USE OF A HEXYLRESORCINOL TABLET IN THE ENEMA TREATMENT OF WHIPWORM INFECTION

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The whipworm (*Trichocephalus trichiurus*) has been shown to be an important agent of disease in some areas (Fernan-Nunez, 1927; Pallister, 1933; Plessen, 1945; Getz, 1945; Whittier *et al.*, 1945; Einhorn and Miller, 1946; Jung and Beaver, 1951). In southeastern Louisiana it is one of the most frequent causes of chronic dysentery in young children. While oral medication for this condition has been found to be generally ineffective, the efficacy of the 0.2 per cent hexylresorcinol retention enema in reducing the infection to subclinical level has been established (Jung and Beaver, 1951; Basnuevo *et al.*, 1952).

Heretofore in the United States it has been necessary to make up a suspension from pure powdered hexylresorcinol. The inconvenient operation of weighing can be obviated by use of a tablet containing 0.4 grams of hexylresorcinol.[1] Four hundred cubic centimeters of hexylresorcinol suspension can be readily prepared by dropping two of the tablets in that amount of distilled water and shaking vigorously.

Before instilling hexylresorcinol suspension the bowel is cleansed with several normal saline enemas. The buttocks, thighs and perineum are then covered with a protective coating of petroleum jelly, since the spilled suspension may cause second degree burns. The enema is instilled slowly with the objective of filling the large intestine to the cecum. This requires up to 500 cc. in the average pediatric patient (2–4 years old). The patient is encouraged to retain the enema for thirty minutes. If necessary, this is done by taping or holding the buttocks together. After an hour if the treatment enema is not returned spontaneously, an additional small tap-water enema is given to stimulate return. Proctoscopy of patients immediately after treatment and on several successive days thereafter has failed to show any damage to the mucosa. That the skin is burned by this concentration of hexylresorcinol and not the mucosa is explained by the protection afforded the mucosa by the film of mucus covering it.

Twenty-two patients with whipworm infection have been treated by use of hexylresorcinol enemas prepared from tablets.[2] Stool examinations were done before and after treatment, and when possible, proctoscopy and egg-counts by the direct smear method (Beaver, 1950) were done as well.

In six patients who had light, nondysenteric infections before treatment the relationship of symptoms to the whipworm infection was doubtful and in all cases the basic illness proved to be other than trichocephaliasis. Information relating to these patients is presented in Table 1. Although the worm burden

[1] The tablets of hexylresorcinol used in this study were supplied by Sharp and Dohme.

[2] On the Pediatric Services of the Charity Hospital of Louisiana at New Orleans.

TABLE 1

Presenting signs and symptoms and egg counts in six patients with light whipworm infection, treated with hexylresorcinol enema

Patient Number	Race, Sex, Age*	Pre-treatment		Post-treatment	
		Eggs/mgm. feces	Signs, symptoms	Eggs/mgm. feces	Signs, symptoms
1	CM4	7–9	Abdominal pain	3	Same
2	CM2	25	Hepatomegaly, eosinophilia, fever; proctoscopy negative	3	Same
3	CM2½	20	Abdominal pain, diarrhea		Asymptomatic
4	WM10	10	Fever, vomiting Ascaris	12	Asymptomatic
5	CF2	10	Abdominal pain, vomiting Ascaris	1	Asymptomatic
6	CM10	6	Abdominal pains, proctoscopy negative	6	Same

* C = Colored; W = White; M = Male; F = Female. Numbers (Column 2) refer to age in years.

was lowered in most cases by treatment, clinical improvement, if any, was not ascribed to this but to therapy directed against the basic disease.

Sixteen patients had heavy, dysenteric infections with worms seen attached to the mucosa of the rectum during prolapse or proctoscopy. The stools of all these patients contained more than 100 *Trichocephalus* eggs per milligram of feces. The information relating to the effects of treatment in these heavily infected patients is given below in Table 2. In the twelve instances in which egg-counts were done after treatment there was a diminution of the egg-count of from 80 to over 99 per cent. In one case the infection was apparently eradicated. In four of five cases in which proctoscopy was repeated after treatment the worms had been eradicated from the portion of the bowel visualized. In all five individuals proctoscoped after treatment there was a striking improvement in the appearance of the bowel. In all of the heavily infected patients there was marked symptomatic improvement within two days after treatment.

Two patients required two hexylresorcinol enemas for the above changes to be accomplished. Post-treatment egg-counts tabulated in these cases refer to the counts after the second treatment. All other patients received but one enema.

In five of the heavily infected patients there was simultaneous infection with *Endamoeba histolytica*. The predisposition of patients with heavy whipworm infection to amebiasis has been previously pointed out (Jung and Beaver, 1951). These five patients received treatment for their amebiasis only after improvement had been obtained with the hexylresorcinol enema alone.

The retention enema prepared from hexylresorcinol tablets provided about as good results in this series of patients as those reported previously with enemas prepared from the powder. The tablet offers the advantage of convenience of

TABLE 2

Presenting signs and symptoms and egg counts in sixteen patients with heavy whipworm infection, treated with hexylresorcinol enema

Patient Number	Race, Sex, Age†	Pre-treatment			Post-treatment	
		Eggs/mgm. feces	Proctoscopy	Symptoms	Eggs/mgm. feces	Proctoscopy
7	CF2	201		Diarrhea	1	
8	WM4	>300	+	Dysentery, rectal prolapse	10	−
9	CM2	400	+	Dysentery	10	−
10	CF3	109	+	Dysentery, rectal prolapse	1	
11	WF5	>300	+	Dysentery	0	
12	CF4	250		Dysentery	10	
13	CM4½	150	+	Dysentery	28	
14	CM3	>300	+	Dysentery		−
15	WM2	150	+	Dysentery	2	
16	WF2½	>300	+	Dysentery		
17	CF2	150	+	Dysentery		
18	CM2		+	Dysentery, rectal prolapse		
19	CM2	>300	+	Dysentery	6	−
20	CM3	>300	+	Dysentery	1	+*
21	CF2	>300	+	Dysentery	15	
22	CF2	>300	+	Dysentery	12	

+ indicates friable hyperemic mucosa with worms attached seen at proctoscopy; − indicates normal.

* Proctoscopy after first treatment but not after second.

† Abbreviations as in Table 1.

preparation. Experiences with oral medication have been so disappointing that the hexylresorcinol enema may be designated the treatment of choice in heavy whipworm infection.

SUMMARY

Sixteen patients with heavy whipworm infection were improved in three respects after treatment with a hexylresorcinol retention enema prepared from tablets of hexylresorcinol. There was a great reduction in the egg-count; symptoms of diarrhea or dysentery were relieved; worms were eradicated from that portion of the bowel which could be visualized on proctoscopy. Treatment with hexylresorcinol enema did not obviously benefit six patients with light infections. In only one case was the infection eradicated. It is concluded that the hexylresorcinol enema made from tablets is about as effective as that prepared from the powder and is more conveniently prepared.

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