Relation Between Enterobius Vermicularis Infestation and Dysuria, Nocturia, Enuresis Nocturna and Bacteriuria in Primary School Girls

A. Gokalp
E.Y. Gultekin
M.F. Kirisci
S. Ozdamar

Urinary tract infection is one of the major infections in infancy and childhood. During school age, the prevalence of screening bacteria is 0.7-1.9% in girls(1). The variability and non-specifity of the clinical presentation may allow prolonged infection to occur prior to diagnosis and treatment. Unfortunately, the young child appears to be particularly susceptible to renal damage. Abnormal urethral colonization, voiding dysfunction with incomplete bladder emptying, increasing intravesical pressures and constipation, vesicoureteral or intrarenal reflux and characteristics of the infecting bacteria are important factors in the pathogenesis of pediatric urinary tract infection(1). In addition, pinworms were suggested as a factor in urinary tract infection and enuresis in girls(2). The incidence of this parasite is very high, especially in developing countries such as Turkey. Therefore, it has been attempted to investigate the relation between this infestation and urinary symptoms, enuresis nocturna and bacteria in primary school girls.

From the Department of Urology and Faculty of Medicine, Cumhuriyet University, Sivas, Turkey.

Reprint requests: Dr. Ali Gokalp, Department of Urology and Faculty of Medicine, Cumhuriyet University, Sivas, Turkey.

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Material and Methods

A total of 380 girls 5 elementary schools in Sivas were included in this study. The Scotch-tape (ST) preparations obtained from each student were interpreted by a trained parasitologist. The mothers of the children were asked to fill in a questionnaire that included the urinary symptoms of their daughters. Urine samples for routine analysis were obtained from every girl. In cases of pyuria (more than five leukocytes per high power field in the spun urinary sediments), urine was cultured. The presence of urinary symptoms, enuresis nocturna and bacteriuria in the pinworm positive (+) group were compared with the pinworm negative (−) groups.

Results

The ova of the *Enterobius vermicularis* were seen in 150 girls (39.5%). Two hundred and thirty children had no eggs (60.5%) The distribution of urinary symptoms and bacteriuria in the pinworm (+) and pinworm (−) groups is given in *Table I*. The organisms isolated from the pinworm (+) and pinworm (−) groups are given in *Table II*. There was no statistically significant difference between the incidences of dysuria in the pinworm (+) and pinworm (−) groups, but the incidences of nocturia, enuresis nocturna and bacteriuria were significantly higher in the pinworm (+) group.

Discussion

Enterobius vermicularis (pinworm) is

TABLE I— *The Distribution of Urinary Symptoms and Bacteriuria in the Pinworm (+) and Pinworm (–) Groups*

Pinworm	No.	Dysuria	Nocturia	E. Nocturna	Bacteriuria
(–)	230	34 (14.8%)	14 (6.1%)	25 (10.9%)	7 (3%)
(+)	150	28 (18.7%)	68 (45.3%)	39 (26.0%)	18 (12%)
		t:1.05 p>0.05	t:9.07 p<0.05	t:3.59 p<0.05	t:3.44 p<0.05

TABLE II— *The Organisms Isolated from the Pinworm (+) and Pinworm (–) Groups*

Bacteria	Pinworm (+)	Pinworm (–)
E. coli	12	6
E. aerogenes	3	1
Staph. epidermidis	2	-
Strep. faecalis	1	-
Total	18	7

one of the most common parasitic infestation of man and is more commonly encountered in children than adults and in low-income groups than high-income groups(3). Its incidence is higher in developing countries. The incidence of pinworm infestation was 63.4% in a previous study(4).

The frequency of urinary tract involvement with *Enterobius vermicularis* is not known. Kropp *et al.* investigated the relationship between pinworm infestation and introital cultures and found a higher incidence of enteric organisms on the introital area and pinworm ova on the perianal skin in girls with recurrent urinary tract infection(5). Sachdev and Howards reported five young girls with a sudden onset of frequency and enuresis secondary to *Enterobius vermicularis*. Antihelmintnic therapy resulted in an immediate cure in all these five cases(3). It is also known that pinworm ova can be detected in vaginal smears(6,7). The adult worm lives in the large bowel. The gravid female migrates to the rectum, comes out on the perianal skin and perineum at night, lays her eggs and dies. This migration could be important in three points: (*i*) It can cause irritation of the perineum. Frequent rubbing of this area may lead to the introduction of bacteria into the urethra, giving rise to an occasional case of ascending urinary tract infection. (*ii*) This migration may facilitate introital colonization with enteric organisms. (*iii*) Perineal and vaginal pinworms may cause nocturnal irritation of the perineum and reflex stimulation of the bladder. These mechanisms may lead to urinary frequency, nocturia and enuresis(8).

We found that there was no differences of dysuria between the pinworm (+) and pinworm (–) groups. But the ratios of nocturia, enuresis nocturna and bacteria were significantly higher in the pinworm (+) group. Consequently, it seems reasonable to suggest that the tests for pinworms should be made in girls with urinary symptoms, especially where the pinworms are endemic.

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NOTES AND NEWS

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Dr. S.M. Merchant,
Research Laboratory,
B.J. Wadia Hospital for Children,
Parel, Bombay 400 012.