SURVEILLANCE OF TRICHINOSIS IN THAILAND

R. DISSAMARN

FACULTY OF VETERINARY MEDICINE,

KASETSART UNIVERSITY, THAILAND

P. ARANYAKANANDA

VETERINARY RESEARCH & EDUCATION DIVISION,

DEPT. OF LIVESTOCK DEVELOPMENT, THAILAND.

Trichinosis is an important food-transmitted zooparasitic infection in some regions of the world especially in the temperate countries. Previously it was presumed that the worm parasite, Trichinella spiralis, causative agent of Trichinosis, was not present in Thailand because it is the parasite of temperate regions until in 1962, when Boonthanom and Nowarat (1963) reported the first outbreak of human trichinosis in Mae Hong Son Province in Northern Thailand. Trichinosis surveillance has been carried out in Thailand as follows.

Incidence in man. During the period 1962 to &ugust 1973, there were 14 outbreaks of human trichinosis reported by various workers as shown in Table I. The outbreaks involved 975 patients including 58 deaths. The sources of infection were traced to infected meat of hill-tribe pigs in 10 outbreaks and those in four other outbreaks were traced to wild boar, black bear and jackal. The consumption of meat of hill-tribe pigs was the cause of the first two outbreaks of human trichinosis in 1962 and 1963.

Dissamarn et al (1963, 1964), officials of the Department of Livestock Development, and two surveys on the prevalence of trichinosis among the hill-tribe pigs of 15 hill-tribe villages in Northern Thailand. They found that 8 (11.4%) of 70 hill-tribe pigs were infected. The number of trichina larvae ranged from 0.07-55.7 per gram of diaphragm muscle. The black rats (Rattus rattus) were trapped and it was found that 8.33% (1/12) were infected. The number of trichina larvae per gram of rat muscles was about 0.22

In order to eliminate the infected pigs slaughtered at the municipal abattoirs in Northern Thailand, a Trichinosis Unit was set up by the Department of Livestock Development in seven provinces and trichinoscopic examinations of pig diaphragms at the time of slaughter were performed. This would be an important aid in decreasing the human health hazard and would reduce the trichinous pork in the garbage, thereby bringing about a decrease in incidence in garbage-fed swine. The results of trichinoscopic examination during 1967-1973 revealed that 0.005% (19/355820) of pigs were infected as shown in Table II. The positive pigs were traced to hill-tribe pigs.

Animal Reservoirs. According to the surveys and sources of infection in human trichinosis caused by consumption of some wild-life meat, it was concluded that hill-tribe pigs, wild boar, black bear and jackal, ware the important reservoirs of Trichinella spiralis in Thailand. (Dissamarn and Chai-Anan, 1970.) The epidemiological investigations indicated that pigs in some localities contracted their infection when fed meat scrap from captured wild-life. (Dissamarn, 1965)

The viability of trichina larvae in some Thai dishes were studied by Dissamarn et al (1966) and it was found that the trichina larvae ware viable for eight days in Nham (fermented pork), which is the popular dish in Northern Thailand and also in many big cities throughout the country. Examination of Nham for the presence of trichina larvae by the Parasitology branch, Department of Livestock Development duging 1964-1973 indicated that 0.122% ($\frac{23}{18765}$) were positive for trichina larvae. The results are shown in Table III.

Control of the movement of pigs. As it was known that trichinosis is a sporadic disease confined to Northern Thailand, strict movement of the hill-tribe pigs was operated by the Department of Livestock. Pigs from trichinous areas were allowed to be transported direct to Bangkok abattoirs where trichinoscopic examinations were performed at the time of slaughter.

Improvement of swine husbandry. The value of trichinosis control methods in swine was empasized throughout Northern Thailand. This involved the cooking of garbage for feed, not feeding animal carcasses to swine and raising swine in confined pens. Control of rats in the villages was recommended.

Health Education. The danger of consumption of raw and insufficiently cooked pork or pork products and also wild animal meats was emphasized through the radio, T.V. and the distribution of leaflets.

In general, pork or wild animal meat should be cooked until no pink colour is observed. The preservation of pork or wild animal meat in a home freezer at -20° c for ten days is also recommended (Hill, 1966). The treatment of Nham with gamma irradiation is now under investigation in cooperation with the Ministry of Health and the Office for Peaceful Uses of Atomic Energy, Thailand. This is to reduce the danger by modern methods of the consumption of Nham.

TABLE I

The fourteen outbreaks of human trichinosis in Northern Thailand reported during 1962 – August 1973

YEAR	PROVINCE	SOURCE OF INFECTION	NO. OF PATIENTS	NO. OF DEATHS
June 1962	Mae Hong Son	Hilltribe pig	56	11
April 1963	Chiang Mai	Hilltribe pig	80	22
March 1964	Chaing Mai	Wild boar	258	15
February 1966	Chiang Mai	Hilltribe pig	30	–
August 1967	Chiang Mai	Jackal	16	–
August 1967	Chiang Mai	Black bear	65	–
October 1967	Nan	Hilltribe pig	33	–
May 1968	Nan	Hilltribe pig	80	–
February 1971	Mae Hong Son	Hilltribe pig	123	3
May 1971	Chiang Rai	Hilltribe pig	27	3
October 1971	Chiang Rai	Hilltribe pig	75	–
February 1972	Chiang Rai	Hilltribe pig	16	3
August 1972	Chiang Rai	Wild boar	80	–
August 1973	Chiang Rai	Hilltribe pig	36	1
TOTAL	–	–	975	58

TABLE II

The number of pig diaphragms examined for T. spiralis larvae by trichinoscops at the municipal shaughter houses in Northern from June 1967 – August 1973 (Report of Department of Livestock Development)

YEAR	PROVINCE	PIG DIAPHRAGMS NO. EXAMINED	NO. POSITIVE	REMARKS
1967	Mae Hong Son	165	1	2 larvae / gm.
	Chiang Rai	2802	–	–
	Nan	1104	–	2 larvae / gm.
1963	Mae Hong Son	1767	–	–
	Chiang Mai	26823	–	–
	Chiang Rai	8983	7	48 – 300 larvae / gm.
	Phrae	5288	1	Not examined
	Lam Poon	2393	–	–
	Nan	4673	5	10 – 225 larvae / gm.
1969	Mae Hong Son	1720	–	–
	Chiang Mai	33987	–	–
	Chiang Rai	12000	2	Not examined
	Phrae	6276	–	–
	Lam Poon	3999	–	–
	Nan	5942	1	800 larvae / gm.
1970	Chiang Mai	36466	–	–
	Chiang Rai	10838	–	–
	Lam Poon	3566	–	–
	Phrae	6620	–	–
	Mae Hong Son	1618	1	558 larvae / gm.
	Nan	5498	–	–
1971	Chiang Mai	36712	–	–
	Chiang Rai	17375	–	–
	Lam Poon	4266	–	–
	Phrae	6620	–	–
	Mae Hong Son	1730	–	–
	Nan	5026	–	–

YEAR	PROVINCE	PIG DIAPHRAGMS NO. EXAMINED	NO. POSITIVE	REMARKS
1972	Chiang Mai	33047	–	–
	Chiang Rai	10495	–	–
	Lam Poon	4190	–	–
	Mae Hong Son	1635	–	–
	Nan	4913	–	–
1973	Chiang Mai	24235	–	–
	Chiang Rai	5718	–	–
	Lam Poon	2767	–	–
	Phrae	5231	–	–
	Mae Hong Son	986	–	–
	Nan	3057	–	–
TOTAL		355820	19 (0.005%)	–

TABLE III

The number of Nham (fermented pork) examined for T. spiralis by Digestion Method during 1964–1973 (Report of Veterinary Research & Education Division, Department of Livestock Development)

YEAR	PROVINCE	NO. OF NHAM SAMPLES	RESULTS	REMARKS
1964	Chiang Mai	397	–	–
1965	Chiang Mai	720	–	–
	Chiang Rai	720	–	–
	Phrae	1088	–	–
	Nan	160	–	–
	Tak	120	–	–
	Lam Poon	40	–	–
1966	Chiang Mai	760	–	–
	Chiang Rai	540	–	–
	Phrae	220	–	–
	Tak	60	–	–
	Mae Hong Son	460	–	–

YEAR	PROVINCE	NO. OF NHAM SAMPLES	RESULTS	REMARKS
1967	Chiang Mai	360	–	–
	Chiang Rai	340	–	–
	Phrae	320	–	–
	Nan	40	–	–
	Tak	60	–	–
	Lam Poon	160	–	–
	Mae Hong Son	140	–	–
1968	Chiang Mai	840	–	–
	Chiang Rai	640	–	–
	Phrae	400	+ 1	0.5 larvae / gm.
	Nan	440	–	–
	Tak	120	–	–
	Lam Poon	140	–	–
	Mae Hong Son	140	–	–
1969	Chiang Mai	840	+ 20	–
	Chiang Rai	580	+ 2	–
	Phrae	80	–	–
	Mae Hong Son	220	–	–
1970	Chiang Mai	840	–	–
	Chiang Rai	740	–	–
	Phrae	200	–	–
	Mae Hong Son	240	–	–
	Tak	100	–	–
1971	Chiang Mai	660	–	–
	Chiang Rai	500	–	–
	Lam Poon	560	–	–
	Phrae	260	–	–
	Mae Hong Son	200	–	–
1962	Chiang Mai	580	–	–
	Chiang Rai	20	–	–
	Lam Poon	520	–	–
	Phrae	560	–	–
1973	Chiang Mai	640	–	–
	Lam Poon	560	–	–
	Phrae	440	–	–
TOTAL	–	18765	23 (0.122 %)	–

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(ย่อ)

โรคทริคิโนซิสเป็นโรคสัตว์ติดคนที่สำคัญในประเทศไทย ในระหว่าง พ.ศ. ๒๕๐๕ — ๒๕๑๖ มีโรคทริคิโนซีสระบาดรวม ๑๔ ครั้ง มีผู้ป่วย ๙๗๔ ราย และตาย ๕๘ ราย สาเหตุของการระบาดส่วนใหญ่เกิดจากการบริโภคเนื้อหมูชาวเขาและเกิดในท้องที่บางจังหวัดในภาคเหนือ จากการสำรวจพบว่า หมูชาวเขาเป็นโรคทริคิโนซีส ๑๑.๔๐% และหนูบนดอยเป็นโรค ๘.๓๓% สำหรับการตรวจกระบังลมของหมูที่ฆ่า ณ โรงฆ่าสัตว์เทศบาลในจังหวัดภาคเหนือ ระหว่าง พ.ศ. ๒๕๑๐—๒๕๑๖ ปรากฏว่าหมูเป็นโรคทริคิโนซีส ๐.๐๐๕% การตรวจแหนมที่ผลิตในบางจังหวัดในภาคเหนือระหว่าง พ.ศ. ๒๕๐๗ — พ.ศ. ๒๕๑๖ พบพยาธิตัวอ่อนทริคินา ๐.๑๒๒%

ในการควบคุมโรคทริคิโนซีสนั้นต้องกวดขัน การเคลื่อนย้ายหมู การปรับปรุงกางเลี้ยงหมู และให้สุขศึกษาแก่ประชาชน

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