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ABSTRACT

Introduction: Paragonimiasis is parasitic food born disease which can affect the lungs (lung fluke). It is caused by Paragonimus westermani which is transmitted via ingestion of raw or undercooked crab or crayfish. Paragonimiasis can affect the exrapulmonary organs inclute striated muscles.
Case Report: Our case is unique in that affected masseteric muscle. In our case, the worms reached to masseteric muscle which lead to rupture the cyst and inflammatory reaction present like allergic reaction. The intial treatment was given as allergic reaction then we discovered the worm in cyst in masseteric muscle by ultrasound, which change our management and established the diagnosis as paragonimiasis by ELISA test.
Conclusions: Paragonimiasis is rare in masseteric muscle.

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Keywords: Emergency, Medicine, Paragonimiasis, Parasitic infection

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INTRODUCTION

Paragonimiasis is parasitic food-borne disease caused by *Paragonimus westermani*. It is transmitted via ingestion of raw or undercooked crab or crayfish .

Paragonimus westermani is one of the 15 species that can affect humans which can be geographically found in eastern, southwestern, and southeast Asia (including China, Vietnam, South Korea, Thailand, Taiwan, Philippines, and Japan).

The presentaton is usually subacute to chronic. In our case, it was acute presentaton because the cyst including the worm ruptured in masseteric muscle and inflammatory reaction developed. The reaction was treated as allergic reaction. However, the symptoms of paragonimiasis can range from pulmonary symptoms It can be sucessfully treated by praziquental (if it is lung fluke, which sometimes mimic tuberculosis) to extrapulmonary symptoms depending on which organ the worm has reached. The most frequent locations include the abdominal cavity and subcutaneous tissues and most frequently, the brain which presented with headache, visual impairment and seizures [1–3].

CASE REPORT

A 25-year-old Sri Lankan female presented with sudden onset of swelling since last one hour, on the lower half of the face extending to the mandibular area with itchy sensation.

The patient was previously healthy she had no history of previous allergic reaction, medication use, shortness of breath, fever, cough, trauma or similar episodes in the past.

Initial vitals were blood pressure 104/72 mmHg, pulse rate 107/min, respiratory rate 20/min, SpO_2 100%

on room air, random blood sugar 9.4 mmol/l. There was a large swelling on the right mandibular area 8x12 cm extending to the submandibular area and the other side of the face. It was tense, mildly tender, non-fluctuant and non-translucent. There was no congestion of lips, throat or tongue. The examination of the chest, abdomen and Central nervous system was unremarkable.

The patient was shifted to resuscitation room and initially managed as a case of acute allergic reaction versus acute bacterial infection. The patient was given adrenaline. 3 ml 1:1000 I/M, hydrocortisone 100 mg, diphenhydramine 50 mg, augmentin 1 g and a bolus of 500 ml normal saline.

Patient improved symptomatically and initial laboratory examinations showed WBC 21x10^3/µl (neutrophil 89%), hemoglobin 12.9 g/dl, and platelets 228x10^3/ul with normal amylase. The electrolytes, renal and liver function tests.

Ultrasound of the swelling was done for further workup, which showed "a well-defined cystic area with tubular echogenic structure within masseteric muscle suggestive of the remote possibility of the parasitic infestation, Parotid and submandibular glands were normal (Figure 1–3).

Figure 1: A well-defined cystic area with tubular echogenic structure within masseteric muscle.

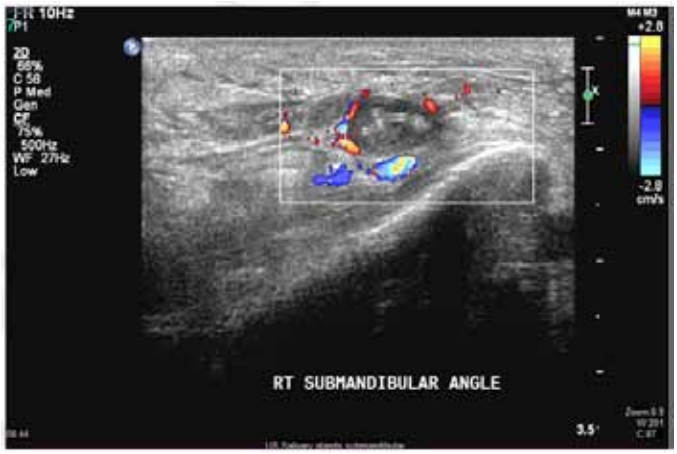

Figure 2: Clear tubular echogenic structure (worm) within masseteric muscle.

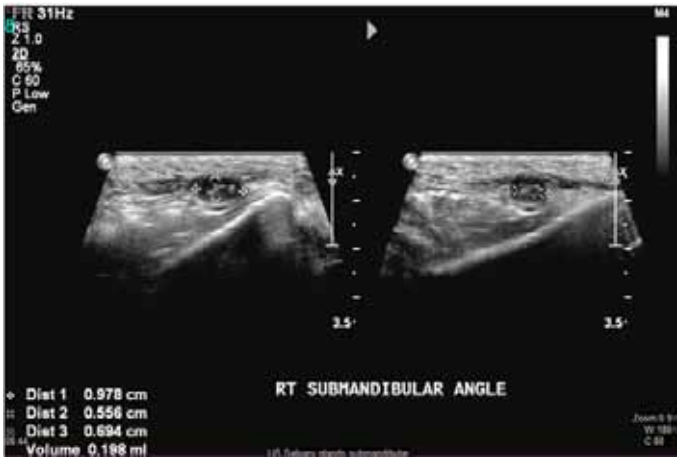

Figure 3: Tubular echogenic structure inside well defined cyst within masseteric muscle.

The diagnosis was confirmed by ELISA test which was positive IgG antibodies for *Paragonimus westermani*

The Patient was discharged home with oral praziquental and infectious disease team follow-up. The patient responded well to the treatment as seen in infectious disease clinic.

DISCUSSION

Paragonimiasis is parasitic food-borne disease. It is also called lung fluke. It is caused by *Paragonimus westermani* and transmitted via ingestion of raw or undercooked crab or crayfish. Fifty species and subspecies of *Paragonimus* have been described. Infection in humans has been repoted by 16 species. Paragonimiasis can affect the pulmonary system which is common, and can also occur extrapulmonary organs like brain, abdomen and subcutaneous tissues or sometimes localized in striated muscle, spinal cord, testes, and breasts [1–3].

Paragonimiasis can be transmitted by ingesting raw meat from carnivorous mammals which is most important hosts or sometimes from contaminated knives or chopping boards [4, 5].

The worms can also reach other tissues such as striated muscles like in our case in which infection was in masseteric muscle which lead to rupture of the cyst and inflammatory reaction presenting like allergic reaction.

Detectly the eggs in stool is a definte diagnosis of paragonimiasis. Serology such as ELISA is reliable in detecting specific IgG antibodies.

Imaging can be a helpful diagnostic tool. Pulmonary paragonimiasis can be diagnosed by chest X-ray or CT scan which show combination of pleural effusion and multiple cysts, irregular linear lesions, or nodular opacities in the lung parenchyma

Neuroparagonimiasis can by diagnosed by brain CT/ scan, MRI scan or CSF test.

In our case, the diagnosis was suspected by USG (Figures 1–3), which showed a well-defined cystic area

with tubular echogenic structure within masseteric muscle. The diagnosis was confirmed by serology test, ELISA positive IgG antibodies for *Paragonimus westermani*. However, most imaging diagnosis will be radiograph, CT scan of chest or brain or MRI scan. A diagnosis made by US, like in our case has not been reported.

Treatment of paragonimiasis consists of anthelminthic therapy with praziquantel (75 mg/kg/day) in three divided doses, for three days. It is effective in more than 95% cases. Triclabendazole is an acceptable alternative agent. Treatment is indicated for individuals with symptomatic as well as asymptomatic paragonimiasis, given the potential for chronic complications [6–8].

CONCLUSION

The sucpisious of diagnosis of paragonimiosis is incresed if patient has history of ingesting undercooked crab or crayfish. Paragonimiasis can by treated with 95% effectiveness by praziquental.

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Author Contributions

Asaad S. Shujaa – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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