

Case Report

A case report of pulmonary and muscular cysticercosis

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ABSTRACT

Pulmonary cysticercosis is extremely rare manifestation of a rather common disease which is distributed worldwide. Most common sites for the growth of cysticercosis are muscle and brain followed by eye. Pulmonary involvement in cysticercosis is very rare and if at all present, then ill-defined nodular shadows distributed throughout the lung is the usual radiological presentation which might be attributed to other diseases also. No case of cysticercosis presenting as lung parenchymal along with muscular involvement without cerebral involvement has been reported so far in literature. We came across a rarest presentation of cysticercosis as pulmonary involvement. After nullifying all the differential diagnosis of parenchymal nodular lesions as seen on CT chest and with clinical suspicion, a diagnosis of pulmonary cysticercosis was made as enzyme linked immunosorbent assay (ELISA) titres for cysticercosis was significantly raised. Case was successfully treated with albendazole (15 mg/kg) with steroid cover with resolution of lesions as well.

Keywords: Cysticercosis, Pulmonary, Muscular, Albendazole, Steroids, CT Chest

INTRODUCTION

Cysticercosis is a parasitic infection caused by encysted larvae of *Taenia solium*, the pork tapeworm.¹ This disease occurs worldwide and is the most common human parasitic infection of Nervous system in immunocompetent individuals.² It is an prehistoric disease and has been found even in Egyptian mummies.³ This disease is endemic to countries like Mexico, Central and South America, Africa, India, China, Eastern Europe, and Indonesia, but due to increased travel and immigration of people it has now spread over worldwide.^{4,5}

Due to poor access to sanitation facilities and close interaction between humans and animals and where pigs are a major source of food, Tapeworm infections are common in developing countries. Pulmonary cysticercosis is so rare that worldwide only few cases have been

reported while muscular involvement is among the most common sites for cysticercosis.

A meta-analysis in Asia found the prevalence of cysticercosis from 0.8% to 41.8%. The highest prevalence was found in Thailand.⁶ Although, cysticercosis is common in Asia, pulmonary involvement of cysticercosis is rare.⁷ This case report then together with the relevant literature cites another one of the few documented cases of pulmonary and muscular cysticercosis.

CASE REPORT

A 55 years old male, farmer by occupation presented with continuous mild grade fever coupled with right-sided chest pain and cough with phlegm production for 2 months. Purulency and amount of cough increased in last 7 days with a mucoid, foul-smelling expectoration with no

postural variation. Chest pain was dull aching and continuous without any radiation. There was no history of fever, weight loss, night sweats and contact with tuberculosis patient. Meanwhile patient underwent laboratory tests showing Hb 14.5%, TLC-8900/l, with N67, L25, M4, E2 and normal platelets. Renal and liver function tests were normal.

Viral markers (HBsAg, HCV, HIV) were non-reactive. ESR was 15 mm/1 hr. Sputum for AFB and culture sensitivity was negative. Later CT chest was planned for the same patient which was showing B/I nodular opacities in lung parenchyma with mild bronchiectatic changes.

It is also showing hypodensities in paravertebral and paracostal muscles which might be suggestive of muscular cysticercosis. There were no subcutaneous nodules, so biopsy could not be done.

Titres for *T. solium* was >1/800 (via ELISA), which was significantly raised. Below are the CT images showing parenchymal nodules (Figure 2) with hypodensities in adjacent muscles, which is multiple and most likely suggestive of cysticercosis (Figure 3 and 4).

Management

This case was managed conservatively and started on oral medication. Patient was started on tablet abendazole 15 mg/kg for 3 weeks and tablet prednisolone 2 mg/kg/day for 2 weeks and tapering it in next 1 week.

Patient was followed every alternate day in first week and later on every week for next 6 months. Patient started responding from day 6 clinically with complete resolution of these nodules from lungs and muscles by the end of 6 weeks.

Up to 24 weeks there was no recurrence of the disease and MRI was done showing full resolutions of the lesions.^{14,15}

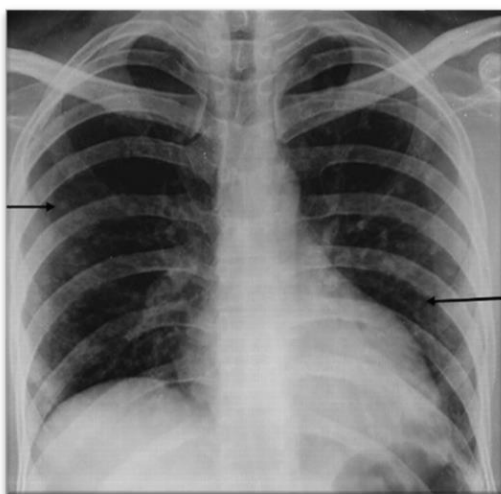


Figure 1: Chest X-ray showing bilateral round opacities, multiple in numbers.

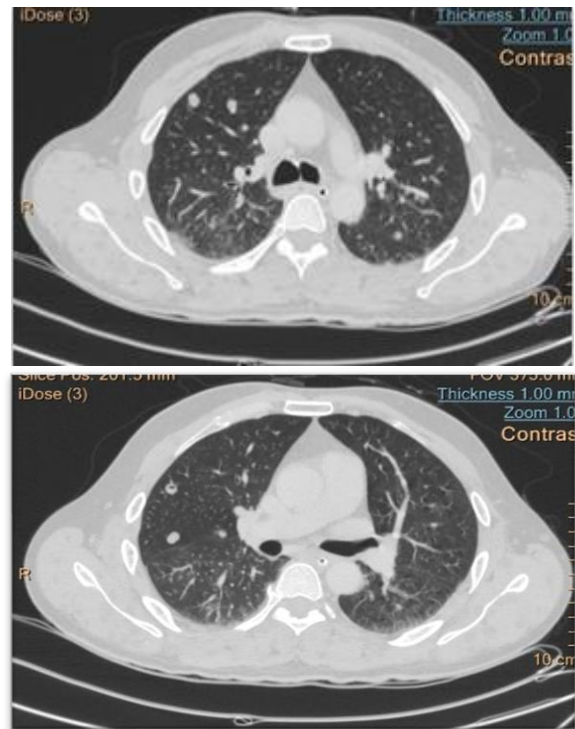


Figure 2: CT chest showing bilateral multiple hyperintense round opacities in lung parenchyma without any ground glass opacities and consolidation, likely to be infective in origin along with hypoechoic multiple lesions in paravertebral and adjacent muscles. Multiple cysticerci-tubercular origin.

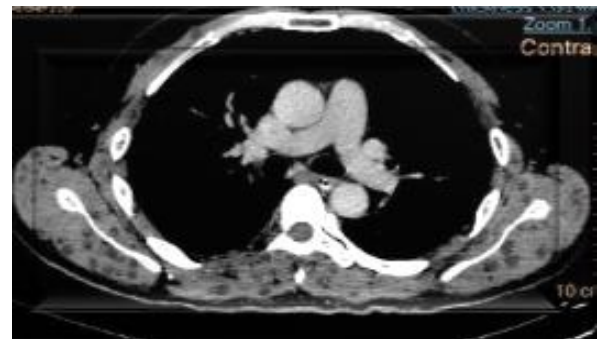


Figure 3: CT chest showing multiple muscular cysticerci.

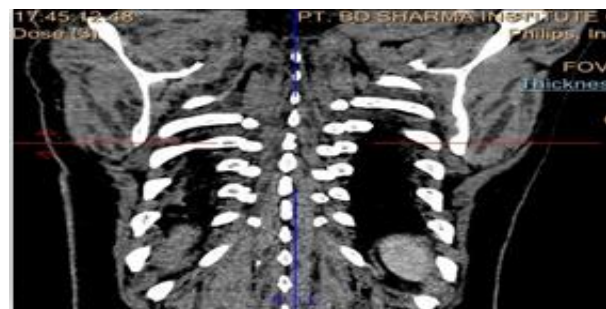


Figure 4: CT images showing multiple hypochoic lesions in chest wall, paravertebral and adjacent muscles, most likely multiple cysticerci.

DISCUSSION

Taenia solium parasite has men as the definitive and pig as the intermediate host. It occurs when its cysts are ingested from undercooked pork. Outer shell of the cyst is broken by the gastric secretions, leaving behind the head of the parasite known as scolex. After attachment to intestinal mucosa, the scolex proliferates and becomes a mature tapeworm by 6-12 weeks. Adult tapeworm then sheds eggs into human feces that can contaminate the pig food supply. The oncospheres (after ingesting eggs) enter into the mesenteric blood supply and via bloodstream lodge in various tissues, and then there develop into cysts.⁷ Brain, eyes, subcutaneous tissue and muscles, are more commonly affected.⁸ Other rare sites are also reported which are tongue, oral cavity, breast, heart and lungs.⁹⁻¹³

Cysts are infectious within 7-10 weeks. Humans can act as intermediate hosts when fecal-oral transmission occurs via infected food handlers who do not appropriately wash their hands before working, or by fruits and vegetables fertilized with contaminated human waste. Ingestion of encysted pork does not directly cause cysticercosis; rather, it produces an intestinal infection of the adult tapeworm and a carrier state for the *T. solium* eggs that, when ingested, produces the clinical syndrome of cysticercosis. The most common occurrence of cysticerci is in the muscles, where this disease is usually asymptomatic. Intracranial lesions frequently present with convulsions. Diminished visual acuity or even blindness can result from intraocular cysticerci. Cardiac cysts can cause dysrhythmia. Paraparesis and gait abnormality may result from intraspinal lesions as well.

Muscular pseudohypertrophy, a rare presentation, is caused by heavy infection of the skeletal muscles, which gives the patient a 'Herculean appearance'.⁸ A few such cases have been reported, all from India. Pulmonary involvement in cysticercosis is rare. Here we have presented a case of pulmonary and muscular cysticercosis. As brain is also a common site for causing neurocysticercosis, we did get MRI brain which was normal, which itself an uncommon presentation. Pulmonary involvement may present with nodular lesions in the parenchyma and pleural effusion. The diagnosis is usually confirmed by resolution of lesions following medical therapy with praziquantel or albendazole. The radiological findings of cysticercosis- a cystic lesion with a central nodule that represents the scolex- are very similar in all affected organs on MRI. The presence of a scolex in a cystic lesion usually suggests the diagnosis of cysticercosis. On HRCT, pulmonary lesions usually appear as multiple randomly distributed nodules of varying size. Radiologically, the lung lesions are nonspecific. The differential diagnosis includes disseminated tuberculosis, metastasis, and parasitic and fungal infections. However, if involvement of other organs with cysticercosis is also seen, then this diagnosis can be entertained in the lungs as well.

CONCLUSION

As we know that muscular cysticercosis is one of the common site for this parasitic infection, on the other hand pulmonary cysticercosis is its rarest complication. In endemic regions, presence of nodules in pulmonary parenchyma may be suggestive of cysticercosis which can go in hand with presence of cysticercus proved in soft tissue or subcutaneous tissue. Timely treatment which is advisable in isolated muscle cysticercus cannot be done in diffuse muscular involvement. Here medical therapy should be given in the formulation of albendazole or praziquantel which is also effective for pulmonary infestation as well and complete resolution is citable.

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