sufficient amounts of luminal and tranquilizers. In order to promote diuresis in all of the patients, parenteral fluid treatment (150-200 ml/kg.) was begun immediately with the condition that 1/3 of the amount was given during the first 2 hours. This was continued until the patients condition improved. Except for a 4 year old child who had died before treatment could begin, all of the patients brought to the emergency ward in a state of coma had improved completely except for a few minor symptoms. In some of the patients dizziness, mild ataxic walking and in most of the patients, pupil dilatation and difficulties of vision connected with this, continued during the period of stay in the hospital. Sixteen of the patients who recovered were discharged within the first 24 hours, 11 within 48 hours and the last 3 on the 3rd day (Figure 5).

Discussion

During the long winter season in the region surrounding Erzurum, especially in the village areas, many families find it difficult to find fresh

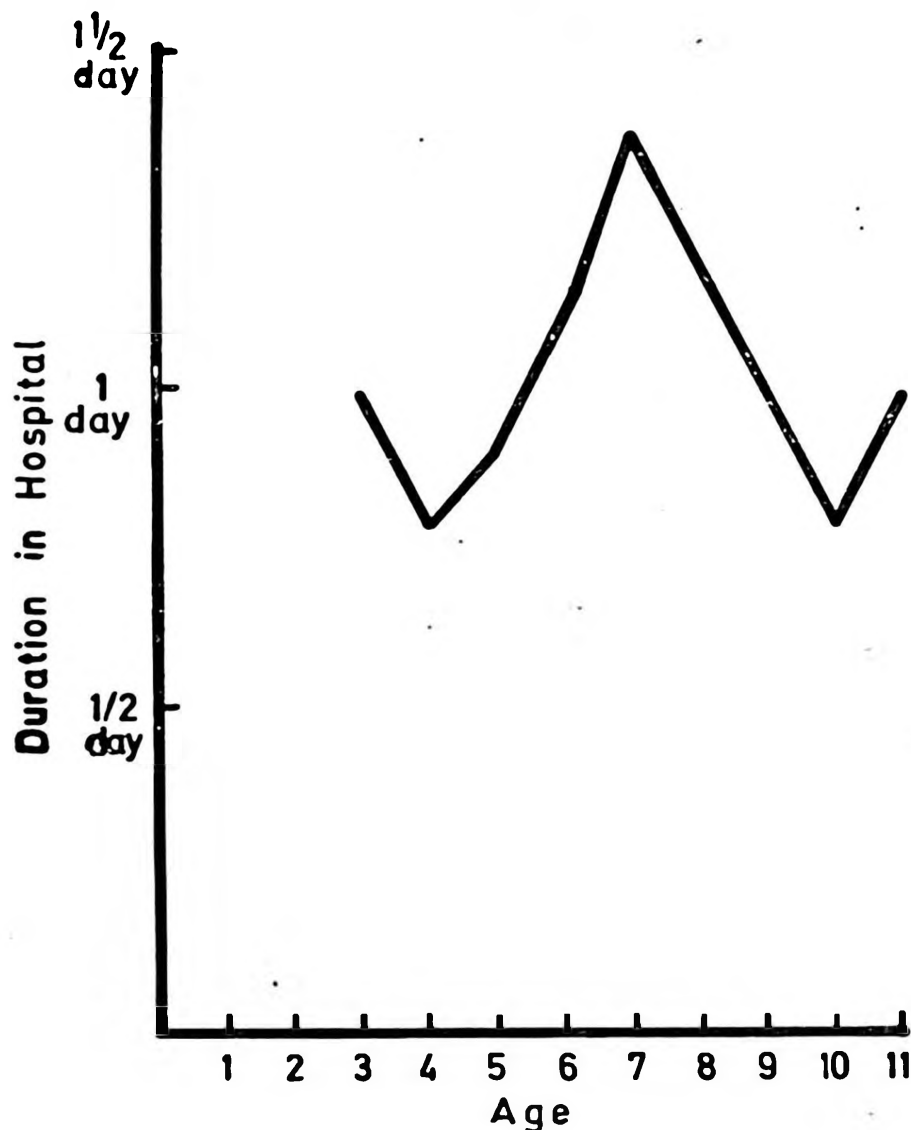


Figure 5. Length of stay in hospital of hyoscyamus niger poisoning cases.

fruit and vegetables or if they do find them they are too expensive. In the spring, people living in the villages or people of poor social-economic conditions living in the areas of small towns customarily eat plants including henbane that they find locally. The roots and leaves taste like lettuce and they have great appeal for children. The fact that the cases caused by poisoning only come to our hospital during the months from March to May and that the poisoned persons live in villages, squatter houses and orphanages, is of great interest. Until sufficient programs aimed at nutritional problems are set up on a nation wide scale and enough importance is placed upon public health education, prevention of such poisonings is very difficult.

It is of great importance to consider the fact that the majority of the patients were between the ages of 3-7 years and that the majority of them were male (% 64.5). Children under the age of 3 are not likely to

go wandering about the fields without their mothers. Children over 7 years of age are usually in school from March to May and besides that, from their experience with being poisoned they know about how much they can eat so that cases of poisoning are rarely seen in this group.

During the past years, several studies have been included in the literature concerning the increased difficulty of diuresis in atropine poisonings and the rapid removal of atropine in the urine. In a study by Groden and Williams¹¹ of an attempt at suicide by a 31 year old who had taken 75 mgr. of atropine, the patient was given large quantities of intravenous fluid and Chlorothiazide. Within 2 hours, 34 % of the consumed atropine corresponding to 25.7 mgr. had been removed through the urine and after 10 hours 40 % more, corresponding to 30.9 mgr. had been completely removed. By comparing this result to the findings by Tonnesen in 1950 that in two days an average of 12.7 % of atropine taken orally was passed out in the urine,¹² they suggested that in treatment the forcing of diuresis is of prime importance. We didn't use Chlorothiazide for the production of diuresis in our patients. The fact that our patients were out of danger after the first 24 hours showed that the use of parenteral fluid to produce diuresis was sufficient treatment. Perhaps better results may be obtained in cases who have fallen into a coma by the use of chlorothiazide to produce diuresis.

Summary

In the region of Erzurum, in the spring, typical atropine poisoning is seen in children who eat the roots and leaves of henbane (*Hyoscyamus niger*) known here as "Deli Bat Bat". In this paper we have discussed 31 patients who were admitted to our hospital during the years 1966-1969. Within 24 hours the patients were out of danger from the intoxication and had shown improvement due to the use of only sufficient amounts of intravenous fluid to force diuresis. Apart from this, the use of Chlorothiazide was not found to be necessary. We are of the opinion that this diuretic is of use only if the patient has gone into a coma. All the patients that underwent treatment were discharged from hospital in good health.

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