

SPONTANEOUS EXIT OF A GNATHOSTOME THROUGH A SURGICAL WOUND

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INTRODUCTION

A gnathostome, adult or larva, can survive for years in a human producing various symptoms depending on the organs involved. Random migration spontaneously through certain natural passages and the skin may occur in a few exceptional cases. Creeping out via a surgical wound, though seems possible. This paper aims to confirm that a surgical wound can be another exit of a gnathostome, and to demonstrate fine structures of a third stage larva by means of scanning electron microscopy.

CASE REPORT

A 22-year-old Thai male, resident in Bangkok, came to Vajira Hospital in November, 1979 with complaints of subcutaneous erythematous swelling at the right anterior subcostal region for two days. This was the third attack, and the very first swelling took place two months prior to the visit. The first and second sites were the skin of the back, and of the lateral most subcostal area respectively. An almost painless, pruriginous sensation was felt several hours before the definite onset of the swellings. The swellings usually disappeared spontaneously within 7-10 days. On the second attack, he came to the hospital and gnathostomiasis was suspected. He also gave a history of eating raw food. At that time, his white blood count was 6,800/cmm, with 59% neutrophils, 22% eosinophils, and 19% lymphocytes. The hemoglobin was 14 gm%. No specific drugs

were given. Two days prior his latest visit he noticed a subcutaneous swelling again. On



Fig. 1—Photomicrograph of the worm showing the whole body. The headbulb hooklets as well as the cuticular spines are not well visualized (x 2).

examination, the mass was ill-defined and measured 5 cm in its greatest diameter. Excision of the mass was performed and a piece of subcutaneous hemorrhagic fat, 3×3×2 cm was removed. No parasite was found in the specimen even with careful examination. The pathology findings were necrosis, hemorrhage, and eosinophilic infiltration.

Two days after the operation, during routine wound examination, a small thread-like worm was unexpectedly noted at the medial end of the surgical wound surrounded by recent, small blood clots. The worm was carefully removed using a pair of forceps, and later studied under by both light and scanning electron microscopy. The patient recovered uneventfully and a six-month follow up revealed no other migratory swelling.

Description of the worm: The length of the worm was 4.5 mm and its width was 0.3 mm (Fig. 1). The head-bulb comprised of four transverse rows of hooklets, each over forty in number. The more posterior the row, the more the number. Higher magnification disclosed almost equal sizes of these hooklets. The cuticular spines were also arranged in rows.

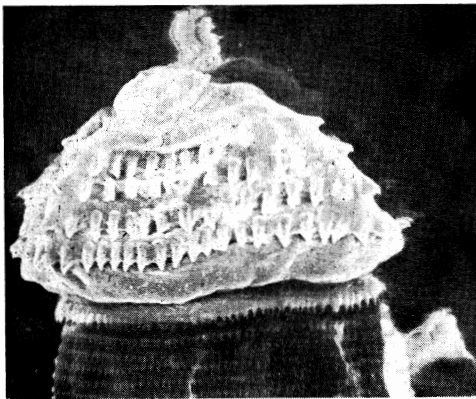


Fig. 2—SEM of the head-bulb of the same worm in Fig. 1. Note four rows of equal-sized hooklets. Upper cuticular spines are also seen (x 300).

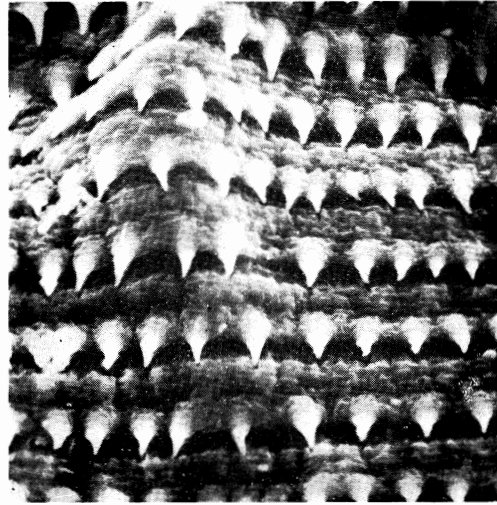


Fig. 3—SEM of the cuticular spines of the worm at the upper levels of the body. Note the density and large sizes of these pointed spines. (x 1500).

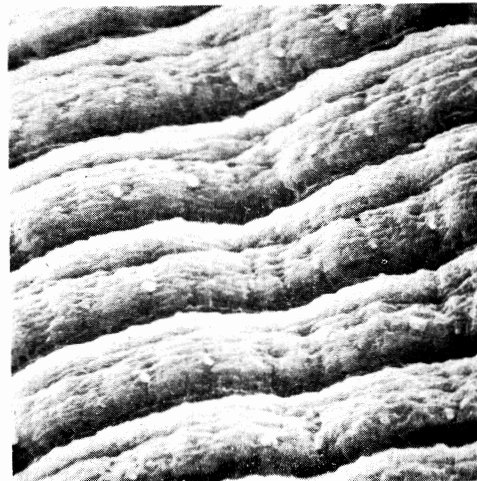


Fig. 4—SEM of the cuticular spines at the almost lowest levels. The spines are very small and scanty as compared with those in Fig. 3. (x 1500).

The scanning electron micrographs (SEM) of the worm are shown in Figs. 2-4. These included the head-bulb hooklets and cuticular spines at different levels of the worm's body. The spines were single-pointed. Their size, and numbers were greater in the anterior extremity than in the posterior. These spines

became very small, almost unnoticeable, and scanty in those rearmost levels (Fig. 4). The microscopic characteristics shows that the worm was a third stage larva of *Gnathostoma spinigerum*.

DISCUSSION

Among countries with gnathostomiasis, Thailand is one of the most highly endemic areas (Miyazaki, 1960; Daengsvang *et al.*, 1964; Daengsvang, 1980).

Generally the most conspicuous clinical symptom of human externa gnathostomiasis is intermittent migratory edema of the skin as noted in the present case. However, a number of patients had undergone unnecessary laparotomy because of abdominal visceral involvement simulating intestinal malignancy (Pholpoke, 1950; Tansurat, 1955; Seyayonka, 1964; Piyaratn and Samranwetaya, 1971; Arromdee *et al.*, 1972; Kurathong *et al.*, 1979). The outcome is serious when an eye or a part of brain was involved (Tansurat, 1955).

Eosinophilia, a relatively constant finding, when noted in addition to other clinical signs and symptoms, is suggestive of gnathostomiasis (Daengsvang, 1980). Nevertheless, definite diagnosis can be made only when a gnathostome is demonstrated. It is worth noting that, a third stage larva possesses cuticular spines throughout its whole length. The spines on the posterior cuticle were once overlooked because of their small sizes (Miyazaki, 1960). SEM of the present larva definitely confirmed the presence of cuticular spines.

So far, surgical removal of a worm from a cutaneous lesion remains the best management since no specific drug is available for human gnathostomiasis. In some rare cases, spontaneous exit through certain natural passages, namely, the tracheobronchial tree,

uterus, and the urinary bladder, as well as the skin have been reported (Prommas and Daengsvang, 1934; Prijyanonda *et al.*, 1955; Tansurat, 1955). The present paper confirms another possible exit, a surgical wound.

SUMMARY

A case of subcutaneous gnathostomiasis in which subsequently a gnathostome larva crept out through a surgical wound in a 22-year-old Thai male is described. This case disclosed that although a worm may creep out of the body through certain natural passages as well as the skin, spontaneous exit via a surgical wound is a possibility. Based on the morphology and number of the head-bulb hooklets and cuticular spines by light and electron microscopy the gnathostome was confirmed as a third stage larva of *Gnathostoma spinigerum*.

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