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Creeping eruption and treatment

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Introduction

1) I'm a clinical dermatologist. In this time, I will present some human cases that experienced at Department of Dermatology , Faculty of Medicine, University of Miyazaki , Japan from1985 to 2008.

2) Creeping eruption is used with creeping disease in human synonymously. Creeping disease is cutaneous larva migrans. Cutaneous larva migrans (CLM) is characterized as creeping eruption/serpiginous erythema and/or mobile erythematous induration on the skin. In Japan, *Gnathostoma spp.* are the most well known pathogens causing CLM , especially the creeping eruption type.

I'm going to show the human cases that we experienced in Japan. Of yours if serve as a reference, is happy.

various manifestation of creeping eruption

Creeping eruption/serpiginous erythema and/or mobile erythematous induration on the skin, to be doutful for larva migrans.
Skin manifestation is similar,but pathogen is variously.

Presenting human cases of creeping eruption

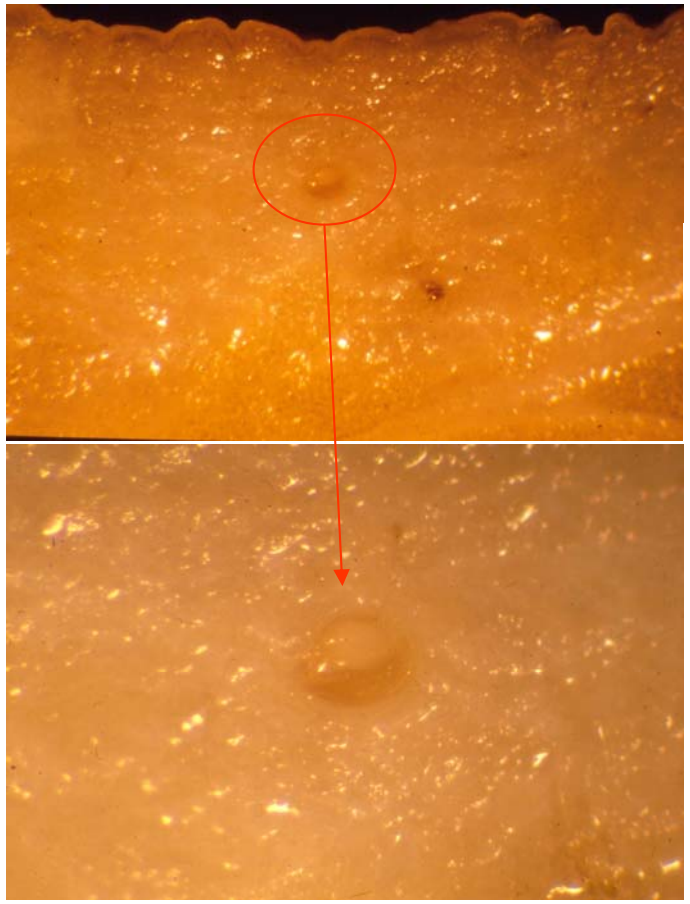
1. Gnathostoma doloresi infection
2. Cutaneous paragominiasis
3. Cutaneous sparganosis mansoni
4. Spirurina type X larvae infection
5. Cutaneous dirofilariasis
6. Anchylostomiasis
7. Important case as a differential diagnosis：
   hair fragment in the skin
   resembling larva migrans

A 61-year-old male retired office worker.
A creeping eruption on upper quadrant
of the abdominal wall from one week ago.
He had a similar symptom on the left lumbar
area that spontaneously disappeared.
He was born in Miyazaki Prefecture, Japan
and had no experience of traveling overseas.

He often eats locally obtained raw freshwater
fishes such as brook trout *Oncorhynchus masou*,
but never had eaten snakeheads or loaches.

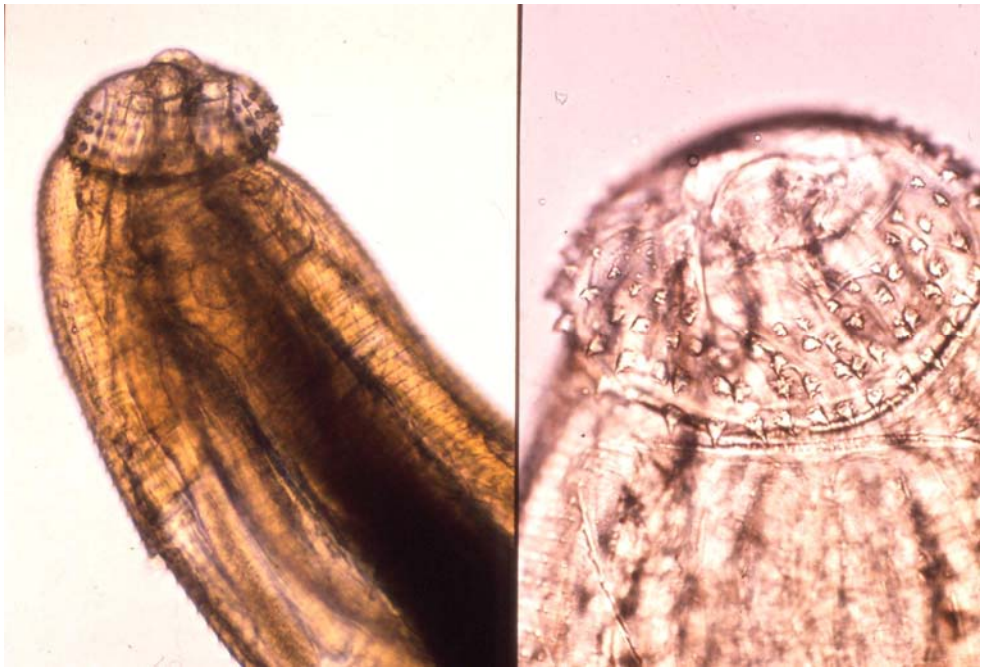
A piece of skin including the progressing
tip of the creeping epuption was obtained
by biopsy with the patient's consent.

The first case of G. doloresi infection in a human



The biopsied specimen was fixed in 10% buffered formalin, cut into serial slices(2mm thickness), and carefully examined under the dissecting microscope. A small round lesion indicating the presence of parasite was noted in the dermis of the cut surfaces of 2 serial slice of the skin.
The head and tail parts of the parasite were carefully dissected out from these slice .The parasite was approximately 2.7mm in length and 0.45mm in width.

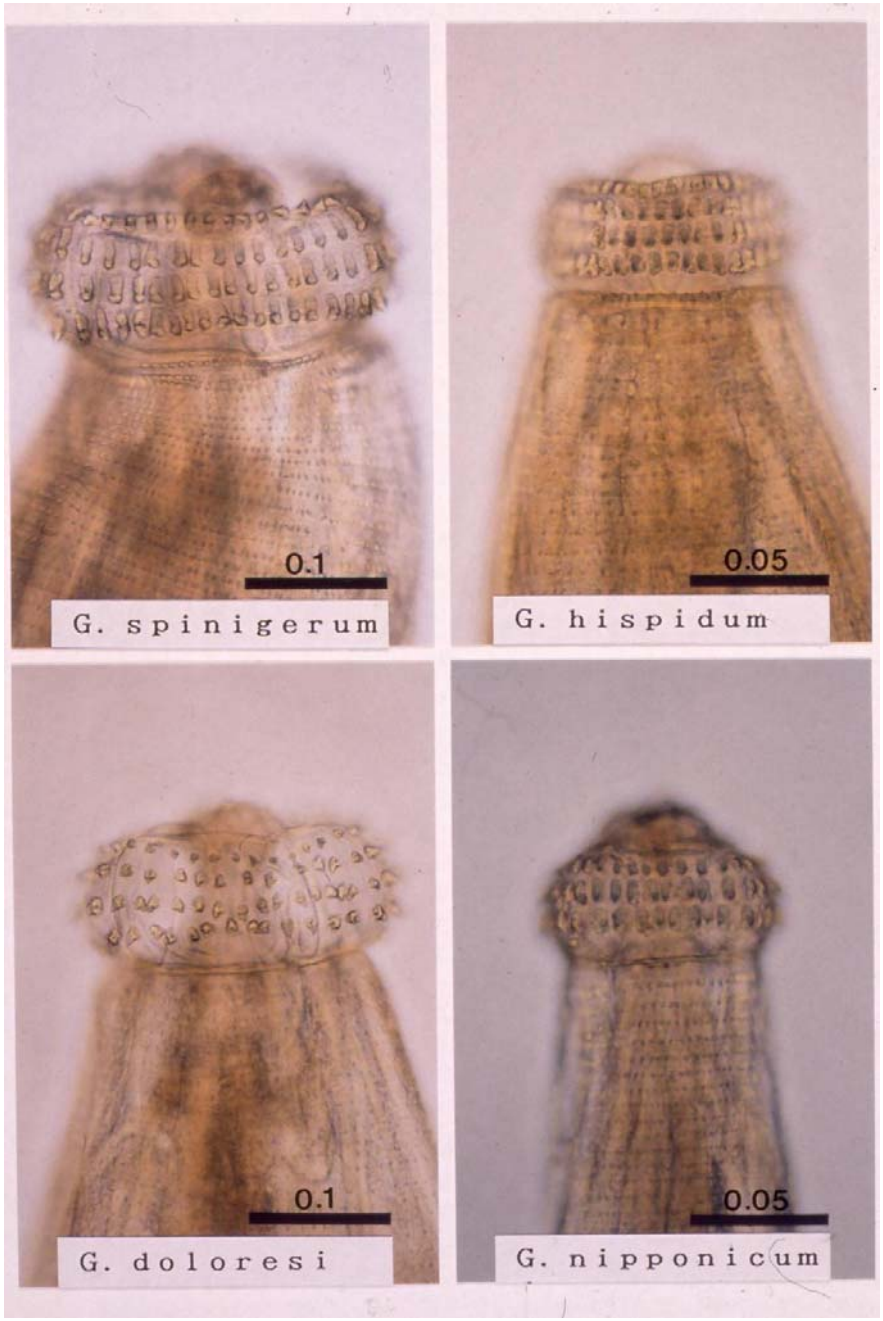
The first case of *G. doloresi* infection in a human



This parasite had a characteristic head bulb with 4 lines of hooklets and was easily identified as a third-stage larva belonging to the genus *Gnathostoma* (by Prof. Yukifumi Nawa).

This case was the first record of a confirmed human case of *Gnathostoma doloresi* infection (Nawa et al., 1988).

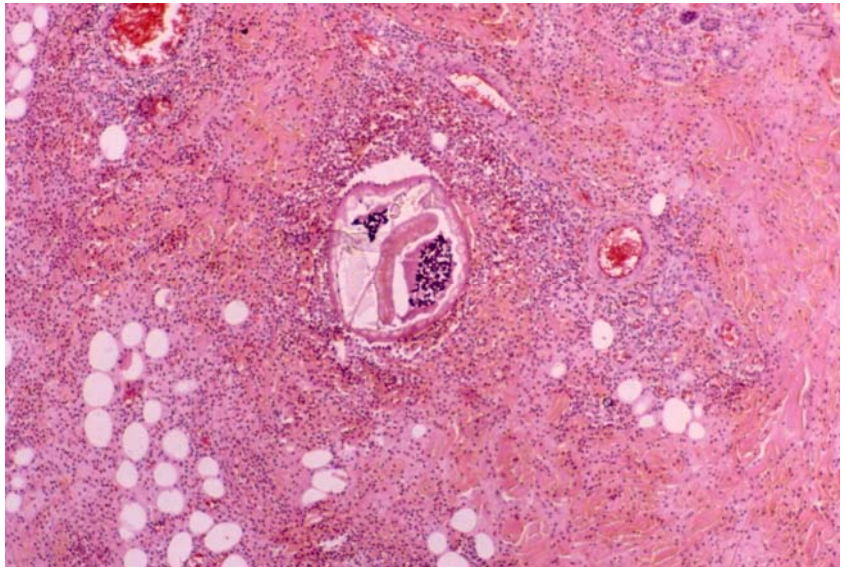
The identification of the parasite



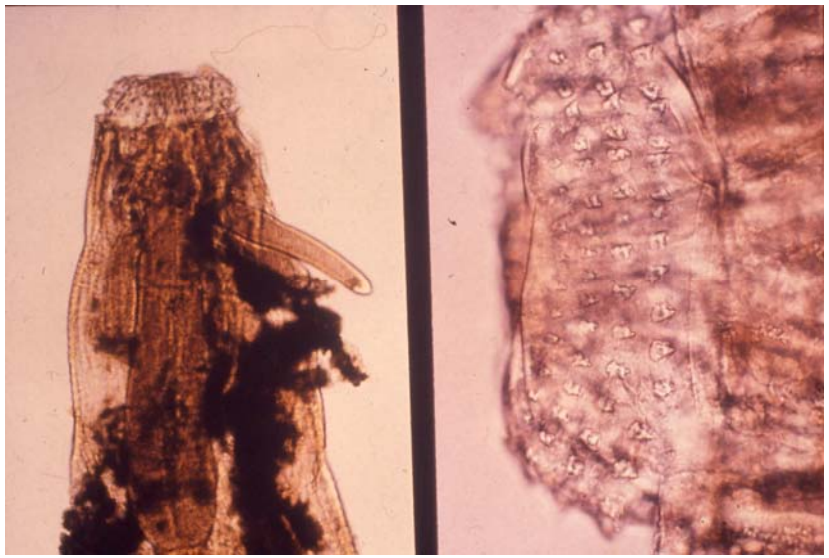
Control : *Gnathostoma spp..* in Japan

A 55-year-old female. She had a stomachache before one week and was operated by a diagnosis of the appendicitis. After the operation, creeping eruption appeared. .
WBC 9500, Eo. 14%, IgE 50IU/ml
History of Omophagia：fresh water fishes(blue-gill, carp,a crucian carp

The gnathostoma larva which extracted with having lived under the dissecting microscope



cross section,HE



A head part of parasite was directly demonstrated in the biopsied skin of a 35-year-old man.
Dissected out from formalin-fixed biopsy specimen before processed for pathology.

This parasite was identified as the third stage larvae of *Gnathostoma doloresi* (by Prof. Y. Nawa).

This parasite was identified as the third stage larvae of *Gnathostoma doloresi*

Gnathostomiasis doloresi cases found in
Miyazaki Prefecture, Japan

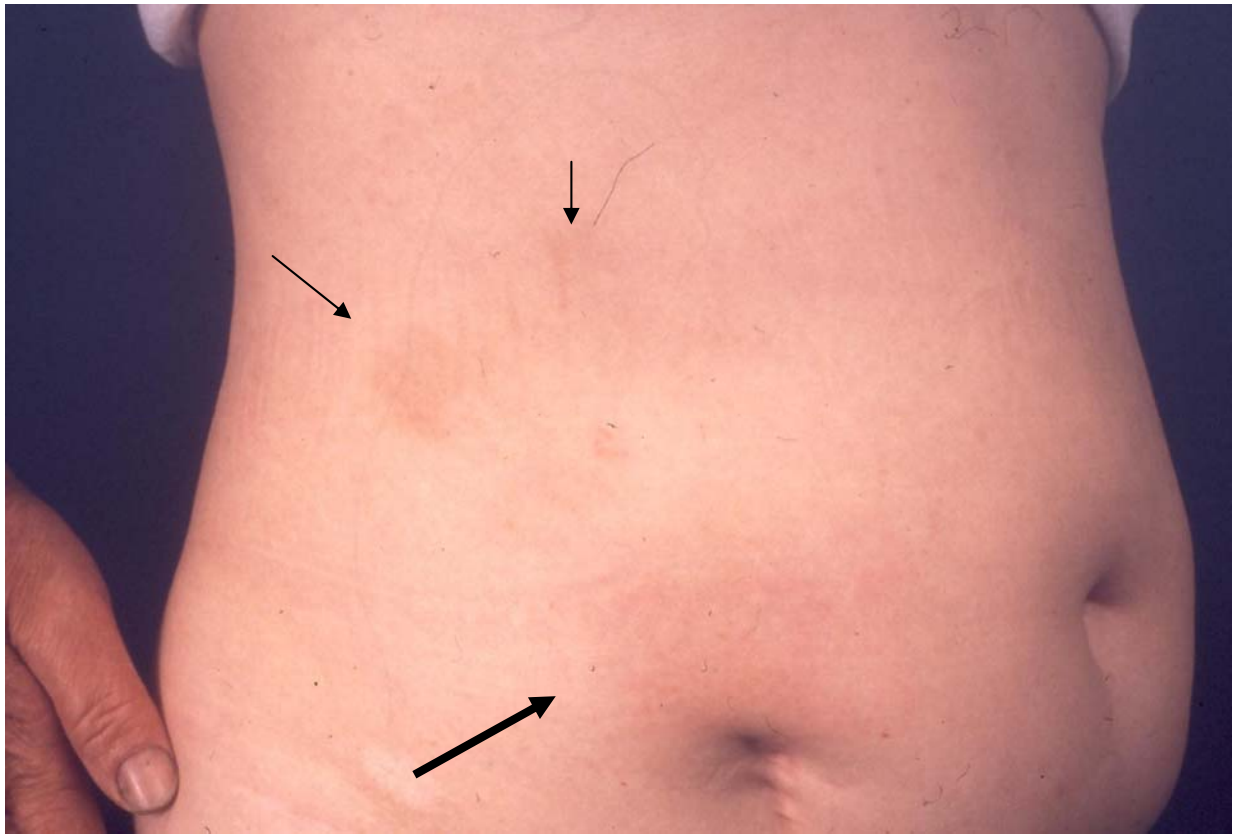
No.	Case	Age	Sex	Onset	Skin lesion	WBC /mm³	Eo (%)	IgE IU/	Parasite found	Source of Infection	
1	HM	51	M	5/'85	C	11600	14.5	4800	−	fish-A	
2	KC	40	M	4/'85	C+Q	9800	12.0	<500	−	snake	
3	TK	70	M	7/'85	C	12200	67.0	16000	+	fish-C	
4	YA	38	F	4/'86	C	4700	16.0	ND	ND	fish-A	
5	IK	35	M	4/'86	Q	6000	21.2	682	+	fish-A	
6	KA	58	M	3/'87	Q	7800	14.2	83	−	fish-C	
7	IE	34	F	1/'88	Q	5000	12.0	586	−	fish-A	
8	NM	61	M	5/'88	C	7200	6.0	>4000	+	fish-A	
9	IS	46	F	6/'88	C	7600	37.0	2798	−	fish-C	
10	KS	35	M	9/'88	C+Q	9000	16.0	352	−	fish-A	
11	NM	52	M	3/'90	C	7350	8.0	107	−	fish-C	
12	NM	55	F	4/'90	C	9500	13.9	50	+	fish-B	
13	NM	60	M	6/'90	C+Q	4800	25.5	10833	ND	fish-B	
14	OH	55	M	8/'90	C+Q	7200	22.1	298	ND	fish-C	
15	NK	54	M	7/'91	C	7400	7.1	824	−	fish-C	
16	KK	43	F	7/'91	C+Q	9200	18.0	860	−	fish-C	
17	OC	26	F	3/'92	C+Q	7800	11.6	495	−	fish-B,C	
18	NT	44	M	6/'92	C+Q	4900	14.9	77	−	fish-A	
19	NM	60	F	9/'92	C	6900	9.0	37	+	fish-A	
20	ET	48	M	10/'92	C+Q	8000	10.4	291	ND	fish-A	
21	YK	44	M	9/'94	C	8000	8.3	2715	−	fish-A,C	
22	TY	45	M	11/'94	Q	4300	11.5	1349	−	fish-A,C	
23	NM	72	M	7/'96	C	5500	12.1	1.3	−	fish-A,C	
24	OM	38	M	3/'97	C	6400	5.0	82	−	fish-A	
25	OS	62	F	6/'97	C+Q	5000	20.9	998	ND	fish-A	ESK
26	IK	50	M	11/'98	C	5600	7.4	1047	ND	fish-A	ESK
27	FS	55	M	6/'99	C	12100	19.6	818	ND	fish-A	ESK
28	NY	49	M	6/'00	C	11000	20.4	1109	−	fish-A	ESK
29	IZ	46	M	7/'00	C	7500	22.1	3886	ND	fish-A	ESK
30	TH	47	M	2/'01	C	5200	2.5	242	ND	duck	ESK
31	NH	64	M	4/'01	C	6400	7.9	1213	−	fish-A	ESK
32	MK	46	F	8/'01	C+Q	8000	15.9	56	ND	fish-A	ESK

C : creeping eruption Q : mobile erythema ND : not determined
fish-A : brook trout, Oncorhynchus masou
fish-B : blue-gill, Lepomis macrochirus RAFINESQUE
fish-C : other fresh water fishes
ESR : Eskazole

Confirmed and suspected human cases of *Gnathostoma doloresi* infection in MiyazakiPrefecture, Japan

we experienced about 40 cases from 1985 to now. Source of infection is many freshwater fish such as a kind of brook trout. Skin lesion was much creeping eruption type and disappeared in two or three months.

Treatment: :
Excision is most confirmed methode. I remove surgically a tip of the mobile eruption including normal skin widely. Excision is not succesful but skin lesion disappear in two or three months. Recently, the effectiveness is reported with ivermectin and albendazole.



cc: mobile local swelling on the right abdominal wall.
A 56-year-old female farmer,
no experience of traveling overseas.

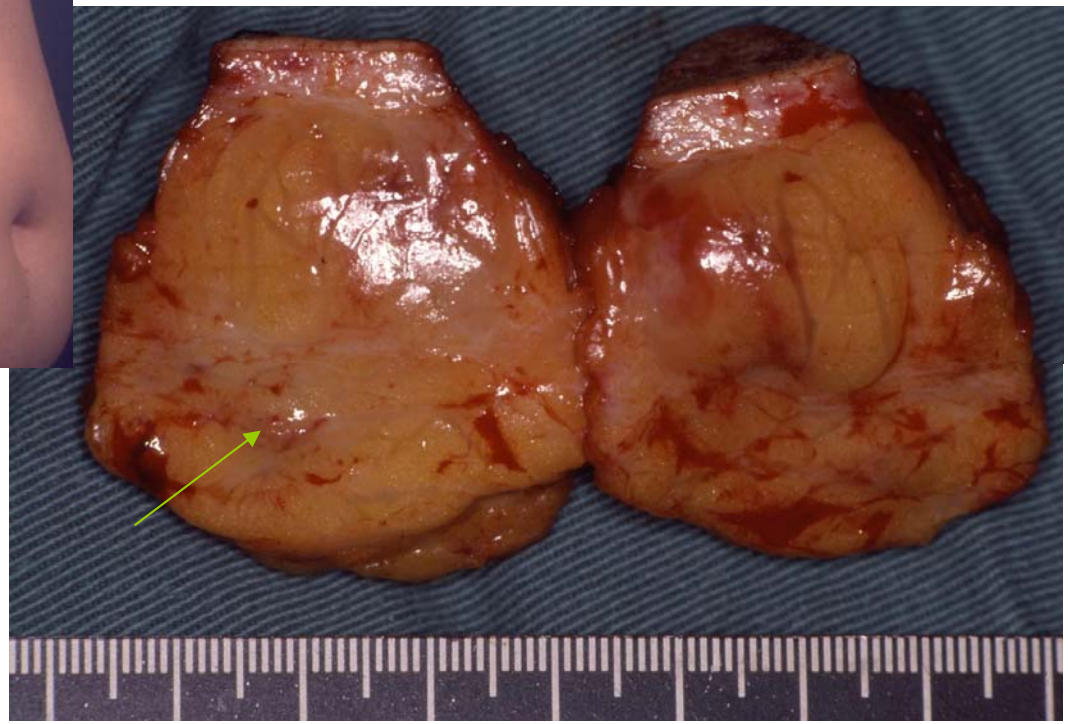
Present history：

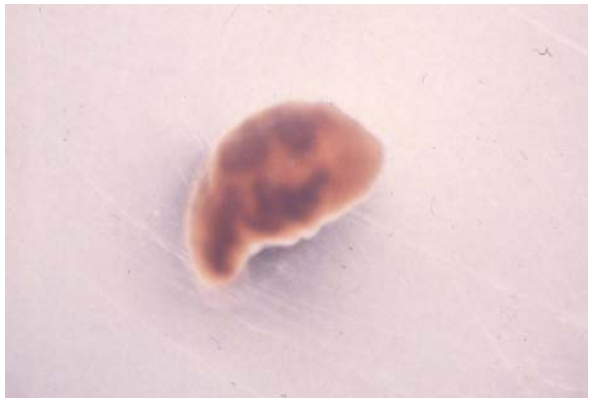
2 months ago ,she had slight fever and diarrhea. one months ago she first noted a induration with redness on the upper abdominal wall which gradually moved downwards over a month period.

She sometimes cooks fresh-water crab. She also had eaten raw,sliced meat of wild boars 5 months ago.

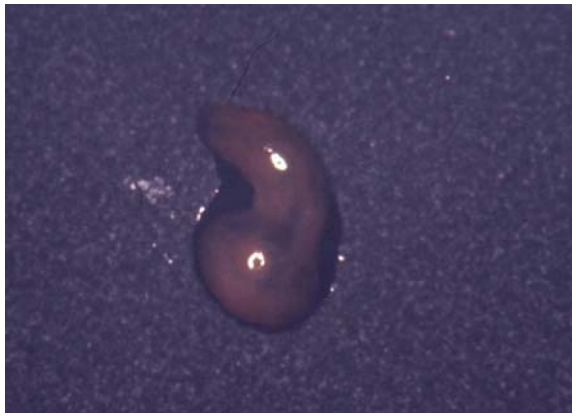
By laboratory examination,WBC count was 6,800 with 26% eosinophiles.Serum total IgE was 671.5 IU/ml. Liver function was normal. Immediate type skin reaction against *Gnathostoma doloresi* was negative.

A case of fresh parasite dissected out from a mobile induration with redness





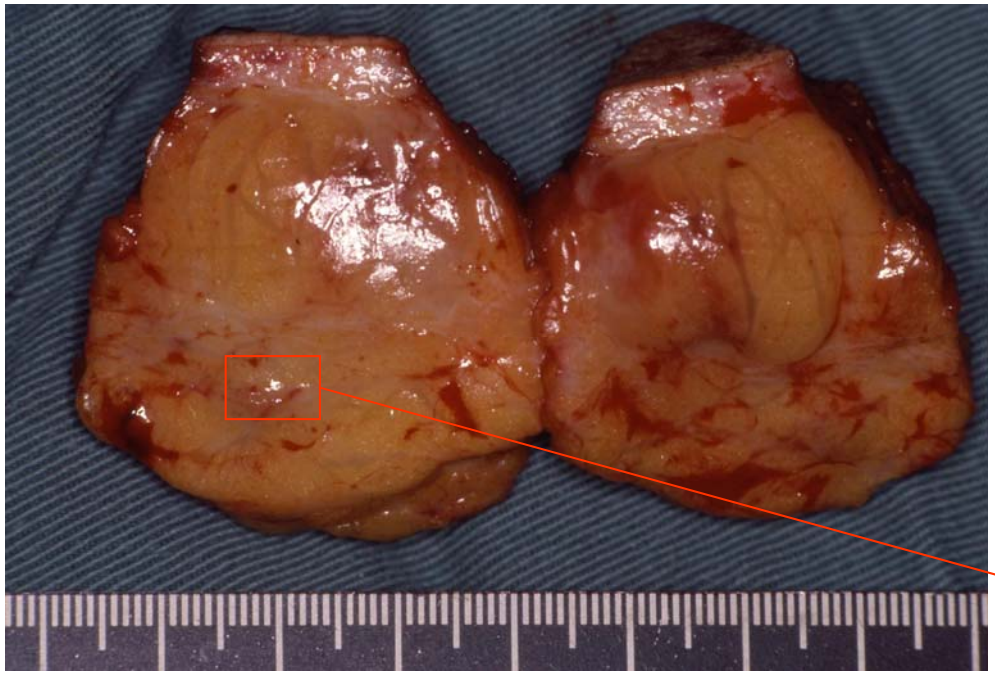
Fresh parasite in physiological saline solution .



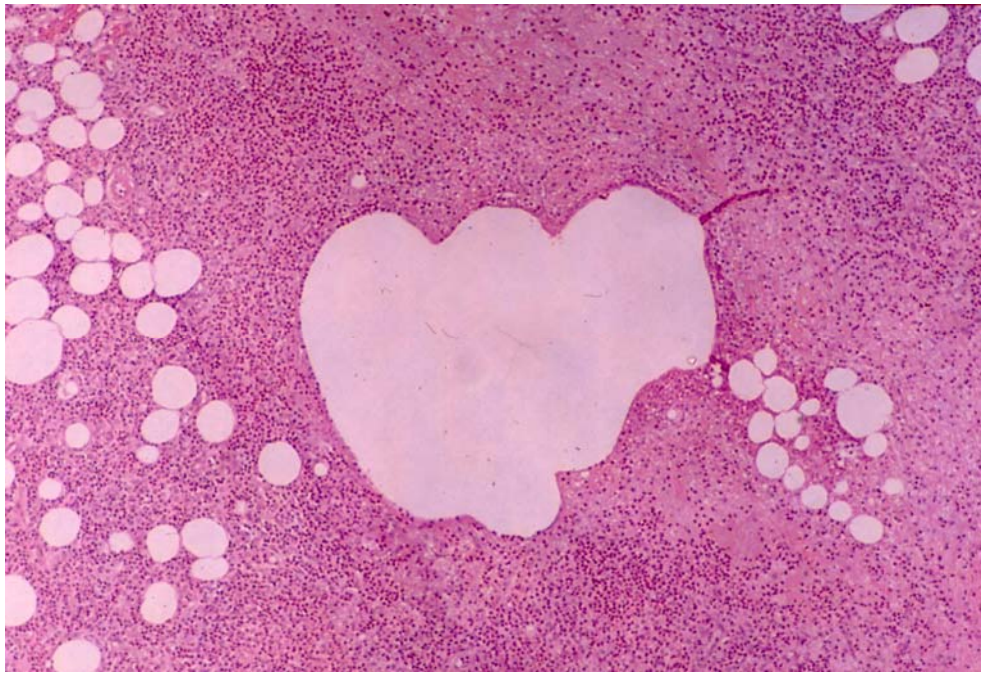
Fresh parasite on black paper

The indurated lesion was removed surgically deep widely. When this mass cut open, a living worm leaked from a part of subcutaneous fat tissue (indicated by an arrow) with blood coagulum. The worm was ovoidal shape (about 1.5 x 3.0mm),had reddish-brown hue, and crowled around slowly when it was placed in physiological saline solution .

A case of fresh parasite dissected out from a mobile induration with redness



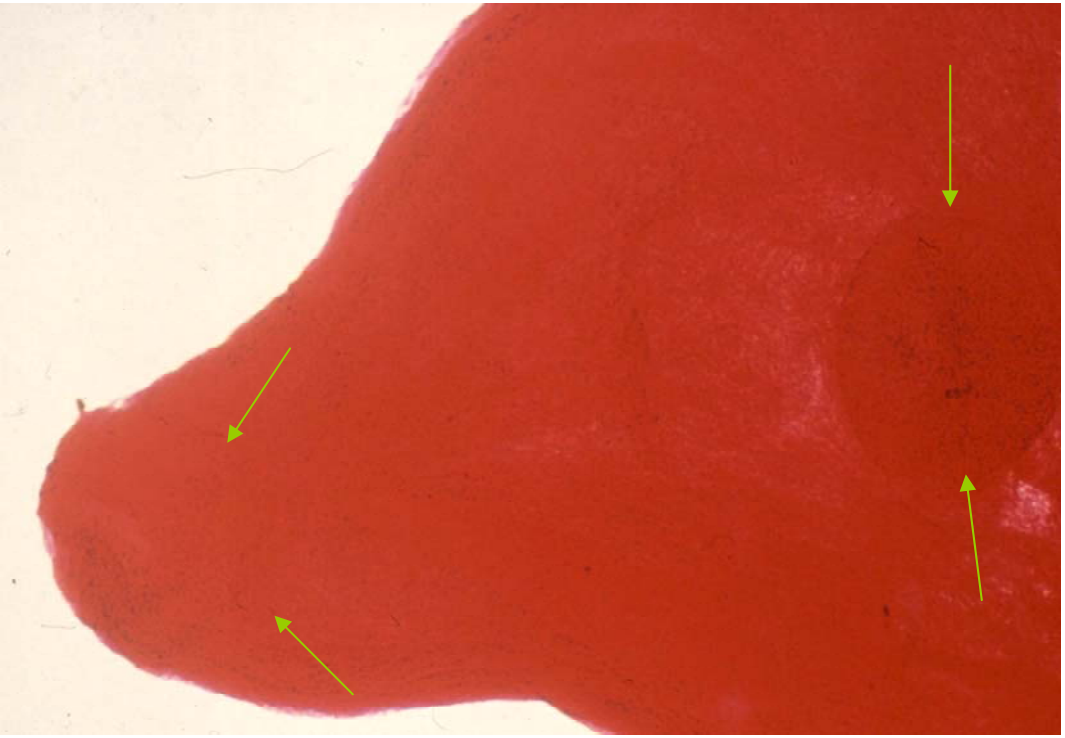
The worm was ovoidal shape (about 1.5 x 3.0mm)



Histopathologigally massive eosinophilic panniculitis and fat necrosis were seen around the infected site.

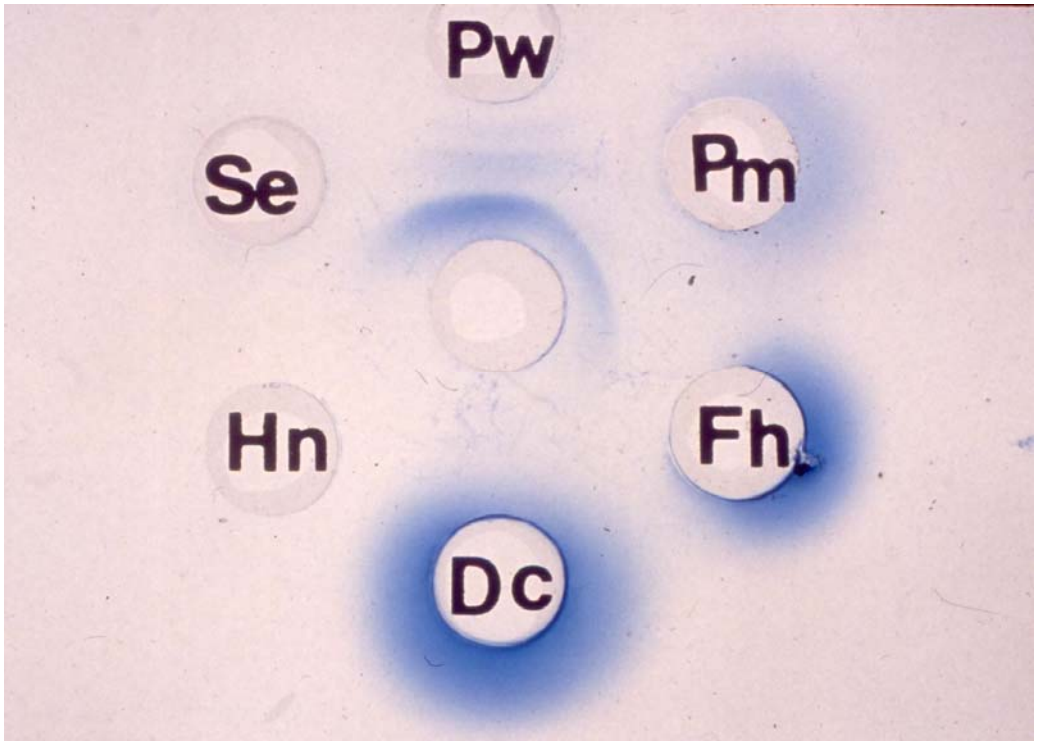
The lumen which balanced with the size of the worm was seen.

A case of fresh parasite dissected out from a mobile induration with redness



Permanent preparation of the parasite.

Under the dissecting microscope, oral and ventral suckers of about same size were noted. Eggs were not found in the worm body, indicating that the parasite was immature.



Ouchterlony's double diffusion test in agarose. The patient's serum gave a clear precipitin bands against *P. westermani* and *P. miyazakii* antigens with the dominance against *P. westermani* antigen.

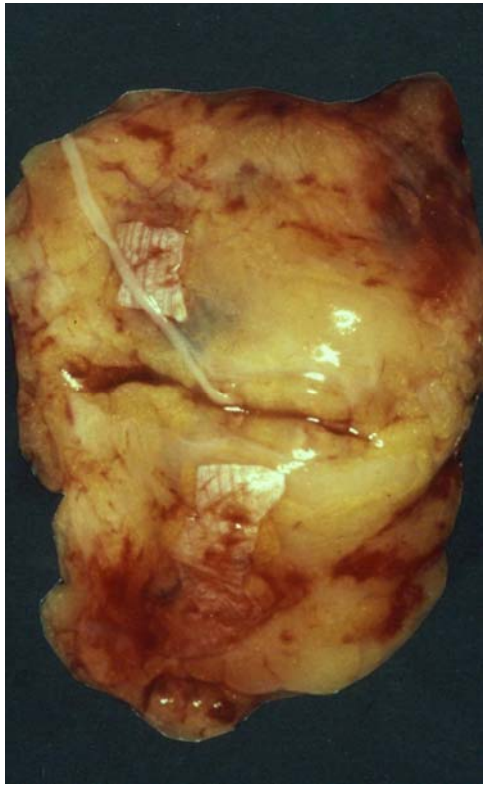
Immediate type skin test gave strong positive reaction against *P. westermani* antigen.

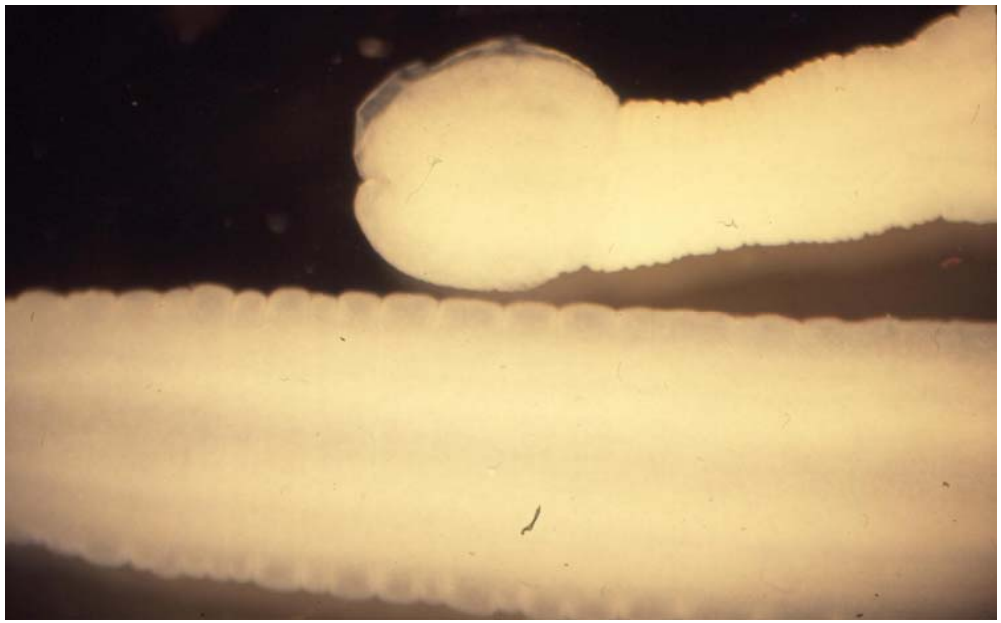
From these results, parasite was identified as *P. westermani.*

A case of fresh parasite dissected out from a mobile induration with redness

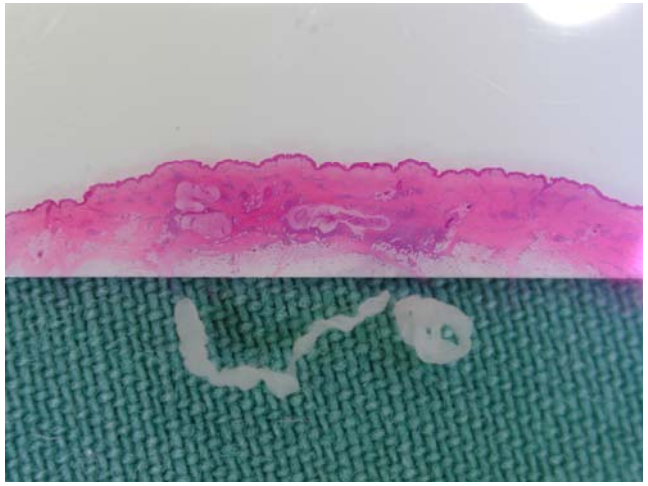
A 68-years-old female. Induration with dull redness on inner side of knee. Relatively soft.

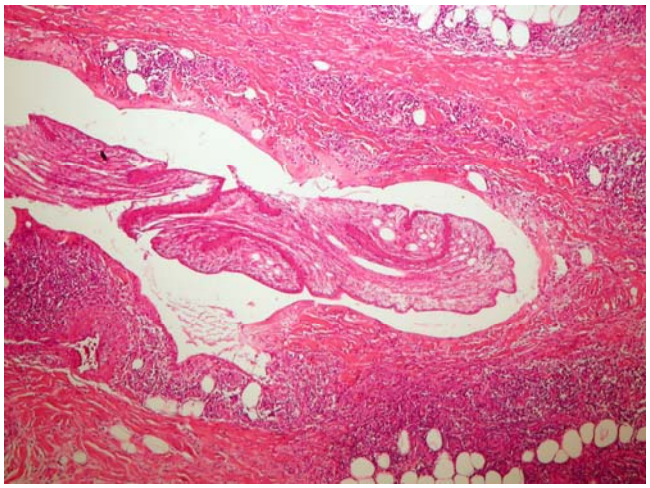
Serving as treatment and biopsy, removed it surgically.There is not the recurrence afterwards.
When this mass cut subcutaneous tissue, a living worm leaked from a part of subcutaneous fat tissue

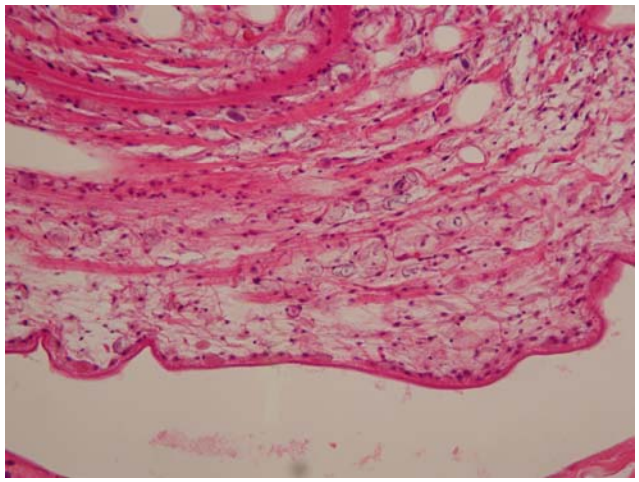


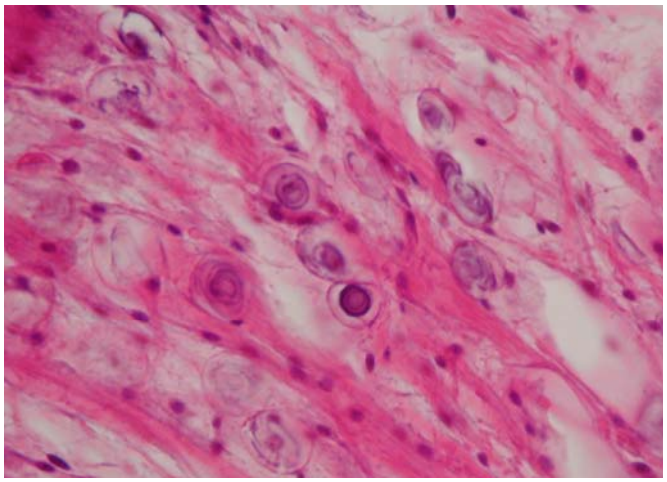


A case of sparganosis mansoni which fresh parasite dissected out from subcutaneous induration









Histopathological finding is typical.

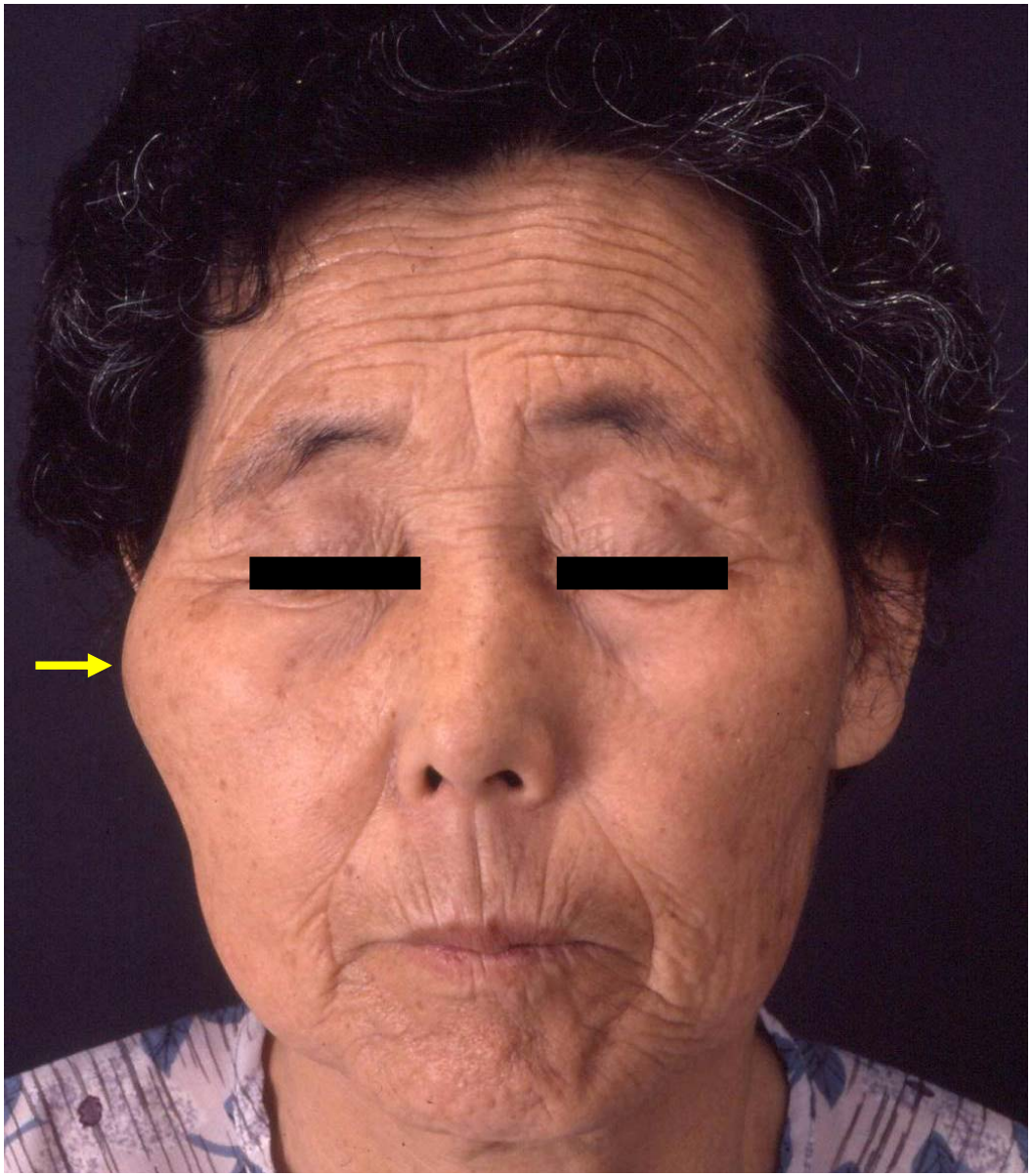
A case of sparganosis mansoni which fresh parasite dissected out from subcutaneous induration

A 41-year-old male, an office worker.
A linear redness appeared one week ago,
he had ate raw firefly squid one month ago.

It was diagnosed as Spirurina type X larvae infection
from a medical history and a symptom, pathology views.

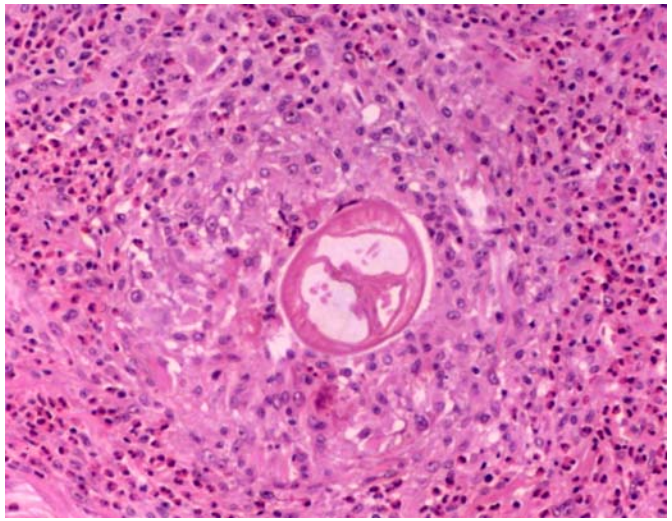
Creeping eruption caused by eating of raw firefly squid
Spirurina type X larvae infection

（by Noriko Otaki ,Kudanzaka Hospital,Tokyo）



A 70-years-old female farmer
cc: swelling of right cheek

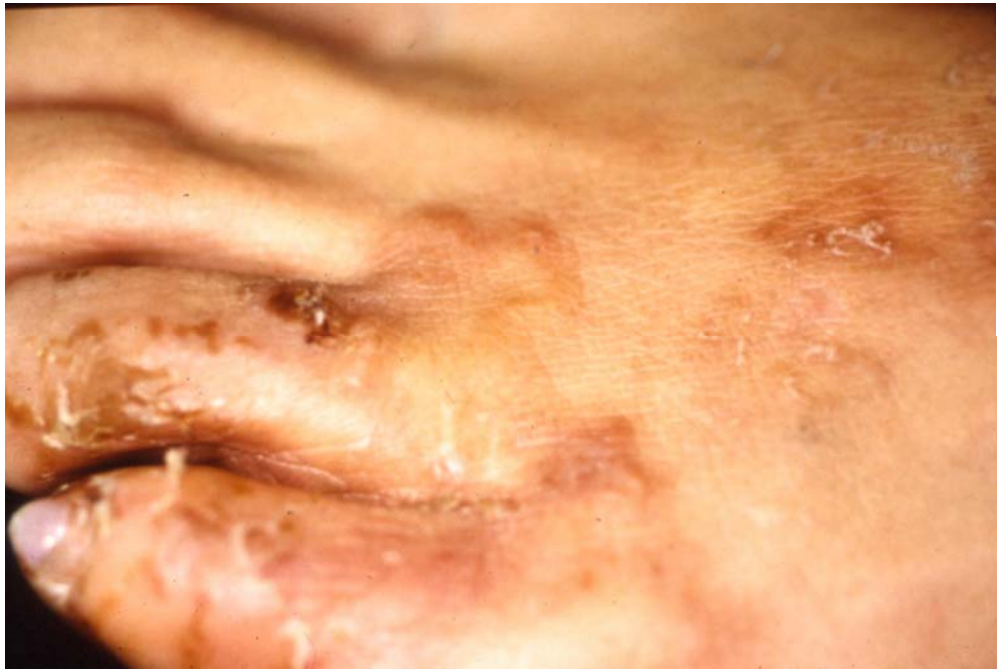
One month ago, swelling occurred on the middle of the forehead in june.
The swelling moved through the right upper eyelid to the right cheek in ten days.
She had no experience of traveling overseas.
She had not obtained raw freshwater fishes .



Serving as treatment and biopsy, removed it surgically. There is not the recurrence afterwards.

Hitopathologically.the cross section of the parasite was identified dilofilaria by the specialist of parasitology.

cutaneous dirofilariasis presenting mobile subcutaneous induration

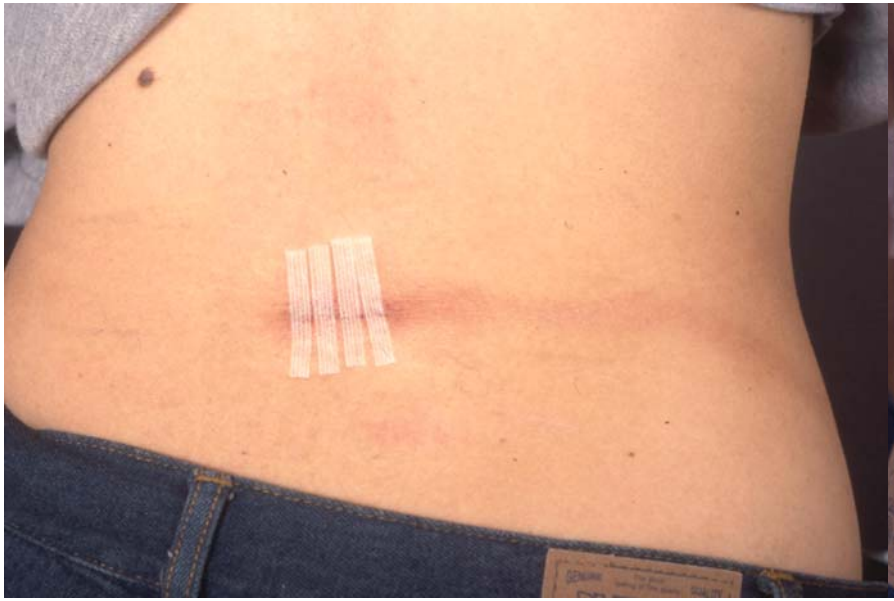


A 25-year-old female japanese. In a Thai trip, she walked the shore, grassland and the puddle barefoot. A linear eruption appeared from the twelfth day. this pictures is the 21st day.

WBC 9800, Eo. 21%, serum IgE 1117 IU/ml
It was diagnosed as a Anchylostomiasis from a medical history and a symptom, pathology views. (this case by Prof. Y. Nawa).

Serving as treatment and biopsy, removed it surgically.

Anchylostomiasis presenting a linear eruption

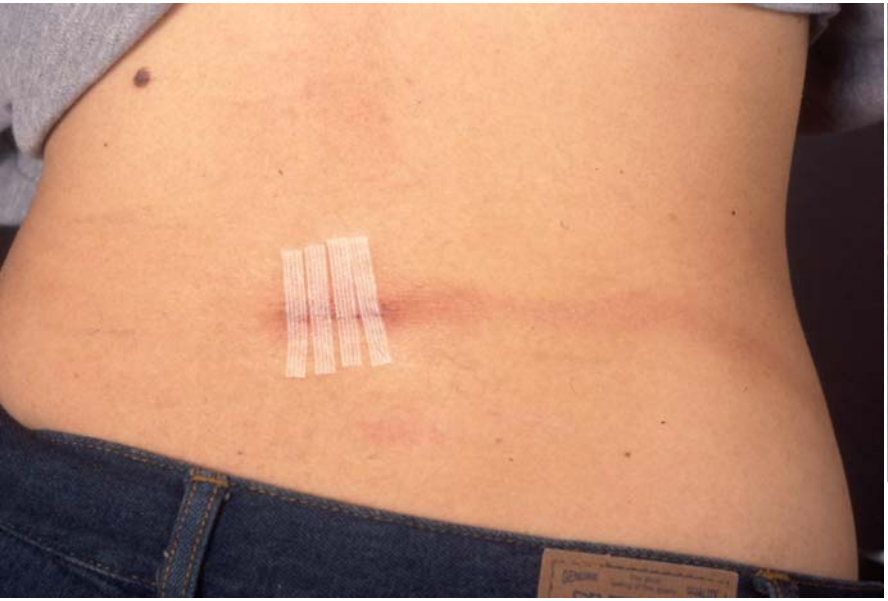


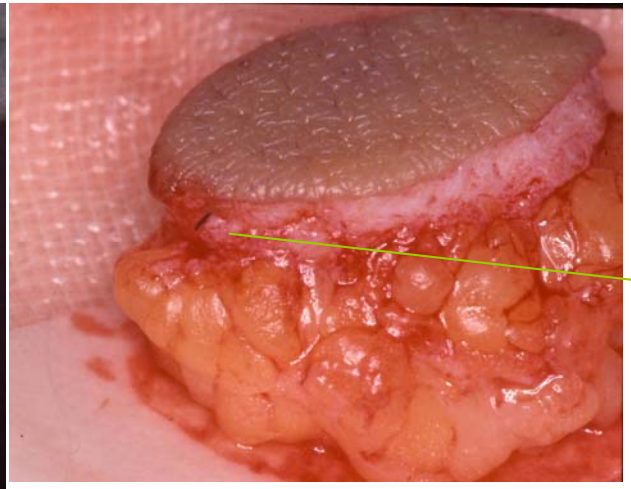
A 32-year-old female patient
with a linear and progressing erythema, from the pubic part ,passing through an inguinal region and reach lumbar area.

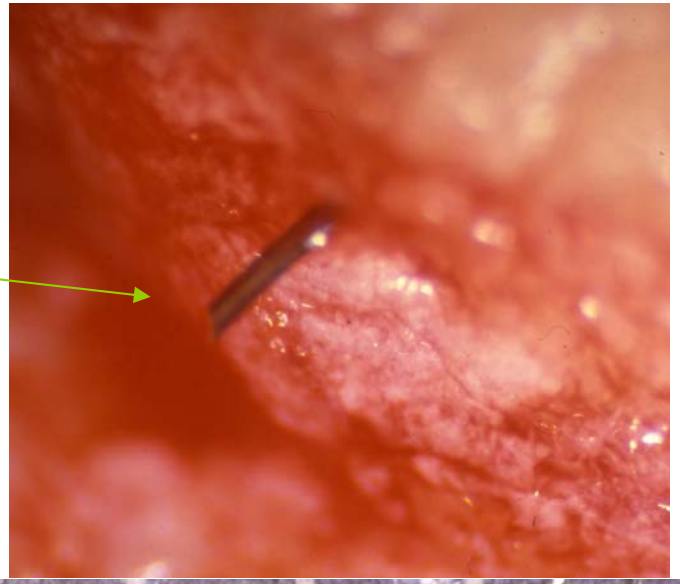
She delivered the first child two months ago.
She noticed the rash the one week later.
She often ate the chopped cock.

First time, we diagnosed as larva migrans.

hair fragment in the skin resembling larva migrans

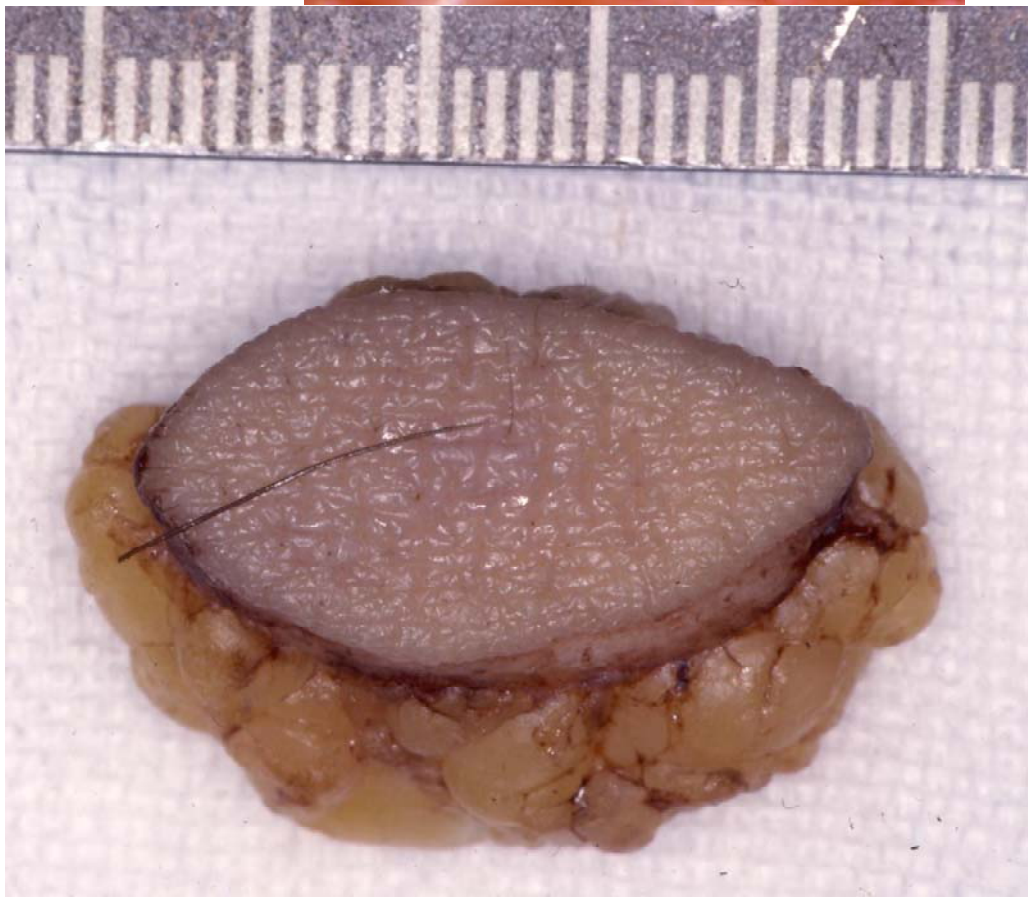






A piece of skin including the progressing tip of the creeping epuption at center of lumbar area, was obtained by biopsy with the patient's consent.

Under the dissecting microscope, the presence of hair fragment was noted in the dermis of biopsied the skin.



hair fragment in the skin resembling larva migrans

Conclusion

- Creeping eruption/serpiginous erythema and/or mobile erythematous induration on the skin, is to be doutful for larva migrans.

- These skin manifestation is similar,but pathogen is variously.

- Creeping eruption is important to examine for pathogens.

Acknowledgment

- I am grateful to Prof. Yukifumi Nawa for the identifications of parasites and serological diagnosis on many cases at Department of Parasitology, Faculty of Medicine , University of Miyazaki .

Thank you for your attention.