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人類生態班

### タイ肝吸虫の感染要因検討のための予備的調査

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Preliminary study to identify the factors of the infection of *Opisthorchis viverrini*

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#### Abstract

*Opisthorchis viverrini* (*Ov*) is one of the trematodes and the endemic areas of the infection are the central/southern Laos and northeast Thailand. The infection is caused by the consumption of raw fish. A preliminary research was carried out to identify the risk factors which relate to infection of *Ov* in the Lahanam zone in February 2006. Seventy-four women of the Lahanam region aged 19 to 39 were interviewed. The interviews addressed the experiences of eating raw fish, giving raw fish to children and so on. The results showed that 68% of the subjects have eaten raw fish. Six women usually eat a kind of fish, which cause *Ov* infection. 89% of the subjects answered that they never gave raw fish to their children. By contrast, some mothers started to give raw fish to their children at an age of 2-3 years. Most mothers recognized that giving raw fish to children is a cause of the disease. These findings will be helpful to plan a research on risk factors of *Ov* infection.

#### 1. Introduction: Background and problem description

*Opisthorchis viverrini* (*Ov*, known as Thai liver fluke) is one of the trematodes. The number of infections counts up to 9 million in the endemic areas of central/southern Laos and northeast Thailand. The regions along the Mekong River such as Khammuane, Saravane and Savannakhet provinces have high prevalence of *Ov* infection [Han-Jong Rim 2003: 267-272]. It is one of the serious health problems in this area [Sripa 2003:169-170]. The infection is caused by the consumption of raw fish. The infection is associated with hepatobiliary diseases and cholangiocarcinoma [Mairiang 2003:221-227]. A close relationship between raw fish consumption and heavy infection is reported [Upatham 1984:451-461].

Prevalence of children is reported as 20% or more and increases rapidly with the age and the infection rate

of over 15 years old exceeds 50% [Shinzato 2004]. According to the research done in the Kammouane province the prevalence has already exceeded 20% among children less than 4 years old [Kobayahi 2000:128-32]. The prevalence of 6 primary schools in the Lahanam Zone is more than 60 % in 2003 [Kaneda 2005:322-323]. A lot of children are supposed to be infected by *Ov* from the early childhood.

The habit of eating raw fish from the early period of childhood is an important factor of the children's high infection rate. However, feeding practice of raw fish such as frequency and occasions of eating raw fish, amount and kinds of raw fish consumed, mothers awareness of risk of eating raw fish, are not yet well clarified. Little is known about the knowledge level of *Ov* of the people who live in endemic areas. Therefore, it is not clear yet what are the real risk factors of *Ov* infection among children.

The purpose of this research is to identify the risk factors which relate to infection of *Ov* in the Lahanam zone, Savannakhet province of Lao, P.D.R.

## 2. Subjects and Methods

Subjects: 74 women who live in Lahanam thong, Lahanam tha, Thakamlan, Dongbang, Kokphock of the Lahanam zone were chosen by random sampling. The age ranged between 19 and 39 years.

Methods: The research was carried out on 9 and 10 February 2006 at the health center in Lahanam zone. The interview was done by the staff of the National Institute of Public Health (NIOPH) and the staffs of Savannakhet province. "Eating raw fish" was expressed as "kin pa deep" according to the Lao language. There are two types of raw fish dishes: "Koi-pa deep" and "La-p-pa deep" (For detail, see Appendix-1)

Questions asked are 1) Have you ever had experience in eating raw fish, 2) Have you ever given raw fish to your children, 3) Why do you give (don't give resp.) raw fish to your children, and 4) What kinds of fish do you eat "Raw fish"?

## 3. Results and Discussion

The people in the Lahanam zone have the habit to eat raw fish, and 68 % of the subjects answered that they have eaten raw fish. Only six women answered that they usually eat fish called Pa-sa-kang (*Puntioplites falcifer*), which causes *Ov* infection. The other two species of fishes, which have the risk of *Ov* infection in Lao P.D.R. according to WHO, pa-vienphai (*Barbodea altus*) and Pa-sud-kan (*Hampala dispar*) were not mentioned.

89% of the subjects answered that do not give raw fish to their children. On the other hands, some mothers started that they give raw fish to their children at an age of 2-3 years. Many were aware that giving raw fish to children is a risk of getting sick.

## 4. Conclusion

This preliminary study confirmed our field observation that people in the Lahanam zone are eating raw fish and some fish has a risk of *Ov* infection. But, many mother answered that they don't give raw fish to their children. There was a discrepancy between mothers statements and high prevalence of *Ov* infection among children in Lahanam. As most mothers aware of risk of eating raw fish, they were supposed to be ashamed to answer honestly about their habit of eating raw fish and giving raw fish to the children. Or, there might be other risks of eating raw fish outside of the households. Anyway, these preliminary findings will be helpful to plan a research on food habit of eating raw fish as a risk factor of *Ov* infection.

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#### Reference

- Kaneda.E, (2005) Result of Health examination in primary school at Lahanam zone in Lao P.D.R: *Jpn J School Health* [Japanese], 47(suppl), pp.322-323.
- Kobayashi J,Vannachong B,Sato Y,Manivong K,Nambanya S,Inthakone S. et al (2000) An epidemiological study on opisthorchis viverrini infection in Lao villages: *Southeast Asian J trop Med Public Health*.31(1), pp128-32.
- Mairiang E., Miriang P. (2003) Clinical manifestation of opisthorchiasis and treatment: *Acta Trop.* 88(3), pp.221-227.
- Rim HJ, Chai JY, Min DY, Cho SY, Eom KS et al. (2003 ) Prevalence of intestinal parasite infections on a national scale among primary schoolchildren in Laos: *Parasitol Res.* 91, pp. 267 272.
- Shinzato,T. Kobayashi,J. Nakasone,H. Vanachone,B. Rattanavong,C. et al. (1997) Prevalence and ultrasonographic findings in the liver of Opisthorchis infection in Khammouane Province, Lao P.D.R.: *Jpn J Trop Med Hyg* [Japanese] 25(suppl), p54.
- Sripa.B ,Sithithaworn.P,Sirisinha.S, (2003) Opisthorchis viverrini and opisthorchiasis The 21st century review: *Acta Tropica* 88(3), pp.169-170.
- Upatham, E.S., Viyanant, V., Kurathong, S., Rojborwonwitaya, J., Brockelman et al. (1984) Relationship between prevalence and intensity of Opisthorchis viverrini infection, and clinical symptoms and signs in a rural community in north-east Thailand: *Bull World Health Organ.* 62, pp.451 461.

#### 要旨

ラオス中・南部および東北タイを流行地とするタイ肝吸虫 *Opisthorchis viverrini* は、生魚を摂取することで感染する。2006年2月にラハナム地域において、タイ肝吸虫感染のリスクを検討するための予備調査として生魚の摂取に関する聞き取り調査を実施した。面接法により、ラハナム地域に居住する20歳～40歳の女性74名を対象に、生魚の摂取経験の有無、子どもに生魚を摂取させた経験の有無などを質問した。その結果、対象者の68%が生魚の摂取経験があることが分かった。また6名が、日常食べている魚としてタイ肝吸虫感染のリスクを持った魚 Pa-sa-kang (*Puntioplites falcifer*) を挙げた。しかし、多くの母親は、子どもに生魚を摂取させることによって子どもが病気にかかる信じ、対象者の89%が子どもに生魚を摂取させた経験がないと回答した。これは現地での子供の高い感染率とは矛盾する。一方、生魚を摂取させた経験のある対象者の中には、乳幼児期(2 - 3歳)からすでに生魚を摂取させている母親がいた。生魚の摂取経験や子どもに生魚を摂取させ始める時期には、母親によって差があり、子どもの感染に影響を与えることが考えられた。

Appendix

\* Recipe of La-p pa deep (Lahanam style)



1. The scale is taken.

2. Internal organs are taken.



3. Fish is divided into parts. Don't use head of fish.

4. Washing the fish's meet.

The small bone is pulled out.



5. The fish's meet is crushed .

6. Fish's meat put in the mortar

Pen nuwa: one of the seasoning



7. Put in pen nuwa

Appendix



8. Put in a some seasoning (Ajinomoto, salt, chili, polished rice)



9. The fish bone, skin, head put in water and it is heated .



10. Put in the soup of the fish into nan pack and it is cooled . Put it in mortar.

11. Put in a little of padec and a lot of water (fish's boiling soup) in to mortar.



12. Put in a some vegetable (coriander, spring onion)

13. Mix all material, and finish.

Appendix

\* Recipe of koi- pa- deep (Lahanam Style)



1. The scale is taken.



2. Washing the fish.



3. Fish is divided into parts. (Fish's meat and bone)



4. Internal organs are taken



(Do not use head of fish.)



5. Washing the fish's meet



6. Cutting fish's meet  
(small species)

Appendix



7. Put in lime



8. Fish meat is squeezed and the water is taken.



9. Put in a some seasoning ( Ajinomoto, salt, chili, polished rice)



10. Put in a little of padec.



11. Put in a some vegetable (coriander, spring onion)



12. Mix all material, and finish.

[NOTE]

\* What is difference between Koi-pa- deep and La-p pa-deep ?

1. Koi-pa deep cut fish's meet by small species. But La-p pa-deep crush fish' meet.
2. Normally, Koi-pa deep made by big fish and La-p pa made by small fish.
3. Koi-pa deep do not put in water (some people use fish's boiling soup) but La-p pa put in a lot of water (some people use fish's boiling soup).
4. Koi- pa- deep don't use born. But La-p-pa-deep which is made by small fish, the born is used.
5. Koi-pa deep is used skin but La-p pa deep does not be used skin.
6. Normally, Koi-pa deep put in lime, but La-p pa deep do not use lime.
7. La-p pa deep takes a lot of cooking time (about 1 hours) more than cooking time for Koi- pa deep (about 30 minutes).