

## Answer to Photo Quiz: a Dicotyledonous Plant Seed

(See page 2749 in this issue [[doi:10.1128/JCM.00699-13](https://doi.org/10.1128/JCM.00699-13)] for photo quiz case presentation.)

Ryan F. Relich,<sup>a</sup> Phillip R. Faught,<sup>a</sup> Morgan H. McCoy,<sup>a</sup> Riley E. Alexander,<sup>a</sup> Bobbi S. Pritt<sup>b</sup>

Department of Pathology and Laboratory Medicine, Indiana University School of Medicine, Indianapolis, Indiana, USA<sup>a</sup>; Department of Laboratory Medicine and Pathology, Mayo Clinic, Rochester, Minnesota, USA<sup>b</sup>

A differential identification of the object initially included both a small intestinal fluke and a cross-section of a nematode, among other possibilities. However, close inspection of the object did not reveal internal structures, such as reproductive and digestive organs, that are characteristic of parasitic worms. Rather, at a low magnification, two juxtaposed internal structures containing abundant eosinophilic granules bound by a rough-walled shell were observed. At a higher magnification, the external surface of the object was found to be lined by a honeycomb-like network of polygonal, walled cells that each contained numerous granules. Together, these morphological findings suggested that the object was a seed of a dicotyledonous plant (1–4).

Although similar in size and overall shape to seeds, small intestinal flukes such as *Heterophyes heterophyes* and *Metagonimus* species possess characteristic anatomical features that are usually observable in microscopic preparations, such as a uterus containing characteristic heterophyid eggs, a spiny tegument, and an oral sucker (1, 5). It was postulated that perhaps the object was a section of the larva of a roundworm, such as that of a hookworm, *Strongyloides stercoralis*, or *Trichuris trichiura*. Again, the absence of discrete anatomical structures characteristic of any of these organisms discouraged an identification as such.

On occasion, medical microbiologists are asked to review histologic slides in order to render an identification of a possible microorganism or artifact, and it is therefore important to be familiar with the appearance of various parasites, in addition to common mimics such as plant matter. Common intestinal helminths have characteristic internal structures which often allow

for species-specific identification. The presence of intrauterine eggs is also extremely helpful for securing the diagnosis.

Despite this interesting find, the cause of the patient's rectal ulcer was not identified, but a full recovery was made following supportive treatment.

### ACKNOWLEDGMENTS

We thank James Hickey, professor of botany at Miami University, for his valuable input during manuscript preparation.

### REFERENCES

1. Orihel TC, Ash LR. 1995. Parasites in human tissues. ASCP Press, Chicago, IL.
2. Yeh I, Brooks JSJ, Pietra GG. 1997. Atlas of microscopic artifacts and foreign materials. Williams & Wilkins, Baltimore, MD.
3. Pritt B, Harmon M, Schwartz M, Cooper K. 2003. A tale of three aspirations: foreign bodies in the airway. *J. Clin. Pathol.* 56(10):791–794. <http://dx.doi.org/10.1136/jcp.56.10.791>.
4. Beck CB. 2010. An introduction to plant structure and development: plant anatomy for the twenty-first century, 2nd ed. Cambridge University Press, Cambridge, United Kingdom.
5. Kradin RL. 2010. Diagnostic pathology of infectious diseases. Saunders Elsevier, Philadelphia, PA.

Editor: P. Bourbeau

Address correspondence to Ryan F. Relich, [rrelich@iupui.edu](mailto:rrelich@iupui.edu).

Copyright © 2014, American Society for Microbiology. All Rights Reserved.

[doi:10.1128/JCM.00700-13](https://doi.org/10.1128/JCM.00700-13)