



## Wild Tuber Poisoning in a Child : *Eminium Intortum* (Banks & Sol.) KUNTZE – A first case report

### Bir Çocukta Yabani Yumru Zehirlenmesi: *Eminium intortum* (Banks & Sol.) Kuntze – İlk Olgu Sunumu

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#### Abstract

A case of poisoning, accidentally eating the tuber of the *Eminium intortum* (Banks & Sol.) Kuntze plant by a 16-year-old young girl, is presented. Our patient while working in the field, eating a pieces of the tuber of a green leafy plant, complaining of a burning mouth in the mouth, excessive watering and shortness of breath, later applied to our Pediatric Emergency Department. After the initial evaluations, the poison hotline was called. In line with the recommendations, the patient was given activated charcoal with a nasogastric tube, vascular access was opened for fluid treatment, and routine blood tests were planned. Our case, who was conscious and whose vital signs were stable, was admitted to the pediatric health and diseases service. The case was discharged with full recovery after 6 days of observation and treatment. While the patient's treatment was continuing, explorations were made in the field with the patient's relatives to observe and identify the wild plant tuber that caused the poisoning in its natural environment, and it was understood that the plant was *E. intortum*. In this case report, it is aimed to present the intoxication experience that developed in this case after the tubers of *E. intortum* were eaten.

**Key Words:** Araceae, Child, *Eminium intortum*, Poisoning

#### Öz.

Bu olgu sunumunda 16 yaşında genç bir kız hastanın *Eminium intortum* (Banks & Sol.) Kuntze bitkisine ait yumruyu yanlışlıkla yemesi sonucu oluşan zehirlenme olgusu sunulmaktadır. Olgumuz tarlada çalışırken adını bilmediği yeşil yapraklı bir bitkinin yumrusundan bir miktar yedikten sonra ağızda yanma hissi, aşırı sulanma ve nefes darlığı şikayetleri ile Çocuk Acil Servisi'ne başvurmuştur. İlk değerlendirmelerin ardından, zehir danışma hattı arandı. Öneriler doğrultusunda hastaya nazogastrik sonda ile aktif kömür verildi, sıvı tedavisi için damar yolu açıldı, rutin kan tetkikleri planlandı. Bilinci açık ve vital bulguları stabil olan olgumuz çocuk sağlığı ve hastalıkları servisine yatırıldı. Olgu 6 günlük gözlemden ve tedaviden sonra şifa ile taburcu edildi. Hastanın tedavisi devam ederken, zehirlenmeye sebep olan yabancı bitki yumrusunun doğal ortamında gözlenmesi ve tespiti için hasta yakınları ile arazide keşifler yapılmış, bitkinin *E. intortum* olduğu anlaşılmıştır. Bu olgu sunumunda *E. intortum* bitkisine ait yumruların yenildikten sonra bu olguda gelişen intoksikasyon deneyiminin sunulması amaçlanmıştır.

**Anahtar kelimeler:** Araceae, Çocuk, *Eminium intortum*, Zehirlenme

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## Introduction

In Turkey, the majority of the population live in rural areas with risk factors for exposure to wild plants. Mixing an edible plant with a poisonous plant causes serious poisoning, which can even result in death. It should be kept in mind that vital complications may develop in the cases of poisoning with unknown cause, especially at the first application to emergency departments. *Eminium intortum* (Banks & Sol.) Kuntze is taxonomically a plant species belonging to the Araceae family. This family generally contains poisonous plants. *Eminium* genus has 7 plant species in the world, while Turkey is represented by 5 taxa (1). It is known among the local people of Şanlıurfa, with names such as kari, kardi, gardi, asalan, fise pire, zilke araba, yılan yastığı and malmirat. The genus *Eminium* is common in Central Asia and the Middle East. It spreads in the Mediterranean, Eastern and Southeastern Anatolian provinces. Fresh leaves of the plant are collected from the region by traders and exported to Northern Iraq. It has a toxic effect when the plant is fresh. Many plants in the family of Araceae are poisonous raw and if eaten raw, this toxin gives you sensation as if hundreds of tiny needles are sticking into the mouth tongue etc. However, it is easily destroyed by thoroughly cooking. The toxic principles in this plant are glycosides, calcium oxalate crystals packaged into bundles called raphides and proteolytic enzymes (2). The leaves of the plant are used for food purposes after it has undergone certain processes. The poison is taken by boiling and brine. There is no use of the tuber. The traditional use of *E. intortum* in Turkey has not been encountered. Even no literature on *E.intortum* poisoning has been found up to now.



**Figure 1.** A-B) General view of *Eminium intortum* in field, C-D) Its tubers

*E. intortum* tuber is spherical, approximately 2.1-4.5 cm in diameter (Figure. 1). After the tuber of this plant is

eaten, gastrointestinal, neurological and especially respiratory system symptoms (such as shortness of breath after edema in the airway, bronchospasm) can be life-threatening. We present this case of tuber poisoning in order to draw attention to the importance of informing people living in rural areas.

## Case Report

A 16-year-old girl residing in Şanlıurfa countryside applied to our pediatric emergency room 5 hours after consuming some 50 g of wild poisonous plant tubers. Among the complaints of arrival were swelling and pain in the patient's tongue, burning and bitter taste in the mouth, as well as mild dyspnea and secretions that spread out of the mouth. There was also minimal speech difficulties due to these complaints and pain. On arrival, the patient, who was conscious, cooperative and orientated, had overflowing mouth waters, tongue swelling, burning mouth, bitter taste and shortness of breath. Her physical condition was moderate, unconscious, cooperative, oxygen saturation in the room air was 96%, body temperature was 36.4 °C. Apart from mouth and throat complaints, the patient with mild respiratory distress had no pathological findings in the lung examination, the pulse rate was 92 / min in the cardiac examination, the blood pressure was 110/70 mmHg and there was no circulatory disorder. Abdominal examination, extremity and neurological examination, and genitourinary system examinations were natural. The patient's vascular access was opened, routine blood tests were taken. The laboratory tests, coagulation parameters, cardiac panel and blood gas values of the patient in the emergency room were within normal limits in Table 1. The patient was started on a dose of fluid appropriate for the vein, weight and age. Oral feeding was stopped. After the initial interventions and activated charcoal treatment, the patient was admitted to the pediatric health and diseases service. Control examinations sent to the laboratory on the 3rd day of service admission also came within normal limits in Table 1.



**Figure 2.** A-B: Mouth and tongue lesions on the 3<sup>rd</sup> day of hospitalization

**Table 1.** Laboratory findings of the patient in the emergency service (6th hour of poisoning) and on the 3rd day of hospitalization

Parameter	6th hour	3rd day	reference value	Parameter	6th hour	3rd day	reference value
<b>Biochemical Tests</b>				<b>Complete Blood Cell Count</b>			
Blood sugar (mg/dl)	102	131	74-106	WBCs ( $\times 10^9/L$ )	6,6	4,9	3,7-10,1
Blood urea (mg/dL)	23	32	19-50	Lymphocytes ( $\times 10^9/L$ )	1,4	1,5	1,09-2,99
Serum creatinine (mg/dL)	0,4	0,4	0,2-1,2	Neutrophils ( $\times 10^9/L$ )	4,7	2,8	1,63-6,96
ALT (U/L)	16	30	7-40	Monocytes ( $\times 10^9/L$ )	0,4	0,4	0,24-0,79
GGT (U/L)	11	11	<73	Eosinophils ( $\times 10^9/L$ )	0,07	0,15	0,03-0,44
ALP (U/L)	119	94	46-116	Basophils ( $\times 10^9/L$ )	0,02	0,01	0-0,08
Albumin (g/dL)	5	4	3,2-5	Hemoglobin (g/dL)	13,4	13,2	12-18,1
Sodium (mEq/L)	138	141	136-145	Hematocrit(%)	40,9	39,7	35-53,7
Potassium (mEq/L)	3,7	4,1	3,5-5,1	Platelets ( $\times 10^9/L$ )	279	227	142-424
Calcium (mg/dl)	9,3	8,7	8,7-10,4	<b>Arterial Blood Gas</b>			
Phosphorus (mg/dL)	2,8	4,2	2,4-5,1	pH	7,37	7,41	7,35-7,45
Magnesium (mg/dl)	1,2	1,4	1,6-2,6	PaCO <sub>2</sub> (mmHg)	45	35,5	32-48
CK (U/L)	165	146	26-190	HCO <sub>3</sub> (mEq/L)	24	23,2	22-26
LDH (U/L)	249	202	120-246	Base deficit (mEq/L)	1,4	-1,6	(-3)-(+3)
Serum amylase (U/L)	131	71	30-118	Lactate (mg/dL)	1	1	0,5-1,6
CRP (mg/dl)	0,02	1,1	0-0,5	<b>Coagulation Parameters</b>			
<b>Cardiac Enzymes</b>				APTT (sec)	23,5	25	22-26
CK-MB (ng/ml)	1,9	2,54	0-5	PT (sec)	12,6	12,8	10,5-15,5
<b>Troponin-I (ng/ml)</b>	0,00	0,00	0,02-0,07	INR	1,07	1,09	0,8-1,2

ALT: Alanine aminotransferase, GGT: Gamma-glutamyl transferase, ALP: Alkaline phosphatase, CK: Creatine kinase, LDH: Lactate dehydrogenase, CRP: C-reactive protein, WBCs: White blood cells, PaCO<sub>2</sub>: Partial pressure of arterial carbon dioxide, APTT: Activated partial thromboplastin time, PT: Prothrombin time, INR: International

When the patient first applied to the pediatric emergency service, there was hypersalivation in the mouth, a burning sensation, swelling and numbness in the tongue, and on the 3rd day of his hospitalization, she had a aphthous wounds on the left side of the tongue and a necrotic wound under the tongue (Figure 2). After 3 days of treatment of mouth, swelling and pain in the tongue decreased, aphthous wounds in the mouth healed rapidly and began to be fed orally. While the patient's service stay continued, the plant tuber brought by the relatives of the patient was sent to the Botanical Department of Harran University. Since the tubers have a similar structure, it was not possible to identify them only from the tubers. For this reason, by going to Doğanlı village of Şanlıurfa where the incident occurred, observations were made in the field where the tubers of the plant causing poisoning and it was understood that the plant tuber causing poisoning belonged to *E. intortum* (Figure 2). The patient, whose general condition improved, started to be fed easily and had normal laboratory tests, was discharged with healing after 6 days of close observation. Informant consent was received from the family.

## Discussion

In Turkey, the majority of the population use wild plants as food. The confusion of an edible plant with a poisonous one give rise to serious poisoning which may even result in death. The incidence of plant poisoning in Turkey is about 6% and especially high among children between ages of 2 and 11 living in rural areas (3). Aroids are medicinal plants, can also be used as food. There are also those that have a toxic effect (4). There is

much literature on genus *Arum* (Araceae family) poisoning (5-6). We currently don't have any information about *Eminium* poisoning from literature, however it also belongs to the Araceae family, like the *Arum* genus. We suppose it also contains oxalate crystals and have similar GI (gastrointestinal system) irritation symptoms, and in some cases could lead to more serious outcomes like anaphylaxis (7).

In the beginning, it was not known what the toxic substance was. Due to minimal respiratory distress in the airway, oxygen was given with a mask and treated symptomatically and the patient was followed up closely. There was no increase in respiratory distress. It was understood that the plant tuber was *E. intortum* as a result of Harran University Botanical Research. No literature and no antidote information were found on the clinical signs and management of *E. intortum* poisoning. This case report has a unique value in this respect. Wild tuber poisoning can be a life-threatening emergency that may require urgent resuscitation and aggressive airway management. Because delay in airway protection may increase the rate of illness and death in critical patients (8). *E. intortum* ingestion has been observed to cause burning, swelling, tongue swelling, difficulty swallowing and nausea in the oral mucosa. If this plant or its components are eaten raw or consumed in large quantities, it is possible to develop gastrointestinal discomfort, severe upper pathway obstruction, cardiovascular collapse, central nervous system depression or mortality. Therefore, when such symptoms develop, *E. intortum* or similar family intoxications should be considered and a detailed history should be taken. Physicians should be aware of complications that may develop if *E. intortum* and similar toxic

plants are consumed. It is also important to raise awareness of people living in rural areas, especially in cases of such poisoning. It is a place where plant-borne food poisoning is common in the southeastern Anatolia region. For example; *Euphorbia helioscopia* is a plant commonly found in rural areas. Contact dermatitis (irritant contact dermatitis or allergic contact dermatitis) is known in relation to this herb (9). Another example is the mallow plant (*Malva sylvestris*). It is a plant that is frequently consumed by the people for various reasons and accepted as safe. However, upper gastrointestinal system bleeding due to mallow was reported in a case report (10).

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**Ethical Approval:** Written informed consent was obtained from the patient for the study.

**Author Contributions:**

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