Case Report

Disseminated Cysticercosis Masquerading as Mucocutaneous Nodules

Abstract

Cysticercosis is an endemic disease in India caused by ingestion of food and water contaminated with eggs of the pork tapeworm, *Taenia solium*. The larvae, called the cysticerci, spread through the intestine to infect muscles, brain, and subcutaneous tissues via the blood stream. Disseminated form is a rare manifestation of this disease reported in less than 120 cases worldwide.[1] The skin, muscle, brain, and eyes are the most commonly involved parts of the body with disseminated cisticercosis. Presentation of the patient with numerous subcutaneous nodules without any systemic manifestations is extremely rare. Herein, we present a case which presented with asymptomatic mucocutaneous nodules of long duration as a manifestation of disseminated disease.

Keywords: Disseminated cisticercosis, subcutaneous nodules, taenia

Introduction

Cysticercosis is an endemic disease in India caused by ingestion of food and water contaminated with eggs of the pork tapeworm, *Taenia solium*. The larvae, called the cysticerci, spread through the intestine to infect muscles, brain, and subcutaneous tissues via the blood stream. Disseminated form is a rare manifestation of this disease reported in less than 120 cases worldwide.[1] The skin, muscle, brain, and eyes are the most commonly involved parts of the body with disseminated cysticercosis. Presentation of the patient with numerous subcutaneous nodules without any systemic manifestations is extremely rare. Herein, we present a case which presented with asymptomatic mucocutaneous nodules of long duration as a manifestation of disseminated disease.

Case Report

A 55-year-old man presented with multiple asymptomatic skin-coloured nodules present over the neck, trunk, and upper limbs since 1 year. The lesions gradually increased in size and number with time. There were no systemic complaints. The patient was a non-vegetarian and used to consume beef but not pork. He denied passage of long, flat tape-like worms in stools. General and systemic examinations were within normal limits. There was no regional or generalized lymphadenopathy. On cutaneous examination, the lesions ranged in size from 0.5 cm to 2 cm diameter, were firm in consistency, freely mobile, and not associated with raised temperature or tenderness [Figure 1]. A solitary non-tender, firm nodule was also present over the tongue which was better appreciated on palpation.

Routine investigations were within normal limits. Tests for human immunodeficiency virus, hepatitis B virus, and hepatitis C virus were non-reactive. Histopathology from the nodule showed normal epidermis and dermis. A cystic cavity containing the larval form of *Cysticercus cellulosae* was seen below the subcutaneous tissue in the superficial part of skeletal muscle with fibrosis and mixed inflammatory infiltrate around the cyst with occasional eosinophils [Figure 2]. Ultrasonography (USG) of the nodules showed multiple variable-sized anechoic lesions with eccentric echogenic focus (scolex) also involving bilateral lobes of the thyroid gland [Figure 3]. Contrast-enhanced computed tomography (CT) showed multiple calcified nodular...

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lesions with multiple ring enhancing lesions in the brain confirming neurocysticercosis [Figure 4]. The patient was put on albendazole 400 mg twice a day (BID) under a cover of oral prednisolone 30 mg BID for 14 days. On follow-up after 14 days, the nodules had significantly reduced in size.

**Discussion**

The cestode *Tinea solium* has humans as the definitive host and pigs as the intermediate host. The humans get infected after consumption of raw or undercooked meat containing the larval form of the parasite, the cysticercus. The larva evaginate in the intestine and mature to form adult worms. These worms start producing eggs from their distal ends which are passed in feces. Humans may become infected by these eggs due to consumption of food contaminated with human excreta. The eggs change to spheres, which invade the intestinal wall, reach the vessels, and disseminate via the hematogenous route to reach various organs of the body forming cysts, called cysticercosis. The organs most commonly affected are the subcutaneous tissue, skeletal muscle, lung, brain, eye, liver, and occasionally the heart. Widespread dissemination of the cysticerci can result in the involvement of almost any organ of the body.\(^{[2,3]}\) The brain is commonly involved and the patient may present with seizures, focal neurological deficits, or raised intracranial pressure, including hydrocephalus.

The diagnosis of cutaneous cysticercosis is relatively difficult to make solely on a clinical basis because the manifestations are not specific. Important differential diagnoses that need to be considered are lipoma, sebaceous cysts, deep mycoses, neurofibroma, lymphomas, cutaneous metastasis, and reactive generalized lymphadenopathy. Subcutaneous nodules of cysticercosis are described as asymptomatic, firm, and mobile, occasionally painful, and occur on the trunk and extremities.\(^{[3]}\) On histopathology, the subcutaneous nodules show cysts containing clear fluid and the larva attached to one end inside the cyst. The cyst wall is composed of inflamed fibrous tissue containing an inflammatory infiltrate consisting of some eosinophils. The fibrosis around the cyst wall may result in the firm consistency of the cysts on palpation. Visualization of the larva on histopathology clinches the diagnosis and helps rule out other cystic conditions. On USG, a cyst containing a scolex is often observed. Plain radiography in a case of subcutaneous cysticercosis can reveal single or multiple radio-dense foci giving a characteristic rice grain appearance. CT is sensitive in the visualization of tiny calcific foci. Magnetic resonance imaging is more sensitive than CT as it identifies scolex and the cyst. Serological tests for detecting antibodies against cysticercosis are used to confirm the diagnosis. FNAC or biopsy shows the detached hooklets, scolex, and fragments of the spiral wall of *Cysticercus cellulosae*.\(^{[4]}\)

Treatment is with cysticidal drugs albendazole and praziquantel. Priming with corticosteroids is done in cases with disseminated disease. It prevents the severe anaphylactic reactions with treatment, which may occur as a consequence of the massive release of antigens causing local tissue swelling and enlargement of cysts.\(^{[3]}\)

In patients like ours with no systemic complaints and asymptomatic cutaneous lesions, the clinical diagnosis depends on a high index of suspicion. Histopathology and radiological investigations aid in diagnosis. Therefore, in endemic areas cysticercosis should be kept as a possible differential, particularly in patients with a long duration.
of disease. Such patients should also be evaluated for the involvement of other organ systems.

Disseminated cysticercosis is a rare entity usually observed in immunocompromised individuals. Asymptomatic cutaneous lesions without any other overt systemic manifestations have been reported in very few cases [Table 1].[6‑10] In this case, concomitant oral involvement was also present.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

| Case report     | Age (years)/Sex | Mucosal involvement | Other sites with asymptomatic involvement                          |
|-----------------|-----------------|---------------------|-------------------------------------------------------------------|
| Prabhakaran N et al.[6] (2018) | 55/M | - | Eyes, muscle |
| Agaba E et al.[7] (2018) | 49/M | - | Brain (HIV+) |
| Mouhari Toure A et al.[8] (2015) | 50/M | - | Brain, thyroid, pleura, peritoneum, ocular muscle |
| Mouhari Toure A et al.[8] (2015) | 50/M | - | Brain, muscle |
| Mouhari Toure A et al.[8] (2015) | 54/M | - | Brain, muscle |
| Kobayashi K et al.[9] (2013) | 31/M | - | Brain |
| Banu A et al.[10] (2011) | 55/M | - | Worms in stool |
| Our case        | 55/M | + | Muscle, lung, brain |

Figure 3: Ultrasonography of nodule showing anechoic lesion with eccentric echogenic focus (scolex)

Figure 4: Contrast-enhanced computed tomography of head showing multiple calcified nodular lesions (blue arrows) diffusely involving both cerebral hemispheres with multiple ring-enhancing lesions (red arrows)
References

1. Zang XZ, Li HZ, Qian MB. Extensive disseminated cysticercosis: A case report in Yunnan province, China. BMC Infect Dis 2019;19:535.

2. Bhalla A, Sood A, Sachdev A, Varma V. Disseminated cysticercosis: A case report and review of the literature. J Med Case Rep 2008;2:137.

3. Singrodia S, Joshi RG, Solanki RB, Rawal RC. Subcutaneous nodules preceding convulsions due to neural cysticercosis. Indian J Dermatol Venereol Leprol 2008;74:385-6.

4. Satya SMN, Mayilvaganan KR, Amogh VN, Balakrishna BV, Gautam MS, Prathyusha IS. A classic case of subcutaneous cysticercosis: A rare case with sonological findings and review of literature. Pol J Radiol 2016;81:478-82.

5. Venugopal S, Subramaniam SK, Kumar A. Disseminated cysticercosis: A rare case report and review of the literature. MOJ Clin Med Case Rep 2016;4:56-8.

6. Prabhakaran N, Behera B, Kumari R, Bandhe BA, Ramesh A. Disseminated cysticercosis with asymptomatic neurocysticercosis. Indian J Dermatol Venereol Leprol 2018;84:701-2.

7. Agaba E, Modi D, Gunduz O, Modi Z. Subcutaneous nodules of cysticercosis as a sign of asymptomatic neurocysticercosis in an HIV positive patient. Revista da Sociedade Brasileira de Medicina Tropical 2018;51:861-3.

8. Mouhari-Toure A, N'Timon B, Kumako V. Disseminated cysticercosis: Report of three cases in Togo. Bull Soc Pathol Exot 2015;108:165-70.

9. Kobayashi K, Nakamura-Uchiyama F, Nishiguchi T. Rare case of disseminated cysticercosis and taeniasis in a Japanese traveler after returning from India. Am J Trop Med Hyg 2013;89:58-62.

10. Banu A, Veena N. A rare case of disseminated cysticercosis: Case report and literature review. Indian J Med Microbiol 2011;29:180-3.