Five Cases of *Jatropha curcas* Poisoning

Viral Shah*, Jayesh Sanmukhani**

**Abstract**

*Jatropha curcas* belongs to the Euphorbiaceae family and is found in the coastal areas of tropics. The leaves, fruits and seeds of the plant are used for various ailments. There are few reported cases of its poisoning in paediatric age but we didn’t come across any case report for its poisoning in adults. However we found a family of 5 members (mother, father and three sons) affected by the poisoning of its seeds, who presented within a few minutes with complaints of vomiting and diarrhoea. The nature of illness was self limiting and no complications occurred during the entire hospital stay and follow up.

**Introduction**

*Jatropha curcas*, commonly called as “Ratanjyot” in Gujarati, belongs to the Euphorbiaceae family. The plant is widely distributed in the wild and semi-cultivated areas of India, South East Asia, Central and South America and Africa. There are studies which have found it to be toxic but not lethal in humans, however ample number of studies have shown the seed component to be toxic and lethal in mice, rats, chicken, calves, sheep and goats.1 From our extensive literature search we could find only a few cases of *Jatropha curcas* poisoning from South India2, South Africa3 and some others.4 All these reported cases are of paediatric age group. We could not find any report of poisoning in adults. *Jatropha curcas* is used as laxative, antiparasitic, antidote for snake venom and vermifuge. It is also widely used as bio-fuel.5 Eventually with increase in cultivation of *Jatropha curcas* mainly in Saurashtra region of Gujarat for its use as bio-fuel, there is likelihood of increase in the accidental poisoning and therefore it is essential for the medical fraternity to publish more *Jatropha curcas* poisoning cases to gather the epidemiological data, signs and symptoms and treatment of *Jatropha curcas* poisoning. Considering the facts, we are reporting five cases of *Jatropha curcas* poisoning in adults.

**Case Report**

A young boy aged 16 yrs while playing at a farm in Bhavnagar; Gujarat found almond shaped fruit over the tree. Due to curiosity, he obtained a few fruits from the tree. He broke the fruit and found some seeds in it (leaves, fruit and seed are shown in Figure 1). Finding the seeds to be sweet in taste he brought those fruits at home and gave them to the other family members i.e. father, mother and two brothers. They also tasted the seeds. The boy ate three seeds while rest of them tasted one or two seeds only. Within ten to fifteen minutes, all of them had abdominal pain which was colicky in nature and diffuse. After another fifteen minutes, they all had non projectile vomiting having food particles. There was no blood or foul smell in the vomitus. Vomiting was followed by watery, colourless, non-sticky loose motions without blood, mucus or any foul smell. All of them were brought to the hospital immediately. The details of cases are given in Table 1. We had not tested any vomitus or stool for toxicochemical analysis considering the clear history and availability of seeds and fruits with patients. All the patients recovered without any complications.

**Discussion**

As all the patients had colicky pain and vomiting within 15-20 minutes of eating the seeds, we can conclude that the onset of action is very rapid in *Jatropha curcas* poisoning. The presentation of all the patients was same and consistent with the presentation described in earlier reports of paediatric cases from India,2 South Africa3 and few others4. Therefore it seems that the effect of *Jatropha curcas* seed poisoning in adults and paediatric age group is same. All the patients in our hospital were treated symptomatically with rehydration salts and intravenous fluids. No antimicrobial agents were used. The recovery was quick. The first symptom corrected was vomiting followed by abdominal pain and lastly loose motions. None of the patients had any complication. Therefore, it is clear that ingestion of only one to two seeds causes toxic symptoms of short duration without any lethal complications. It may be because emesis expels the seeds immediately outside the body preventing further absorption of toxic chemicals. The high concentration of phorbolsters present in *Jatropha curcas* seed has been identified as the main toxic agent responsible for *Jatropha curcas* toxicity.6 Though, there are no deaths reported from human cases, it was found to be lethal in animal studies and therefore, we should not take this poison as benign and should not underestimate it.

**Acknowledgement**

We sincerely thank Dr. C. B. Tripathi, Professor and Head, Department of Pharmacology, Government Medical College, Bhavnagar, Gujarat for his great help in identifying the fruits, seeds and leaves of tree brought by the patient and helping us in searching the relevant literature. We acknowledge the
Table 1: Details of five cases of Jatropha curcas poisoning

<table>
<thead>
<tr>
<th>Case No.1 (Index)</th>
<th>Case No.2 (Mother)</th>
<th>Case No.3 (Brother)</th>
<th>Case No.4 (Father)</th>
<th>Case No.5 (Brother)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age(yrs)</td>
<td>13</td>
<td>35</td>
<td>18</td>
<td>38</td>
</tr>
<tr>
<td>Sex</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>No. of seeds eaten</td>
<td>3</td>
<td>1-2</td>
<td>1-2</td>
<td>1</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Vomiting' continuous for 2-3 hours</td>
<td>Diarrhoea' Episode every 5min for 2 hrs &amp; 25 times thereafter</td>
<td>3-4 episodes with nausea</td>
<td>Nausea</td>
</tr>
<tr>
<td>Vitals</td>
<td>Pulse' 130/minute</td>
<td>BP* (mm of Hg) 90/60 supine</td>
<td>124/minute 94/60 supine</td>
<td>90/minute 110/72a</td>
</tr>
<tr>
<td></td>
<td>BP* (mm of Hg)</td>
<td>Cool extremities</td>
<td>Cool extremities</td>
<td>Normal Normal</td>
</tr>
<tr>
<td>General examination</td>
<td>Shrunken eye balls, dry tongue, skin retraction time &gt;2secβ</td>
<td>Dry tongue, skin retraction time &gt;2secβ</td>
<td>Dry tongue, skin retracts immediately (Mild dehydration)</td>
<td>No signs of dehydration</td>
</tr>
<tr>
<td>Systemic examination</td>
<td>CVS NAD</td>
<td>Respiratory Clear</td>
<td>Abdomen NAD</td>
<td>Hb (gm%) 13</td>
</tr>
<tr>
<td></td>
<td>NAD</td>
<td>NAD</td>
<td>NAD</td>
<td>10.8</td>
</tr>
<tr>
<td>Lab. investigations'</td>
<td>SGOT(IU/l) 24</td>
<td>SGPT(IU/L) 41</td>
<td>Bilirubin (total) 1.6</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>24</td>
<td>Urea(mg%) 21</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>0.8</td>
<td>0.9</td>
<td>Creatinine (mg%) 0.8</td>
<td>0.9</td>
</tr>
<tr>
<td>Treatment given</td>
<td>IV fluid &amp; symptomatic t/t in ward.</td>
<td>IV fluid &amp; symptomatic t/t in ward.</td>
<td>ORS and symptomatic t/t in OPD.</td>
<td>ORS and symptomatic t/t in OPD.</td>
</tr>
<tr>
<td>Outcome</td>
<td>Vitals stabilized in 4 hrs. complete Recovery in 48 hrs</td>
<td>Vitals stabilized in 2 hrs complete Recovery in 48 hrs</td>
<td>Complete recovery in 8-10 hrs</td>
<td>Complete recovery in 4-5 hrs</td>
</tr>
</tbody>
</table>

# Total episodes till recovery and approximate frequency.  
* at time of presentation.  
β postural hypotension present.  
Moderate Dehydration

help rendered by Dr. J.C. Sanmukhani, Head of department of Medicine, Pushpa Mission Hospital, Ujjain, Madhya Pradesh for critical review of this manuscript.

References