

# Unusual Faecal Elements in a Human Diarrhoeal Stool

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## Summary

A 16-year-old female from Rantau Panjang, Kelantan reported having diarrhoea for three months. During this period, she lost 15 lb in weight and was treated with antibiotics and anti-spasmodic tablets with no improvement. Stool examinations by private laboratories revealed "worm-like eggs". She was treated for worms with mebendazole which helped to reduce the symptoms but not completely. The patient continued passing out the abnormal "worm-like eggs" which were later identified as pollen grains.

**Key Words:** Pollen grains, Diarrhoea, "Worm-like eggs"

## Introduction

Acute diarrhoeal diseases are a leading cause of death throughout the tropics and subtropics. In addition to the mortality, diarrhoea also causes malnutrition. With diarrhoeal diseases it is necessary to distinguish the disease from one another (viruses, bacteria, protozoa, helminths). Prolonged diarrhoeal disease is usually associated with parasitic infections such as *Giardia lamblia*, *Capillaria philippinensis*, *Isoospora* sp., *Cryptosporidium* sp. and *Cyclospora* sp.

This study reports one case of a patient with prolonged diarrhoea who was earlier diagnosed as passing out deformed eggs of *Trichuris* and *Ascaris* which was misdiagnosed for pollen grains.

## Case Report

A 16-year-old female from Rantau Panjang, Kelantan, working as a domestic maid in Klang Valley reported

a bout of diarrhoea which lasted for over three months. She was in employment for more than a year. During the period of her diarrhoea which started insidiously, she had several bouts varying between 4-8 per day. She lost about 15 lb in body-weight, and passed out blood streaked stool with heavy mucus and colicky pain. She complained of tiredness, loss of energy and was lethargic. She was examined by a general practitioner who prescribed anti-spasmodic tablets as well as antibiotics for viral and bacterial infections. The drugs were not effective and she continued having the diarrhoea.

## Faecal Examination

The stool samples were sent to a private laboratory where it was diagnosed that the patient was passing out eggs of intestinal nematode (*Trichuris trichiura*) worms. As a result of that report, the patient was treated with mebendazole. The diarrhoea decreased but

not completely. During the period of her diarrhoea, on enquiry, we were informed that the patient also consumed local honey obtained from the forest in Pahang as a form of traditional therapeutics. As the symptoms persisted, but at a reduced level, part sample of her stool was sent to the Department of

Parasitology, Faculty of Medicine, University of Malaya for a second opinion. The sample was taken prior to treatment with mebendazole. The stool sample was examined using the Direct and Formol-Ether Sedimentation Techniques (Concentration) for examination of protozoan cysts and helminth eggs.

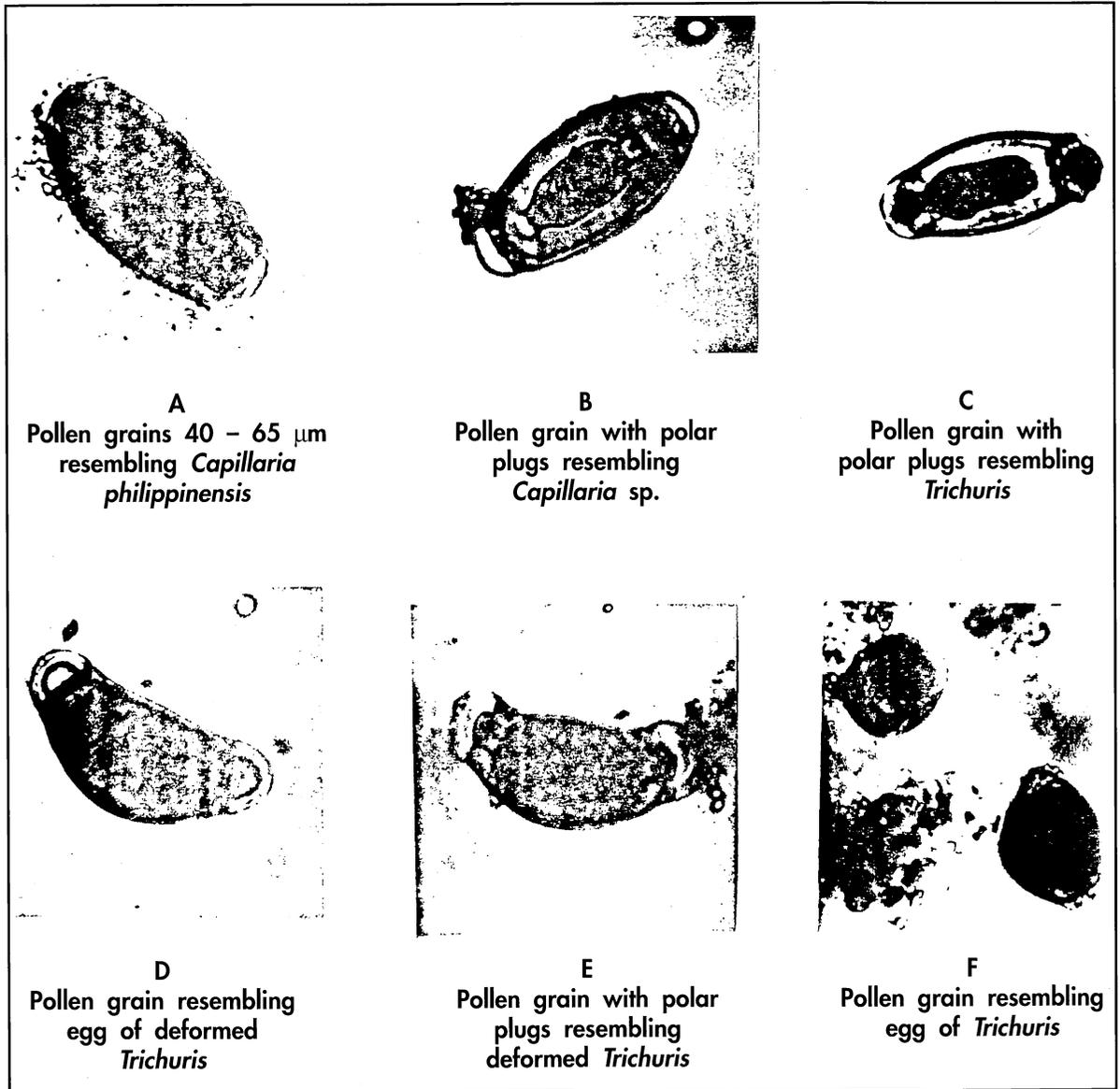


Fig. 1 (A-F): Shows some common artifacts (pollen grains) encountered in human stool that resemble eggs of *Trichuris* and *Capillaria* sp.

## Results

Direct and Formol-Ether Sedimentation Techniques revealed several structures resembling nematode eggs. Photographs were taken of the specimens which showed many variations (Figures A-M) in their shape and structure. All the photographs A-M were taken from the stool sample of the patient.

On investigation and literature review, many of the specimens turned out to be pollen grains which are frequently ingested or inhaled by man. The large numbers of pollen grains detected in the diarrhoeic stool may be due to consumption of honey or food which was rich in pollen grains. The size of the structures varied between 25 µm to 71 µm in size.

Figure 1A shows a pollen grain which can be mistaken for egg of *Capillaria philippinensis*. The size varied from 40-65 µm, and appears to have a polar plug-like structure at each pole. The internal contents does not have structures that resemble an ovum. It was identified as pollen grain which could have been ingested accidentally with food containing large numbers of pollen grains, or through ingestion of honey.

Figures 1B-E resemble eggs of *Trichuris trichiura* and *Capillaria* sp. that have polar plugs on either end. Similar shaped structures have been reported from the United States of America in faecal specimens of individuals who take Australian bee pollen to supplement their diet<sup>1</sup>. These structures differed in size varying between 35-55 µm in length and 22-30 µm in width.

Figure 1F resembles deformed egg of *Trichuris trichiura* which sometimes occur due to treatment using certain anthelmintics such as thiabendazole, mebendazole and albendazole<sup>2,3</sup>.

Figure 2G is a grass pollen similar to that described by Ash and Orihel<sup>1</sup>. The wall of the structure is thick and appears striated. The specimen is triangular in shape and measures between 52-63 µm in length and 47-58 µm in width.

Figures 2H-K are common pollen grains which are frequently ingested or inhaled and are often seen in faeces in small or large numbers. They vary greatly in

size and shape. An inner wall usually surrounds the internal contents.

Figures 2I and J can also be mistaken for egg of *Toxocara cati* and *Toxocara canis*. Inexperienced workers may mistake Figure 2I as egg of *Ascaris lumbricoides*.

Figures 2K and L can be mistaken for egg of *Bertiella* without hooks. In some cases, such as in Figure 2L, the outer wall thins out in certain areas or has poles in its furrows which appear on the surface. Their size varies from 21-48 µm.

Figure 2M shows a triangular shaped pollen grain which measures 58-71 µm in length and width. It appears to have a polar plug on each end of the triangle. The outer wall is thick and does not resemble any nematode egg of human origin.

## Discussion

There are several structures and artifacts in the human faeces that morphologically resemble human helminth egg or protozoan cysts. These structures can be readily distinguished from human parasites by their shape, irregular egg shell and contents. Sometimes, the vegetable fibres, pollen grains, minute pieces of intestinal calculi and debris of meat, may resemble eggs of human parasites. Action of certain anthelmintics such as tetrachloroethylene, thiabendazole, mebendazole and albendazole may cause distortion of *Trichuris trichiura* eggs which in turn may be mistaken for artifacts as described by a number of researchers<sup>2-3</sup>. In the hands of an inexperienced parasitologist or laboratory technologist, artifacts and parasite look-alike could be a potential diagnostic pitfall.

The patient in this study did not respond to any bactericidal drugs and did not have any protozoan cysts nor eggs of intestinal worms. The structures that were wrongly diagnosed as nematode eggs were pollen grains consumed with honey during the period of diarrhoea. It must be pointed out that neither the honey nor the pollen grains were the cause of the prolonged diarrhoea. Many of the pollen grains have been wrongly misdiagnosed by inexperienced technicians which resulted in treatment for worms with no effect.

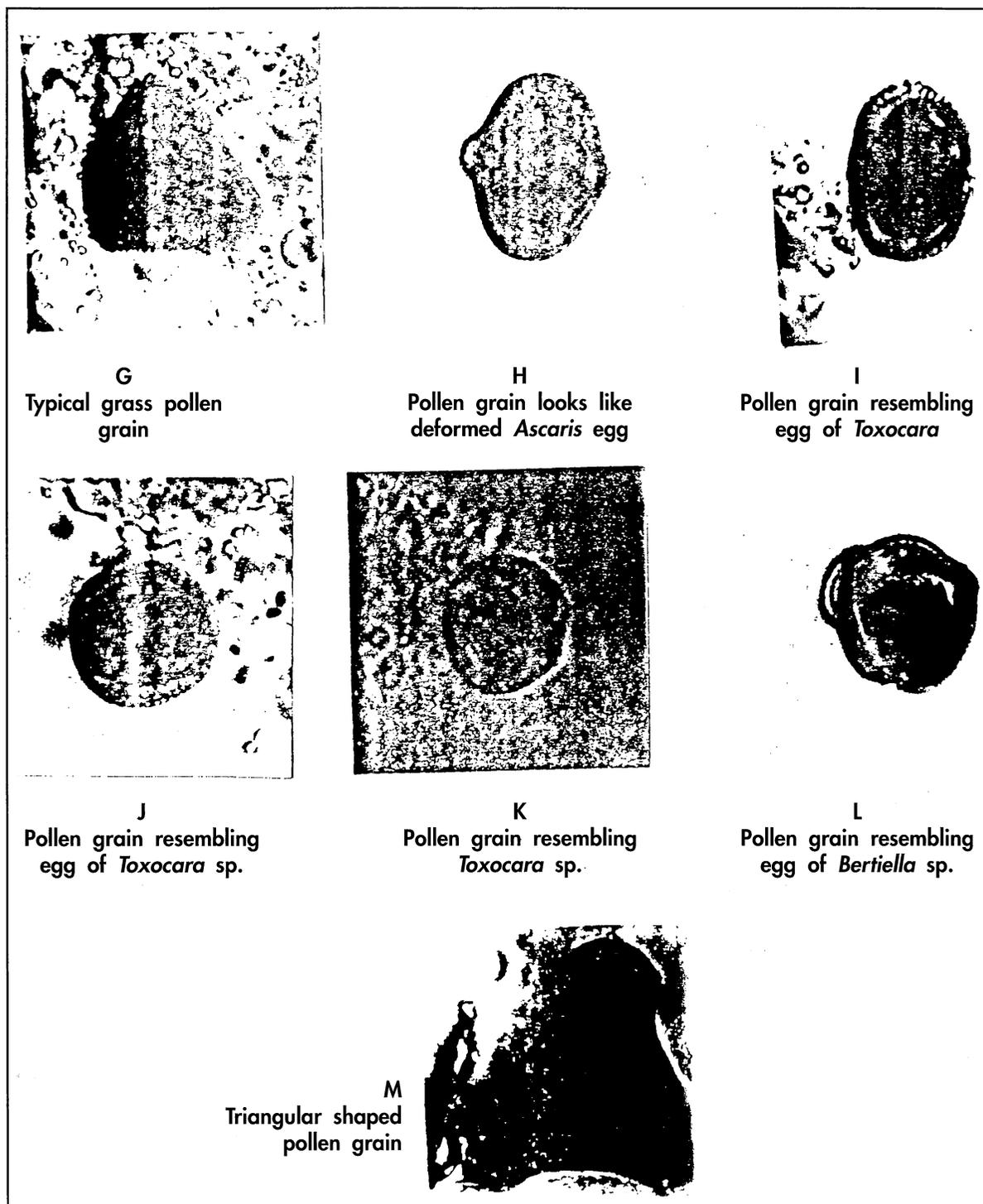


Fig. 2 (G-M): Shows some pollen grains recovered from patient resembling deformed eggs of *Ascaris*, *Toxocara* and *Bertiella* sp.

When atypical eggs are seen, it is important that a more experienced person should look at it to confirm diagnosis in order to minimise wrong treatment. If plant material is suspected, the specimen could be sent to a more experienced person. Plant material will appear birefringent and can be easily differentiated from nematode eggs.

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### References

1. Ash LR, Orihel TC. Atlas of Human Parasitology. Chicago, American Society of Clinical Pathology, Educational Product Division, 1980.
2. Vanhaelen-Lindhout E, Smit AM. Abnormally shaped eggs of *Trichuris trichiura* after thiabendazole treatment. Tropical Geographic Medicine 1971;23 : 381-4.
3. Sinniah B, Singh M, Subramaniam K, Ramakrishnan K. Deformity of *Trichuris trichiura* eggs following treatment with albendazole. Tropical Biomedicine 1993;10 : 15-8.