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INCIDENTAL DIAGNOSIS OF DISSEMINATED CYSTICERCOSIS IN A PATIENT WITH ALCOHOL-RELATED ACUTE PANCREATITIS: A CASE REPORT

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Abstract:

Introduction:

Disseminated cysticercosis is a rare parasitic disease caused by *Taenia solium* larvae that involves multiple organ systems. While cysticercosis commonly affects the central nervous system, disseminated forms[1] with complete calcification of lesions are rare and often asymptomatic

Case Presentation:

We report the case of a 52-year-old male from southern India with a history of chronic alcohol use and poorly managed diabetes who presented with acute abdominal pain and altered mental status. Laboratory investigations confirmed acute pancreatitis. Incidentally, CT and MRI revealed multiple calcified lesions in the brain, skeletal muscles, and soft tissues, consistent with disseminated calcified cysticercosis[2].

Clinical Discussion:

The patient exhibited no active signs or symptoms of neurocysticercosis. No antiparasitic therapy was initiated[3]. Management focused on treating pancreatitis and advising on food hygiene and alcohol cessation.

Conclusion:

This case highlights the importance of recognizing incidental imaging findings suggestive of disseminated calcified cysticercosis and underscores the role of conservative management in the absence of active disease. Public health measures to ensure food hygiene and safe dietary practices remain essential to prevent *Taenia solium*infections[4].

Keywords: disseminated cysticercosis, calcified lesions, incidental finding, *Taenia solium*, acute pancreatitis, alcohol use.

Introduction: Cysticercosis is a parasitic infection caused by the larval stage of *Taenia solium*. Human cysticercosis typically occurs through ingestion of eggs excreted in the feces of a tapeworm carrier[1], leading to larval dissemination and cyst formation in various tissues. While neurocysticercosis is the most studied manifestation, disseminated cysticercosis involving multiple organ systems is rare[2]. The calcification of cysts signifies the terminal stage of the disease, often representing a chronic or resolved infection. In such cases, patients are typically asymptomatic, and the findings are incidental. This case report discusses the radiological findings and clinical implications of incidentally discovered disseminated calcified cysticercosis [3]in a patient presenting with acute pancreatitis.

- **Case Presentation:Patient Background:**
  - A 52-year-old male from suburban area in Southern part of India employed as a daily laborer.
  - Known history of Diabetes Mellitus and an old cerebrovascular accident (CVA) for five years, not on regular medications.
  - Chronic alcohol consumption for over 20 years, drinks daily.

- **Presenting Complaints:**
  - The patient presented with a one-day history of diffuse abdominal pain and altered mental status (incoherent speech).
  - On examination, diffuse tenderness was noted in all abdominal quadrants. Neurological examination did not reveal any focal neurologic deficit.

- **Investigations:**
  - Blood tests revealed elevated serum amylase (690 IU/L) and serum lipase (3971 U/L), indicating acute pancreatitis[4].
  - Hemoglobin: 12.8 g/dL, WBC count: 9500cells/cc with 93% neutrophils, and platelet count: 186,000 cells/cc.
  - CT brain: Multiple calcified granulomas were noted diffusely across the brain parenchyma, including both cerebral hemispheres and the right cerebellum. Chronic infarcts were observed in the right corona radiata and right lentiform nucleus.
  - CT abdomen: The pancreas appeared bulky with surrounding inflammatory changes, including peripancreatic fat stranding and fluid accumulation, extending to the bilateral paracolic gutters, suggestive of acute pancreatitis.
  - Skeletal muscles showed multiple calcifications parallel to muscle fibers, suggestive of disseminated myocysticercosis[2].

- **Additional Screening:**
  - Fundoscopic examination revealed a calcified cyst on the nasal side of the left eye, though the patient remained asymptomatic with respect to visual and neurological complaints during the hospital stay. Figure 2
  - Cardiovascular examination was performed to rule out cystic involvement in the heart, and no active cysticercal lesions were detected.

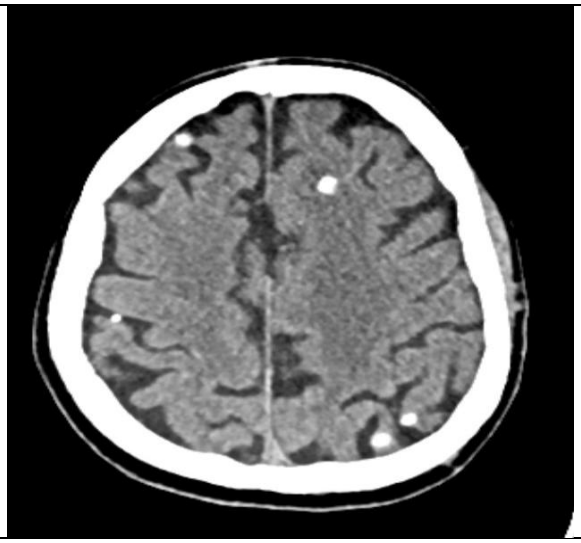

Figure 1.1 Starry sky appearance on CT Brain

Figure 1.2 multiple calcified cysts in muscular plane of CT abdomen

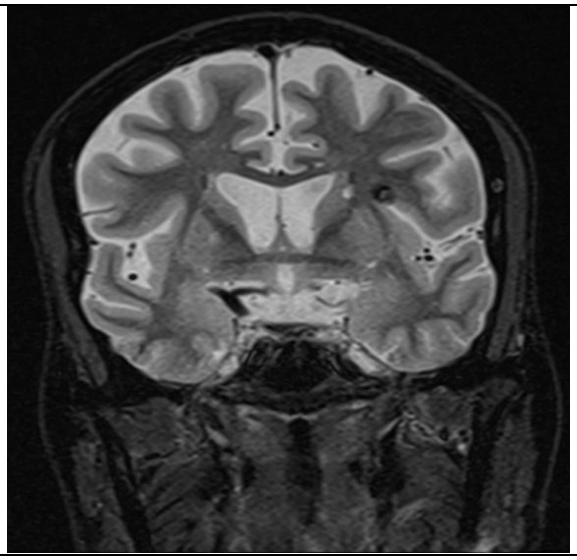

Figure 1.3 multiple calcified cysts in MRI brain

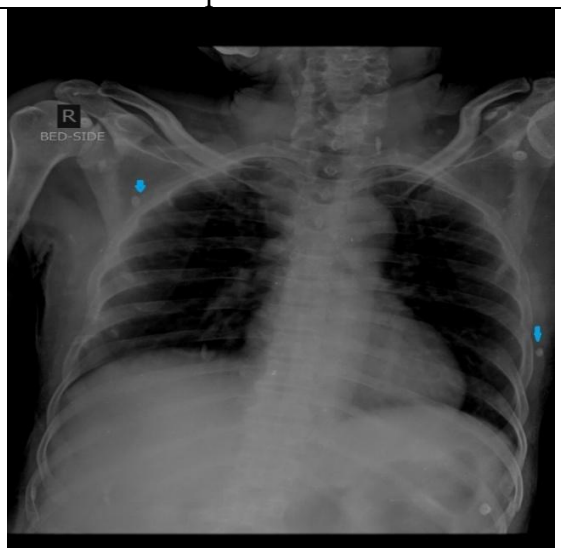

Figure 1.4 multiple calcified cyst in chest wall in Chest xray

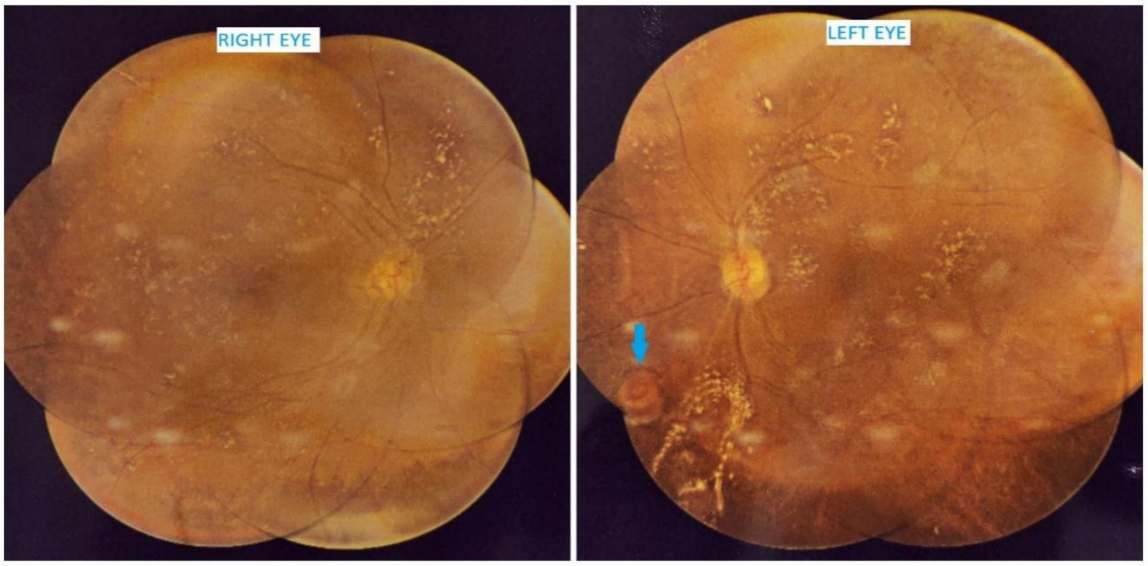

Figure 2 fundus picture showing calcified Cyst in the nasal part of left eye

Imaging Findings:

1.Abdominal CT showed features of acute pancreatitis, including a swollen pancreas with peripancreatic fat stranding. Incidental findings of multiple punctate calcifications were noted in the soft tissues Figure 1.2 [4]

2.MRI whole body screening confirmed the presence of multiple calcified lesions without evidence of perilesional edema or active inflammation Figure 1.3 .

Characteristic calcified lesions in MRI are:

 "Starry Sky" Appearance – Multiple, small, punctate calcifications scattered throughout the brain or muscle. Figure 1.1 [2].

 Dot or Nodular Calcifications seen in soft tissues, appearing as small, well-defined, round or oval calcifications. Figure 1.2 [2].

3.Chest X ray shows calcified cyst in chest wall Figure 1.4 [3]

- No active or viable cysts were identified.

Given that the patient had no symptoms of Disseminated cysticercosis till date and radiological imaging showed no evidence of active lesions , further invasive investigations were deemed unnecessary.

A diagnosis of Calcified Disseminated cysticercosis is made by using radiological imaging with characteristic calcification

Management of acute pancreatitis in this patient included intravenous fluids, pain management, and cessation of alcohol consumption. The patient was advised on dietary modifications and provided counseling for alcohol dependence. Education on food hygiene was emphasized to prevent further parasitic infections. No active treatment was started for the calcified Disseminated cysticercosis.

Discussion: Disseminated cysticercosis is a rare manifestation of *Taenia solium* infection, occurring when larvae disseminate widely throughout the body[1]. The calcification of cysts, as observed in this case, reflects the end stage of the infection. Patients with disseminated calcified cysticercosis are often asymptomatic, as the disease activity has subsided. The incidental detection of such lesions is usually made during imaging for unrelated complaints[2].

The differential diagnosis for disseminated calcifications includes metastatic calcification, idiopathic calcinosis, and infections such as histoplasmosis or toxoplasmosis. However, the characteristic pattern of calcified nodules, combined with the patient's history of outside food consumption, supports the diagnosis of cysticercosis[5].

Stages of Disseminated Cysticercosis[6]:

1. **Initial (Viable Cyst) Stage:** During this active phase, larvae develop into cysts within host tissues, evading the immune response. These cysts remain viable and may cause inflammation and symptoms depending on the location.

2. **Colloid Stage:** The host immune system begins to attack the cysts, leading to cyst degeneration. This stage is often associated with inflammatory symptoms such as seizures or local tissue swelling.

3. **Granular Stage:** The cysts further degenerate and begin to calcify. At this stage, partial resolution of inflammation occurs, though symptoms may persist in certain cases.

4. **Calcified Stage:** The end stage, where cysts are completely calcified, representing inactive and resolved disease. These lesions are typically asymptomatic and are found incidentally, as in the current case.

Management: Management of disseminated cysticercosis depends on the stage of the disease[7]:

- **Viable and Colloid Stages:** Active disease requires antiparasitic therapy (e.g., albendazole or praziquantel) along with corticosteroids to manage inflammatory symptoms. Symptomatic treatment for seizures or pain may also be necessary[2].

- **Granular Stage:** Anti-inflammatory therapy remains crucial during this phase to control immune-mediated symptoms. Antiparasitic treatment is less effective due to partial cyst degeneration[6].

- **Calcified Stage:** No active treatment is necessary for calcified lesions. Management focuses on symptomatic relief if required, such as analgesics for musculoskeletal pain. Preventive measures, including food hygiene and sanitation education, are emphasized to avoid reinfection[7].

Management of calcified cysticercosis is generally conservative, as there is no active disease. Antiparasitic therapy is not indicated for calcified lesions[8].

Conclusion: This case highlights the incidental detection of disseminated calcified cysticercosis in a patient presenting with alcohol-related acute pancreatitis. Recognizing the imaging features of calcified cysticercosis is crucial for accurate diagnosis and to avoid unnecessary investigations or treatment. Public health measures to ensure food hygiene and safe dietary practices remain essential to prevent *Taenia solium*infections[4].

Patient Perspective
The patient was reassured about the benign nature of the condition and expressed gratitude for the explanation and preventive advice.

Data AvailabilityStatement
The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions

Ethics Statement
This case report was drafted after obtaining written informed consent of the patient in conformity with CARE clinical case reporting guidelines and Declaration of Helsinki. The authors are accountable for all aspects of work (including full data access, integrity of the data, and accuracy of the data analysis) to ensure that questions related to the accuracy or integrity of any part of the work are appropriately investigated review board clearance as per institutional and regional policies

Informed Consent
Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Conflicits of Interest
The authors declare no conflicts of interest.

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