Case report

Intramuscular cysticercosis: starry sky appearance

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Radiographs were performed which revealed numerous rice-like ovoid calcified lesions resembling starry sky appearance in the abdomen and lower extremities with lower limb predominance (Figure 1, Panel A). Considering high suspicion for parasitic infestation, magnetic resonance imaging (MRI) of the lower extremities was performed for better anatomic compartmentalization and assessment of associated possible complications. MRI revealed numerous intramuscular rice-like ovoid lesions orientated along the long axis of the muscles with hypointense signal on T1-weighted image (T1WI; Figure 1, Panel B) and fluid-like hyperintense signal on fat saturated T2-weighted image, also resembling starry sky appearance (T2WI; Figure 1, Panel B). Based on the above imaging findings, diagnosis of cysticercosis was suspected which was subsequently confirmed on the surgical excision biopsy from one of the largest T2 hyperintense lesion in the left lower limb (Figure 2, Panels A and B). Since the patient was asymptomatic, antiparasitic therapy was avoided, and patient was discharged with recommendation for clinical follow-up.

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Discussion

Cysticercosis is a disease of major concern owing to poor sanitation conditions in certain developing countries, especially in the Latin America, Asia and Africa; however, gradually increasing trend is seen in the developed countries due to increasing travel and immigrant population.\(^1\)\(^,\)\(^2\) Cysticercosis results from fecal-oral contamination after ingestion of the food or water contaminated with the eggs of Taenia solium parasite which were previously passed out in feces due to tapeworm infestation from oral ingestion of uncooked contaminated pork.\(^1\) The most commonly affected body sites from cysticercosis are the central nervous system and the muscles. The muscle involvement can have varied clinical manifestations, including the myalgic pain, or feeling of mass, pseudotumor or pseudohypertrophy;\(^1\) our patient manifested clinically with palpable nodules, corresponding to the mass-like presentation. Laboratory tests such as elevated erythrocyte sedimentation rate or eosinophilia can be inconsistent,\(^2\) as seen in our patient. The diagnosis of intramuscular cysticercosis can be difficult clinically with several clinical differentials, such as common subcutaneous/muscular neoplasms,\(^3\) infective lesions including abscess and tuberculoma or post-traumatic conditions, thus necessitating further imaging evaluation.\(^2\)

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**Figure 1.** Multi-panel image consisting of the plain radiographs and MRI of the thighs showing distribution and characteristics imaging findings of cysticercosis. (A) Plain radiographs reveal diffuse rice-like ovoid calcifications resembling starry sky appearance seen involving the abdomen and bilateral lower limbs. (B) Coronal MRI of the thighs reveal multiple ovoid lesions with hypointense signal on T1WI and hyperintense signal on T2-weighted image with fat saturation (T2 Fat Sat) thus resembling starry sky appearance (arrows).
The imaging appearance of cysticercosis depends on the status of the parasites. Radiograph can depict rice-like calcifications if the cysts are calcified. Ultrasonography is readily available and can demonstrate the presence of eccentric echogenic scolex in the cysticercus. MRI is a valuable tool which can demonstrate live cysts; the typical image appearances include hypointense signal on T1WI, hyperintense signal on T2WI along the course of muscle fibers with thin rim-enhancement after intravenous gadolinium administration. Gadolinium was avoided in our patient as the typical radiographic and MRI appearances of cysticercus were quite suggestive and pathologic examination was subsequently planned for confirmation.

The treatment of intramuscular or subcutaneous cysticercosis depends on the presence of symptoms. Treatment is only indicated if they are symptomatic from pain or local inflammation. Antiparasitic agents, such as albendazole or praziquantel, can be administered to hasten the involution of cysticercosis, and cortical steroids can be added to reduce the host response and inflammatory changes associated with rupture of the cysts.

Conclusion

In conclusion, cysticercosis is now seen globally, and clinicians should be aware of their typical clinical presentations and imaging appearance of rice-like or starry sky appearance.

Conflict of interest: None declared.

References