

INTRAVITREAL CYSTICERUS CELLULOSAE: ULTRASONOGRAPHIC AND FLUORESCIN ANGIOGRAPHIC FEATURES*

SAMUEL L. GUILLORY, M.D., AND KEITH M. ZINN, M.D.

Department of Ophthalmology
The Mount Sinai School of Medicine of the
City University of New York
New York, New York

CYSTICERCOSIS is the most common ocular helminthic infection in man. Von Graefe, in 1854, was the first to describe subretinal and intravitreal cysticercus worms in man. Several authors have reported on the joint occurrence of ocular and cerebral cysticercosis in humans,¹⁻⁷ and others have reported on multiple intraocular cysticerci in an eye.^{2,4} To date, there has been no report in the literature documenting the fluorescein angiographic and B scan ultrasonographic features of intravitreal cysticerci. The following report details these findings.

CASE REPORT

A 13-year-old Guatamalan girl who had been in good general health presented with seizures and blurred vision in the left eye. The best corrected vision was 20/50 O.U. Complete eye and neurological examinations were normal except for the observation of two intravitreal cysticerci (larval form) attached to the optic nervehead O.S. (Figures 1 and 2). The surgical removal of the cysticerci and overall management of this case has been reported elsewhere in the literature.⁸ The histologic pattern of the specimens made a definitive diagnosis of cysticercus cellulosae.⁸

B scan ultrasonography was performed to determine if the cysticerci were loosely attached to or deeply embedded in the optic nervehead. B scan ultrasonography revealed a normal size and shape to the affected globe (Figure 3). The retrobulbar fat pattern and optic nerve shadows were acoustically within normal limits. Within the vitreous body overlying the optic nervehead region, each cysticercus cyst had a thin wall with an

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Address for reprint requests: Samuel L. Guillory, M.D., 1034 5th Ave., New York, N.Y. 10028.

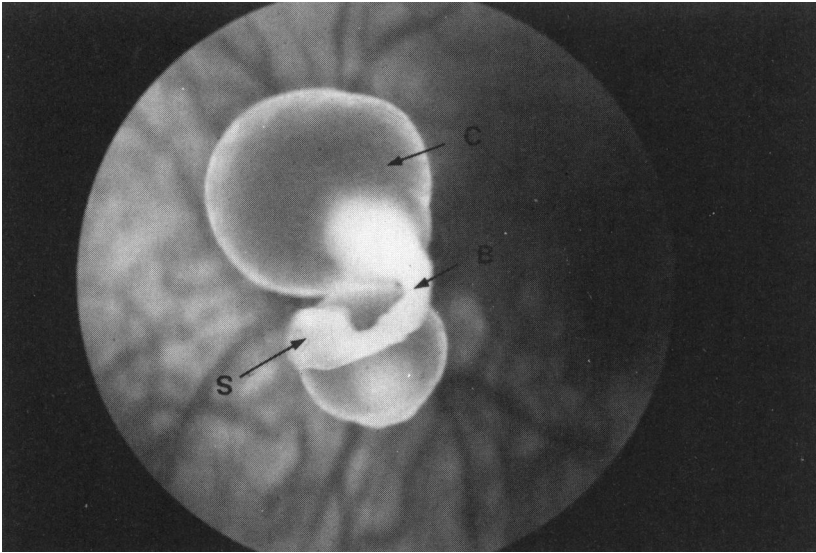


Fig. 1. A fundus photo of two cysticerci in the vitreous cavity attached to and obscuring the optic nervehead O.S. The larger cyst (C) and its body (B) is extended with a scolex (S) facing the vitreous cavity. Several suckers on the scolex are also visible. The scolex of the smaller cysticercus is facing the optic nerve and is not visible.

acoustically clear cavity. The cysticerci were contiguous with the anterior or vitreal surface of the optic nervehead on B scan ultrasonography (Figure 3). The body portion of each cysticercus worm had a homogenous echo pattern on B scan ultrasonography, indicating a relatively uniform structure acoustically.

Fluorescein angiography was also performed, and the cysticerci acted as hypofluorescent structures blocking underlying choroidal and retinal fluorescence (Figure 4). In addition, the cysticerci obscured the optic nervehead as well as the retinal and choroidal vessels in the peripapillary region (Figure 4). Rapid sequence fluorescein angiography did reveal prompt retinal arteriolar filling and a normal retinal arteriovenous transit time. The cysticerci worms did not fill with fluorescein dye, and were not connected to the optic nerve, retinal, or choroidal circulations (Figure 4).

DISCUSSION

Fluorescein angiography of intravitreal cysticerci has documented that

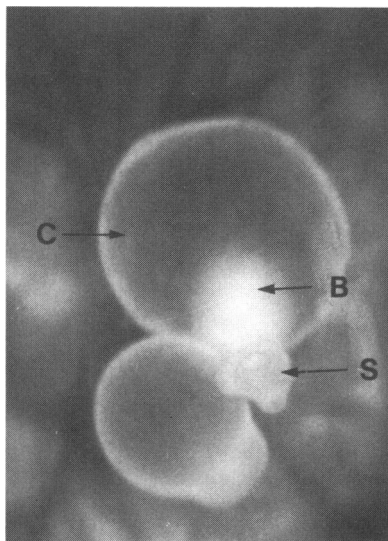


Fig. 2. A fundus photo of the scolex (S) protruding from the larger cyst (C). The body of the cysticercus is a dense tubular white structure (B) that is retracted within the walls of the cyst itself.

the larval stage of the pork tapeworm is avascular even when physically attached to the optic nervehead. B scan ultrasonographic studies in this case have documented the physical characteristics, by ultrasound, of intravitreal cysticerci and may be helpful in diagnosing the presence of such parasites in the presence of cloudy ocular media. This is an important diagnostic point because most patients with intravitreal cysticercosis in the literature presented with cloudy media,^{2,9,10} making the correct diagnosis that much more difficult to establish.

Intraocular cysticercus is rare in the United States, but, with increasing travel and patient mobility, ophthalmologists must be alerted to such parasitic ocular infections. When media are clear and the cysticerci are in the vitreous cavity, as in our case, the diagnosis is easily made by ophthalmoscopic examination. However, most cases reported in the literature presented with cloudy media. The use of B scan ultrasound in this case has introduced another effective technique for evaluating such eyes and alerting the suspecting clinician to the correct diagnosis.

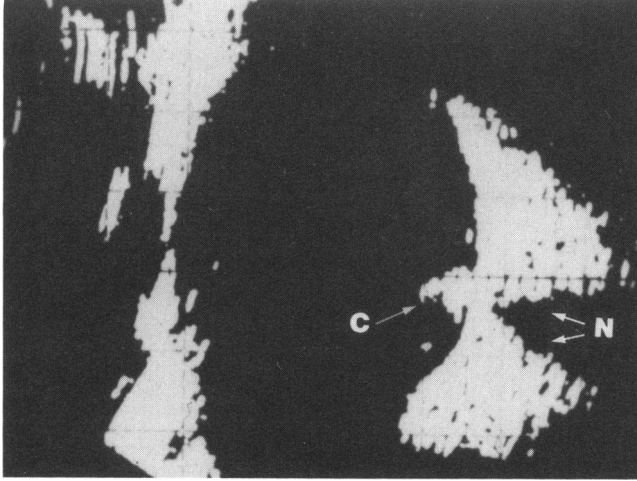
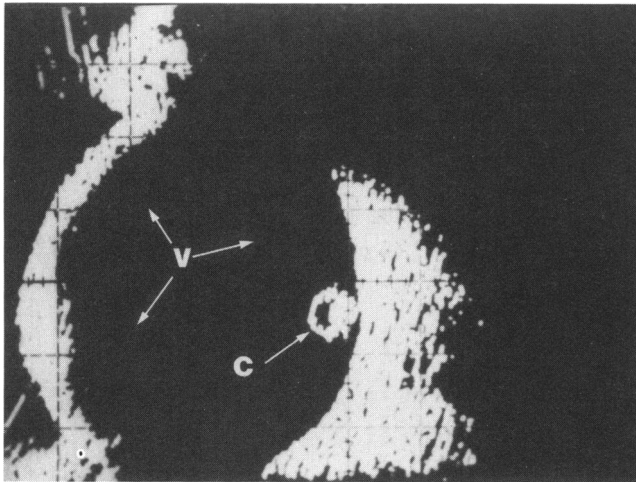


Fig. 3. Upper: B scan ultrasonography of the patient's left eye (horizontal cut). Note the intravitreal echoes just anterior to the optic nerve shadow (N) corresponding to the intravitreal cysticercus (C). The cysticercus is on the anterior surface of the optic nervehead. The retrobulbar fat pattern and optic nerve (N) shadow are acoustically within normal limits.



Lower: B scan ultrasonography. Horizontal cut through the globe just inferior to the preceding photograph. Note the appearance of the cyst (C) in the cysticercus on ultrasound. The cystic cavity is acoustically clear. The vitreous cavity (V) was otherwise acoustically clear.

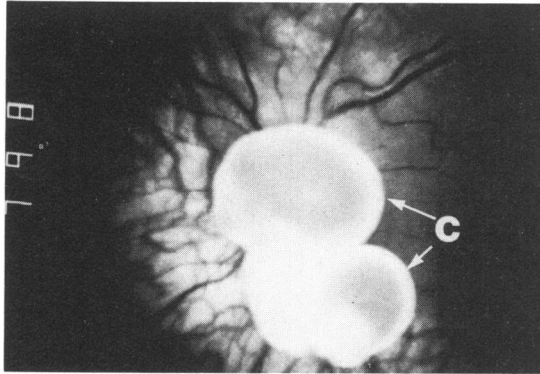


Fig. 4a. Red free photograph shows outline of the two intravitreal cysticerci (C) overlying and obscuring the surface of the optic nervehead as well as all details of the retina and choroid in the peripapillary region.

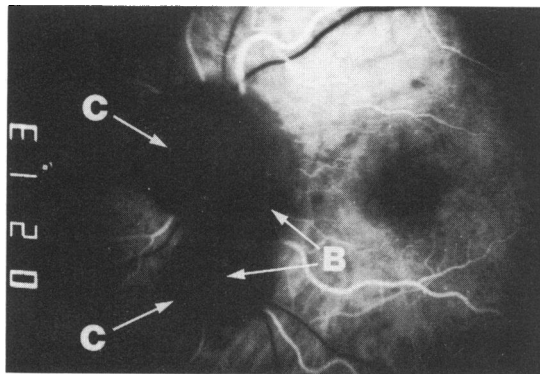


Fig. 4b. Early retinal arterial filling phase is prompt and normal. The cysticerci (C) and their tubular bodies (B) act as hypofluorescent structures blocking fluorescein transmission of underlying structures. The cysticerci do not pick up or stain with fluorescein dye (B).

SUMMARY

The fluorescein angiographic and B scan ultrasonographic features of intravitreal cysticercosis are described. Since the majority of intraocular cysticercosis cases present with cloudy media, they are often puzzling and complex diagnostic problems for the clinician. However, their acoustical characteristics on B scan ultrasonography may be extremely helpful in establishing the correct diagnosis, especially in those cases with hazy ocular media.

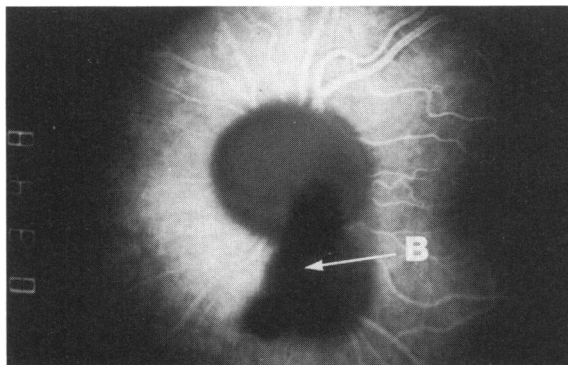


Fig. 4c. Midretinal arteriovenous phase. Note the change in position of the bodies (B) of the cysticerci and their scoleces compared to their position in the early retinal arterial filling phase (Fig. 4B). D. Late phase—No vascular leakage or filling of cysticerci (C) with fluorescein dye. The bodies (B) of the cysticerci are denser structures and therefore tend to obscure more completely the underlying retinal and choroidal vascular patterns.

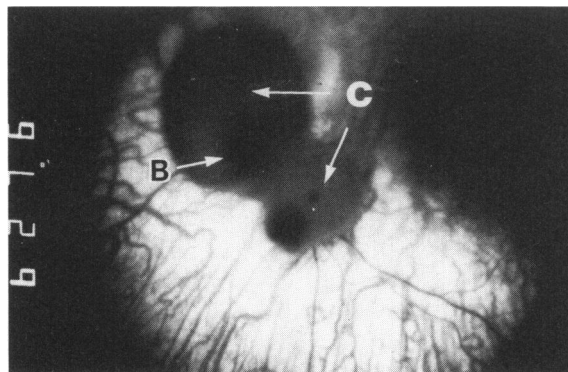


Fig. 4d. Late phase—No vascular leakage or filling of cysticerci (C) with fluorescein dye. The bodies (B) of the cysticerci are denser structures and therefore tend to obscure more completely the underlying retinal and choroidal vascular patterns.

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