

# Thrombocytopenic purpura due to *Lupinus termis* bean

*Rina Lavy, M.D., Jerusalem, Israel*

**T**he clinical picture of allergic thrombocytopenic purpura is well known.<sup>1, 2</sup> Allergic purpura developing after the ingestion of various foods was reported by Osler in 1914.<sup>3</sup> Alexander and Eyermann<sup>4</sup> described six cases of purpura associated with abdominal pains due to the ingestion of foods including beans. A case of thrombocytopenic purpura following ingestion of *Lupinus termis* beans is here reported.

## CASE REPORT

A 13-year-old Yemenite boy born in Israel from healthy stock was first seen in the outpatient department because of spontaneous hemorrhages over a wide area of the skin. Two years before, he had been hospitalized because of acute glomerulonephritis with quick and complete recovery. There was no history of previous bleeding.

About 14 days prior to admission as an outpatient, the boy had eaten about 100 Gm. of cooked *Lupinus termis* beans, or turmus, as they are locally called. There was no fever or abdominal upset. He had felt well all the time.

Physical examination revealed no abnormalities apart from the hemorrhages. The boy was in good physical condition; the pulse was 82; the spleen and liver were not palpable. No signs of internal hemorrhage were noted. The trunk and limbs were covered with ecchymoses from 1 to 20 cm. in diameter, with occasional petechiae; there were no hemorrhages in the visible mucous membranes, and jaundice was absent. Blood examination showed 11 Gm. per cent hemoglobin, 4.3 million erythrocytes, 7,000 leukocytes, with a normal differential count, but only 60,000 thrombocytes per cubic millimeter. Liver-function tests showed cephalin 2 plus, prothrombin time 50 per cent, fibrinogen 220 mg. per cent. Positive and negative pressure tests for capillary fragility were normal.

In view of the boy's good physical condition, he was sent home. He was examined daily. After three days, there was a gradual regression of the hemorrhages, and the thrombocytes increased to 130,000.

The only food that came under suspicion as a possible allergen was turmus beans. There

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From the Medical Outpatient Clinic "C," Hadassah University Hospital and the Hebrew University Hadassah Medical School.

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was no history of trauma, and the patient had taken no drugs. Two weeks after the complete disappearance of the hemorrhagic signs, the boy was given one cooked bean of *Lupinus termis*. Four days later hemorrhagic skin signs reappeared. The boy again felt well, and no hemolytic features were observed. The number of thrombocytes was 60,000. The Rumpel-Leede test was now positive. In the course of 3 days all the hemorrhages completely disappeared. Three months later, when the number of thrombocytes was 160,000, the experiment was re-



**Fig. 1**

Purpura of the skin as a result of recent ingestion of *Lupinus termis* bean.



**Fig. 2**

Skin petechiae six hours after ingestion of *Lupinus termis* bean.

peated; one turmus bean was eaten. This time the skin hemorrhagic signs appeared after 24 hours.

Three months later, the boy reappeared with marked purpura of the skin. Four days previously he had eaten food which contained about 10 Gm. of the turmus bean. Thrombocytes had decreased to 8,000, the Rumpel-Leede test was negative, and microscopic examination of the nail bed showed many petechiae. His general condition was good. The next day the number of platelets had risen to 16,000 (Fig. 1). The boy was hospitalized, and the clinical signs disappeared within 4 days without specific treatment.

Six months later a further trial was made. One turmus bean was given the boy; the platelets were counted every 2 hours after the ingestion of the turmus bean. After the first 2 hours they decreased from 160,000 to 10,000. From then on there was a gradual increase in number. Capillary hemorrhages appeared in the nail bed and gradually faded the following day. Skin petechiae appeared 6 hours after the ingestion (Fig. 2).

Intradermal injection of extract of the bean produced no significant reaction.

## DISCUSSION

The *Lupinus termis* and the *Lupinus albus* plants are of the leguminous family. The *Lupinus albus* is found in Europe, and the *Lupinus termis* in the Middle East. They are known to be poisonous to animals and human beings but are grown in order to enrich the land. *Lupinus termis* contains three alkaloids: lupanine, lupine, and sparteine. Of these the lupanine is present in greatest quantity. Most investigators think that the alkaloids are the poisonous substances, yet others think that there are albuminoids in these plants which might be the cause of the allergic reactions. Crowfoot and Baldensperger<sup>5</sup> described cases of poisoning due to ingestion of *Lupinus termis* beans which had not been correctly cooked. When cooked properly—prolonged boiling with repeated change of the water in which the beans are cooked—these beans are thought quite safe for eating.

In addition to obtaining clinical history, the methods of investigating allergens are skin tests, gradual elimination of suspected allergens, and clinical trials.

According to Cooke,<sup>6</sup> the full proof that a suspected allergen is the real offender can be obtained only when the clinical manifestations disappear after removal of the suspicious allergen; these manifestations should be reproduced at will after exposure to the allergen. The provocation method of testing used here is based on this concept. The suspected allergen should be administered in small doses in order to reproduce the clinical symptoms on a minor scale and to avoid severe reactions.

The method of repeated platelet counts immediately after the ingestion of allergen was used by Shmushkovich and Davis,<sup>7</sup> and by Collins.<sup>8</sup>

## SUMMARY

A case, possibly the first, of thrombocytopenic purpura due to allergy to *Lupinus termis* bean is reported.

Eating of one bean produced the purpura on several occasions, and the platelets fell from 160,000 to 8,000.

With each successive ingestion of the bean, the time between intake and clinical features was shorter.

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