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= Abstract =

# Epidemiologic and Clinical Features of Indigenous Vivax Malaria in Children in Kyonggi-do Province Area

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**Purpose :** In Korea, vivax malaria has been reemerged since 1993 after being absent for more than 10 years. There are several possibilities of causality of recent epidemic, although it is still unclear. The epidemiologic studies including case analysis and entomological research have been undertaken for a successful control measure. But, unfortunately those studies have been rarely dealt with cases of children. Therefore, this study was designed to figure out the characteristics of epidemiologic and clinical features in children with indigenous vivax malaria.

**Methods :** The study 21 cases below 15 years of age, who were diagnosed as vivax malaria and resided in kyonggi-do province area during 1998. 9 ~ 1999. 8. We retrospectively analyzed epidemiologic data concerning with occurrence of vivax, and clinical manifestations, abnormal laboratory findings and outcomes including therapeutic responses.

**Results :** All cases were inhabitants of the endemic areas for vivax malaria in northwestern part of Kyonggi-do or western Kangwon-do, and Paju-gun was the most prevalent. Indigenous malaria cases of this study were more prevalent in children above 10 years old age, and in male. Seasonally, vivax malaria in children occurred throughout the year except January, March and November, and the incidence was the highest in July. Clinical manifestations revealed that 48 hour cyclic fever pattern was the major fever pattern, and other symptoms such as headache, vomiting, poor appetites, chilling, abdominal pain and diarrhea were concomitantly developed. And splenomegaly revealed the main abnormal findings on physical examination, and anemia was the most frequent abnormal finding in laboratory examinations. Young trophozoite was frequently observed on peripheral blood smears. The therapeutic responses of chlorquine were very good in all cases, and no recurrence developed in follow up cases.

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**Key Words :** Vivax malaria, Indigenous, Epidemiology, Clinical study, Children

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(66.7%) . 2, 5, 6, 10

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(33.3%), 5 (23.8%), 3 (14.3%), 2 (9.5%), 1 (Table 1).

48 15 (71.4%), 24 4 (19.1%), 2 (9.5%) (Table 2). (47.6%), (42.9%), (38.1%), (23.8%), (14.3%), (9.5%), (9.5%), (4.8%) 9, 4, 3, 1

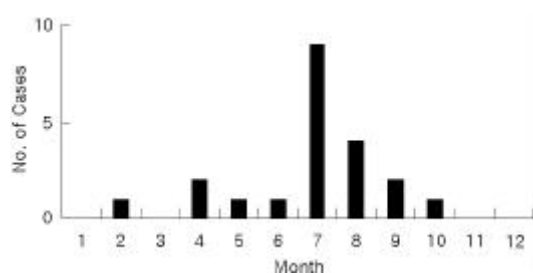


Fig. 1. Monthly distributions of cases with malaria.

Table 1. Geographical Distributions of Cases

Location	Number(%)
Paju	7(33.3)
Yuijungbu	5(23.8)
Bupyong	3(14.3)
Yoenchun	2( 9.5)
Dongducheon	1( 4.8)
Choelyon	1( 4.8)
Pocheon	1( 4.8)
Bucheon	1( 4.8)

Table 2. Fever Patterns in Cases

Fever Pattern	Number of Patients(%)	Duration (average)
24hr cyclic fever	4(19.1)	7 10 days(8.0)
48hr cyclic fever	15(71.4)	3 23 days(8.9)
not cyclic pattern	2( 9.5)	10, 14 days

(Table 3). *Plasmodium vivax* ringform(young) trophozoite(42.9%), gametocyte(38.1%), schizont(14.3%), mature trophozoite(4.8%) (Table 4).

(38.1%), (33.3%), (23.8%), (9.5%), (4.8%) (Table 5).

hydroxychlorquine sulphate 가  
primaquine 가

Table 3. Concomittant Clinical Manifestations

Symptoms	Cases (%)	Signs	Cases (%)
Headache	10(47.6)	Splenomegaly	9(42.9)
Vomiting	9(42.9)	Anemic feature	4(19.1)
Chilling	8(38.1)	Hepato-splenomegaly	3(14.3)
Poor Appetites	5(23.8)	Hepatomegaly	3(14.3)
Diarrhea	3(14.3)	Jaundice	1( 4.8)
Abdominal Pain	2( 9.5)		
Myalgia	2( 9.5)		
Fatigue	1( 4.8)		

Table 4. Erythrocyte Stage in Peripheral Blood Smear at the Time of Diagnosis in Cases

Erythrocyte Stage	Cases(%)
Young(Ring Form) Trophozoite	9(42.9)
Gametocyte	8(38.1)
Schizont	3(14.3)
Mature Trophozoite	1( 4.8)

Table 5. Abnormal Laboratory Findings

Abnormal Findings	Cases(%)
Anemia	8(38.1)
Thrombocytopenia	7(33.3)
Abnormal LFT	5(23.8)
Leucopenia	2(9.5)
Hematuria	1(4.8)

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primaquine 2 7, 12)  
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Malaria Eradication Service(NMES)  
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1993 7 , 7 ,  
가 1994 7 8  
22 , 1995 107 , 1996 356 , 1997  
1,724 , 1998 3,932 , 1999 3,621 가 . 1999  
가 15  
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가 8 10) 1.4%) 4 2 , 5 6 , 7 11 , 8  
12 , 9 9 , 10 2  
DMZ 20km  
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(43.9%), (31.8 11 15 (66.7%)  
(%), (24.3%) , 1 11 7  
11)  
87.4%, 74.2% 12)  
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DMZ 20km .  
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5), (Plasmodium vivax,  
Plasmodium ovale), (Plasmodium  
malaria)  
가 (Plasmodium falciparum) 4  
13)

	<i>Plasmodium vivax</i>	가	가
(genus <i>Anopheles</i> )		가	가
( <i>Anopheles sinensis</i> )	272 ± 35.7		<sup>3)</sup>
	5 10		
10	5	12	17
<sup>14)</sup>	<i>A. yatsushiroenesis</i>		48
가			
<sup>15)</sup>		2 3	
가			
(sporozoite)가	2 4		
7	(merozoite)	(15 60 ), 40	(2 6
(tissue schizont)		),	(2 4 )
	(pre-erythro-		48
thye life cycle)		2 4	
	(trophozoite), (schiz-		
zont)		<sup>13, 16)</sup>	
	48	24	
48		<sup>2, 3)</sup>	
(gametocyte)가	(erythro-	)	
cyte life cycle)			
(hypnozoite)	가	<sup>2, 3, 17)</sup>	
	( <i>Plas-</i>	48	
<i>modium ovale</i> )	71.4%, 24	19.1%,	
	9.5%		
가			
	8	가	
30			
9			
<sup>13)</sup>		(IFA, ELISA),	
	DNA	가 <sup>13)</sup>	
	(thick smear)		가
가	가	Schuffiner's dot(stippling)	
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