

Ascaris lumbricoides in hepatic vein; a case of a common parasite in an ectopic site

Ballah Akawu Denue

ABSTRACT

Introduction: *Ascaris lumbricoides* is amongst the common helminthic disease worldwide. It is more prevalent in tropical and subtropical regions, especially in communities with dearth of basic amenities and poor socioeconomic conditions. Despite high incidence of intestinal ascariasis, and rare involvement of biliary and pancreatic tree, ectopic involvement of hepatic vein with adult worm is extremely rare. **Case Report:** We report a case of 53-year-old male senior civil servant that presented with two months history of vague abdominal pain and nausea. Abdominal ultrasound scan revealed adult worm within the main trunk of the intrahepatic portal vein. Sonography was repeated on the 14th day after seven days of oral albendazole 400 mg daily. It showed complete disappearance of the adult worm devoid of residual focal lesion. **Conclusion:** We report a rare case of intrahepatic adult worm in-situ portal vein that responded to oral anti-helminthes. Sonography is an inexpensive, safe, non-invasive and valuable investigative tool that allows the observation of *ascaris lumbricoides* in the liver.

Keywords: *Ascaris lumbricoides*, Intrahepatic, Sonography

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INTRODUCTION

Ascariasis, a disease caused by *ascaris lumbricoides* is the most frequent intestinal helminthiasis. Its prevalence is high in tropical and sub-tropical regions where hygiene conditions are unfavorable [1]. Ascariasis has two presentation forms; intestinal and extra intestinal. Intestinal manifestations are dependent on the amount of parasites residing in the digestive tract and, typically, patients are asymptomatic in mild cases [2]. When the parasite load is moderate, non-specific digestive alteration manifest as abdominal colic, hypopyrexia, nausea, vomiting and malabsorption. High parasite load, especially in children, worms pack together within the small bowel and cause obstructive symptoms [3]. Unusual locations for *Ascaris* worm include gall bladder, bile duct, hepatic duct and pancreatic ducts. Ascariasis-related complications of the biliary and pancreatic systems are often caused by adult worm migrating across the ampulla of Vater, leading to obstruction and other related complications [2, 3]. High parasitic load in the intestine forces the *ascaris lumbricoides* to unusual locations. Despite the high incidence of intestinal ascariasis in underdeveloped countries, ectopic ascariasis in-situ portal vein is extremely rare.

CASE REPORT

We report a case of a 53-year-old male patient, who presented with complaint of two months history of vague abdominal pain and nausea. There were no other associated symptoms. The results of his complete blood counts parameters were essentially within normal limits. Erythrocyte sedimentation rate was 65 mm/hour. Liver function test and renal function test parameters were also within normal limits. Chest X-ray result showed no abnormality. Fasting lipid profile was essentially within normal limits. Abdominal sonography revealed “serpentine” echogenic focus with peripheral halo in keeping with adult ascaris lumbricoides within the main trunk of the intrahepatic portal vein. Repeat sonography done on the 14th day after 7 days of oral albendazole 400mg administered once daily showed complete disappearance of the adult worm devoid of residual focal lesion. We report this case due to its unique and rare presentation, and also to emphasize the need to consider heminthiasis among the differential diagnosis of focal hepatic lesion in helminthiasis endemic region. This report further repatriates the need for medical therapy rather than overzealous invasive and surgical approach as the first-line treatment for uncomplicated intrahepatic ascariasis (Figure 1 and Figure 2).

DISCUSSION

Global estimates indicates that more than one billion infestation due to ascaris lumbricoides exist. The incidence is disproportionately higher in developing countries of south America, Asia and Africa [4]. The prevalence of ascariasis is directly associated with poor hygiene in the setting of low socioeconomic condition [3, 4]. The incidences are exacerbated by malnutrition, the parasitic load and the peculiar parasite biology [4]. Despite high incidence of ascariasis in underdeveloped countries such as sub Saharan Africa, extra intestinal

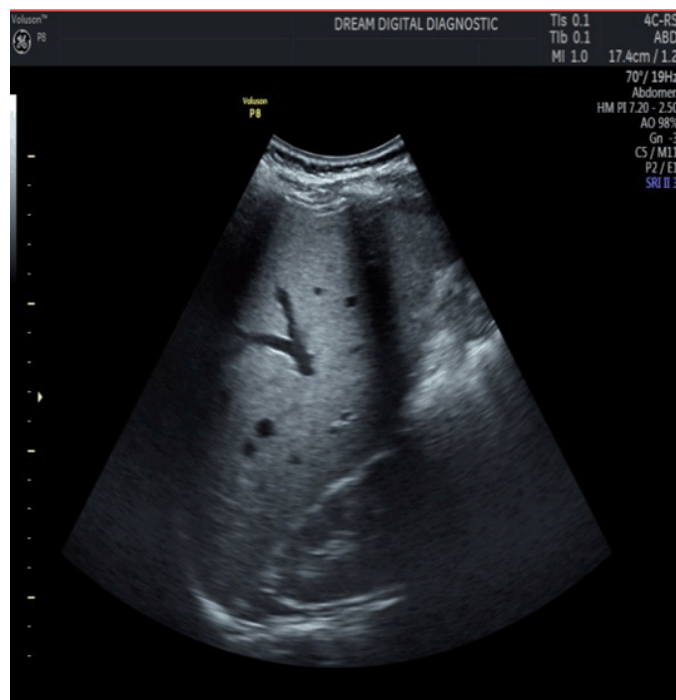


Figure 2: Repeat sonography of the liver on 14th day, after one week of medication.

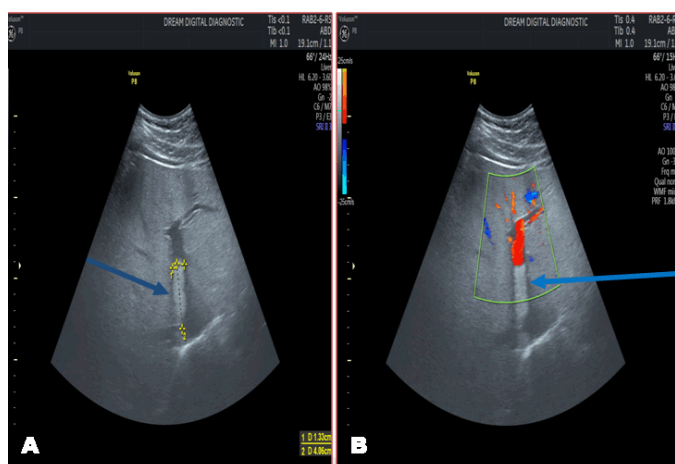


Figure 1(A and B) : Sonography showing “serpentine” echogenic focus with peripheral halo within the main trunk of the intrahepatic portal vein.

complications such as partial or total obstruction of the hepatobiliary tree and pancreas is uncommon [5]. Intra hepatic ascariasis with focus within the hepatic parenchyma is extremely rare [6]. This case report illustrates the importance of sonography in both diagnosis and monitoring treatment of intrahepatic ascariasis. The finding of living worm as evidenced by display of slow “serpentine” motion within the main trunk of the hepatic vein in this report underscores the value of sonography in establishing the diagnosis of ascariasis within hepatic parenchyma [7]. Sonography is a diagnostic tool of choice in developing countries characterized by dearth of expertise and facilities for invasive and more expensive investigations such as Endoscopic Retrograde Cholangio-Pancreatography (ERCP) or intravenous cholangiography [8]. The ERCP is also an invasive procedure that requires expertise to perform, sonography on the other hand is noninvasive, relatively inexpensive, easy to operate and readily available in developing countries. On sonography, ascaris lumbricoides appear as tubular, echogenic, non-shadowing structure, often containing a thin, longitudinal central sonolucent lines. It also has the advantage of monitoring response to anti-helminthic medication [5–8]. Unless intra hepatic ascariasis is complicated by abscess where surgical drainage may be necessary, anti-helminthic medication is the treatment of choice [8, 9]. In the index case, the patient had oral Albendazole 400 mg once daily for one week. The sonography feature of “serpentine” echogenic focus that occupied the main trunk of the intrahepatic portal vein with peripheral halo as shown in Figure 1, disappear after medication as shown

in Figure 2. Surgical procedures are favoured for parasites within the bile duct, as the death of parasite from anti-helminthic medication can result in necrotic focus and risk of stone formation; consequently, recurrent suppurative cholangitis, abscess or sepsis can occur. *Ascaris* worm possess high glucuronidase activity that deconjugate bilirubin and subsequent stone formation. The risk of helminthes-related hypersensitivity reaction is also increased with dead worms in ectopic focus, as it can result in development of urticaria, dyspnoea, and bronchial asthma. Endotoxins present in adult worm could also lead to ascaridian encephalopathy that often manifest as epileptic seizures, feverish saccade or irritability [3, 6, 9]. Other laboratory parameters were within normal limits. As observed in the index case, hypereosinophilia is often absent; it is usually elevated at initial stages of infestation during early larval migration [8, 9]. The abdominal pain and nausea regressed remarkably within three days of medication in the index case. No feature suggestive of helminthes-related hypersensitivity, cholangitis, abscess or sepsis from necrotic focus was observed after two months of follow-up.

RECOMMENDATION

It is valuable to contextualize evaluation of patients based on prevalent disease in a particular environment and socio-economic reality.

CONCLUSION

We report a rare case of intrahepatic adult worm in-situ portal vein, that responded to oral anti-helminthes. The finding of an adult worm in hepatic vein underscores the need for thorough investigating patients with vague abdominal symptoms in our setting. Sonography is an inexpensive, safe, non-invasive and valuable investigative tool that allows the observation of *ascaris lumbricoides* in the liver.

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Author Contributions

Ballah Akawu Denué – 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 of Submission

The corresponding author is the guarantor of submission.

Source of Support

None.

Consent Statement

Written informed consent was obtained from the patient for publication of this case report.

Conflict of Interest

Authors declare no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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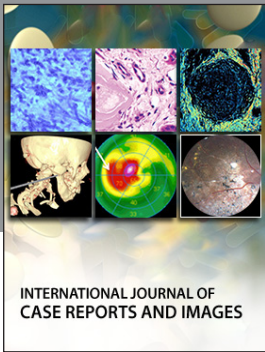
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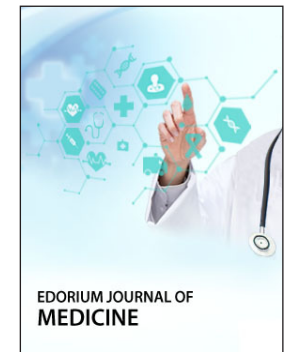
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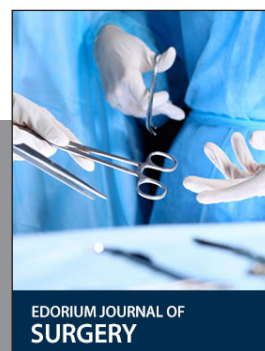
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