

CASE REPORT

Dracunculiasis – A Rare Case Report

Nanda Patil, Ghadge Neha, Chaitanya Mahadeo Shinde, Dhara Dodia

Abstract

Dracunculiasis, commonly referred to as Guinea worm disease, is a neglected tropical illness caused by the parasitic nematode *Dracunculus medinensis*. We report a case of a 68-year-old female farmer from rural western Maharashtra who presented with a painful, pruritic swelling and watery discharge on the upper outer aspect of the right thigh for 1.5 months. Clinical examination revealed a sinus tract. Ultrasonography demonstrated a serpiginous, cord-like structure with calcification in the subcutaneous tissue. Excision biopsy revealed a calcified mass with sinus formation. Histopathological analysis confirmed the diagnosis. This case highlights the diagnostic significance of histopathological evaluation in suspected dracunculiasis, as serological investigations remain of limited value.

Key Words

Dracunculiasis, Skin lesion, Sinus formation, Dystrophic calcification

Introduction

Dracunculiasis, commonly referred to as Guinea worm disease, is a neglected tropical illness caused by the parasitic nematode *Dracunculus medinensis*. This tissue-dwelling parasite releases eggs that contain larvae, which are eventually discharged into water sources, allowing the free-swimming larvae to spread.^[1] Previously, it was believed that humans were the only hosts for the Guinea worm. However, recent research has shown that the larvae can also infect dogs, which presents a new challenge and may hinder the timely success of the Guinea worm eradication program.^[2]

Case Report

We present a case of Dracunculiasis involving the upper outer aspect of right thigh. The patient was a 68 years female, a resident of rural area of western Maharashtra came with complaints of swelling over upper outer aspect of right thigh for 1.5 months with pain, itching as well as watery discharge. On examination, a sinus was seen at the involved site. There was no lymphadenopathy or hepatomegaly. Patient was non

diabetic. Patient was farmer by occupation and was consuming unfiltered water. She was non vegetarian.

USG of the lesion revealed serpiginous cord like structure with amorphous, cylindrical and calcification within subcutaneous fat with external opening and sinus formation (fig 1). Patient was treated with paracetamol and excision biopsy was done and specimen sent for histopathological examination. The specimen was 6 X 4.5 X 1.1 cm. calcified mass covered with skin which was showing sinus formation. Cut section revealed multiple calcified areas (fig. 2 & 3). Microscopic examination revealed partially degraded worm with larvae showing surface ulceration and chronic inflammatory reaction including lymphocytes, plasma cells, eosinophils and giant cells. Areas of dystrophic calcification were noted (fig. 4, 5, 6, 7). Considering these features diagnosis was given as Dracunculiasis involving right thigh.

Discussion

The Guinea Worm Eradication Program (GWEP), initiated in 1986, has led to a dramatic decline in disease incidence, achieving a reduction of more than 99%.

Department of Pathology, Krishna Vishwa Vidyapeeth, Karad, Maharashtra, India.

Correspondence to: Dr. Ghadge Neha, Tutor, Department of Pathology, Krishna Vishwa Vidyapeeth, Karad, Maharashtra, India.

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Figure 1: USG of the lesion shows liner calcification with sinus formation.

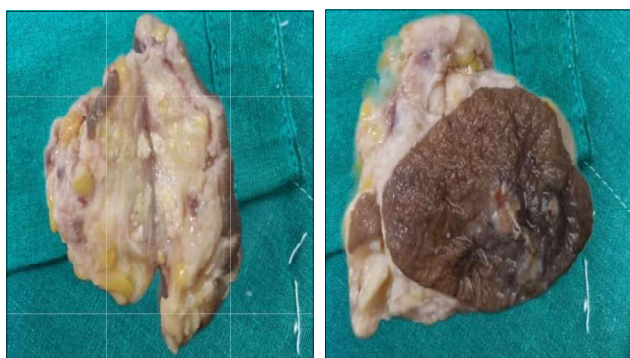


Figure 2 & 3: Calcified tissue with sinus formation over the covering skin.

According to the latest global data from 2022, only 13 human cases of dracunculiasis were recorded, marking the lowest number reported in a single year.^[3] Mode of Guinea worm infestation is by drinking stagnant water contained copepods which carry larva of Guinea worm. Person is infected by drinking such stagnant water. Larvae of guinea worm are ingested by copepods which are present in the stagnant water. Infection can also occur by consumption of fish that have ingested infected copepods.^[3] Larvae will be mature within two weeks before infecting humans. After ingestion copepods die and release larvae which penetrate the host stomach and intestinal wall and entering the abdominal cavity. After maturation into adults population, male worm dies and

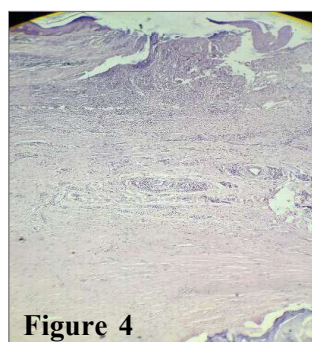


Figure 4

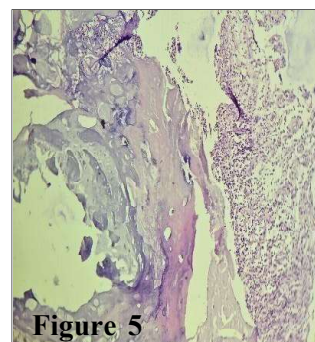


Figure 5

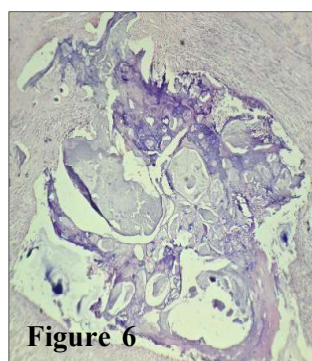


Figure 6

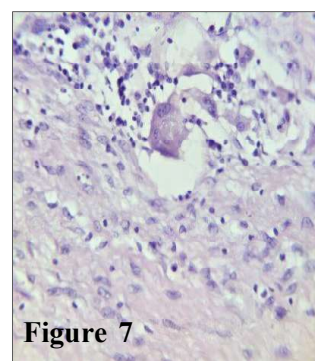


Figure 7

Figure 4, 5, 6, 7: Microscopic examination revealed partially degraded worm with larvae showing surface ulceration and chronic inflammatory reaction and areas of dystrophic calcification.

female migrates in the subcutaneous tissue towards surface of the skin. About after one year of infection female worm induces blister of the skin mainly involving lower extremity.^[4] The blister ruptures when it comes into contact with water and female worm releases larvae into water completing the life cycle. Source of infection in our patient could be drinking of unsafe water or consumption of copepod infected fish.^[5] Clinical features of dracunculiasis include mild fever and blister which enlarges causing burning sensation which is relieved after submerging the part in water. Acute stage of infection are complicated with cellulitis or abscess and septic arthritis. While in late stages calcification of worm and deformities of joint can occur.^[6]

Radiological diagnosis can be made with characteristic long, linear or coiled type of calcification in the soft tissues as seen in our case. Differential diagnosis can be filarial worms and onchocerca volvulus which are much smaller and affect hands and feet. They are neither as large as Guinea worm.^[7]

Serological examination is not much helpful for making the diagnosis of the disease. Conventional Polymerase

chain reaction (PCR) and DNA amplification of nematode are used to some extent. But it requires long time, that is up to two weeks for confirmation. Recently a fast quantitative PCR (GWqPCR) test is tried for diagnosis of adult female Guinea worm infection which has high sensitivity and specificity.^[8] Definitive diagnosis of guinea worm infection relies on histopathological examination which identifies the morphology of larvae and inflammatory response seen in overlying skin with dystrophic calcification. Differential diagnosis of the guinea worm infection includes *Onchocerca volvulus* and Filariasis. Both of these parasites are smaller in size than guinea worm and affects hands and feet.^[9]

The treatment for an active Guinea worm infection involves carefully extracting the female worm from the skin blisters while taking precautions to prevent the worm from rupturing. Infected person are not to be allowed to enter water resources as there is a chance of contamination of water. There is no antihelminthic medications for dracunculiasis. Treatment for chronic cases is surgical excision of lesion. Due to absence of effective drugs or vaccine Guinea worm eradication programme is based on simple public health like using simple filtration systems and boiling for water purification. Considering previously unknown new routes of transmission. The WHO has postponed its target date of eradication of disease from 2020 to 2030.^[10]

Conclusion

Although Guinea worm infection is considered to be eradicated a long ago, occasional cases can occur. Physician should be aware of this rare diagnosis. Histopathological examination helps to confirm the infection. High index of suspicion is helpful for early diagnosis and treatment.

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