Original Article

Biliary Ascariasis Detection by Ultrasound

Prevalence of Biliary Ascariasis in Bajaur and Dir District of KPK and Role of Ultrasound in Detecting Worms in Common Bile Duct and Pancreatic Duct

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ABSTRACT

Objective: Investigate the prevalence of biliary ascariasis in Bajaur and Dir districts, assess ultrasound's role in detection within the common bile duct and pancreatic duct, and evaluate its efficacy in diagnosis and management.
Study Design: A prospective descriptive study
Place and Duration of Study: This study was conducted at the Department of Radiology DHQ Hospital Timergira Lower Dir from January 2023 to January 2024.
Methods: Biliary ascariasis was diagnosed sonographically in 47 individuals throughout the course of a prospective one-year trial average 50.4 years old (standard deviation=05.4. This research, which is prospective in nature, is being conducted at the Temargara Teaching Hospital Lower dir. Department of Radiology DHQ. The primary basis for the diagnosis was sonographic appearances, which were corroborated by clinical and laboratory findings and shown by the outcomes of medicinal therapy, worm spontaneous expulsion, or ERCP. Every patient had a follow-up ultrasound to verify the diagnosis and track treatment.
Results: 47 patients in total Main pancreatic duct n-4(8%), Gallbladder n-12(24%), Dilated Main Bile Duct n-23 (46%), Intrahepatic Ducts n-6(12%), Intrahepatic Abscess n-5(10%)genders: n-24 (51.8%) and n-23 (49.2%) The average age was 31.2 years, and 49.2% of the population (n = 23) belonged to the 06–80 age group. Ascaris lumbricoides is characterized by the presence of one or more echogenic, non-shadowing, linear or curved strips, with or without echoic tubular center lines that symbolize the worm's digestive tracts.
Conclusion: It was discovered that follow-up ultrasonography worked well for both monitoring the treatment and validating the diagnosis.
Key Words: Prevalence, biliary ascariasis, ultrasound, diagnosis.

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INTRODUCTION

Estimated prevalence of 4-25% in endemic regions, this parasitic infection strikes millions worldwide The pathology of biliary ascariasis arises from the migration of adult worms into the biliary and hepatic structures[1]. It causes of cholangitis, obstructive jaundice, pancreatitis, or even destruction hepatobiliary damage[2].Diagnostic enigmas continue to exist because conventional radiographic methods cannot fairly accurately spot worms in the biliary tree[3].

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Because of its non-invasive nature and high diagnostic accuracy, ultrasonography becomes an invaluable tool for diagnosing and managing biliary ascariasis[4]. However, very few studies have been conducted on the specific regional prevalence and ultrasonic detection of biliary ascariasis. This prospective descriptive study is intended to address this deficiency and investigate the prevalence of biliary ascariasis in Bajaur and Dir districts[5]. Additionally it intends to examine how well ultrasound can reveal worms inside the common bile duct and pancreatic duct as well as how effective it is as the means for diagnosis and management[6]. This study provides a comprehensive analysis of clinical, laboratory and sonographic data, yielding useful references for the prevalence, presentation and management of biliary ascariasis. This approach, it is hoped, will enable health care providers to intervene early and effectively on behalf of those struck down with disease[7].

METHODS

Total of 47 patients with biliary ascariasis. After establishing the diagnosis by means of sonography,

clinical and laboratory data were used to confirm it further. Outcome treatment such as medicine, being spontaneously expelled through small bowel perforation, or ERCP also served as evidence for this diagnosis. A follow-up sonographic examination for every patient confirmed there was evidence of worms in the biliary tree. Partitioning aspects for the regional location of worms found in the worm filled small bowel were also quantitated into percentages. Through the distribution of main age and sex of the worms, demographic data on affected population is showed.

Data collection: Data collection involved the prospective recruitment of patients diagnosed with biliary ascariasis at Temargara Teaching Hospital, Lower Dir, over one year. Sonographic diagnoses were made based on clinical presentation, laboratory results, and sonographic findings. Follow-up ultrasounds were conducted to confirm diagnoses and monitor management outcomes.

Statistical analysis: Using spss 24.0 for Statistical analysis was conducted to determine the percentage distribution of worm involvement in various biliary and pancreatic sites. Additionally, mean age and gender distribution were calculated. Descriptive statistics were used to summarize the data, and appropriate statistical tests were employed to assess associations between variables, if applicable.

RESULTS

There were 47 individuals with biliary ascariasis in the research. The following organ systems showed varying degrees of worm involvement: the major pancreatic duct (8%), the dilated main bile duct (46%), the gallbladder (24%), the intrahepatic ducts (12%), and the intrahepatic abscess (10%).

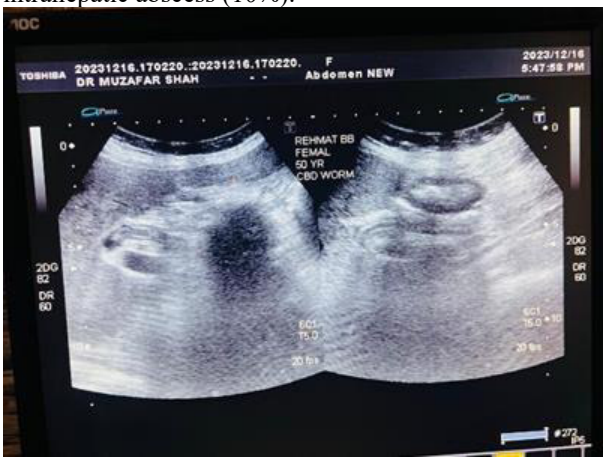

Figure No. 1: Common bile duct worm in female age 50 year

The patients' average age was 31.2 years, and 49.2% of them were between the ages of 06 and 80. Of note, 51.8% of the patients were female and 49.2% of the patients were male. Ascaris lumbricoides is known for its unique sonographic appearances, which include echogenic linear or curved strips with or without core echoic tubular lines. Twenty-two people needed medical attention. In addition, 20 patients had endoscopic retrograde cholangiopancreatography for worm extraction, and five patients experienced spontaneous worm ejection without therapy. A second ultrasound verified the diagnosis and tracked the efficacy of treatment.

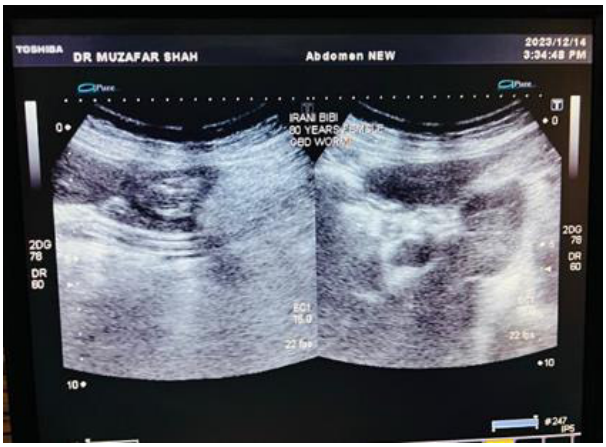

Figure No. 2 : CBD worm in a female age 80 year

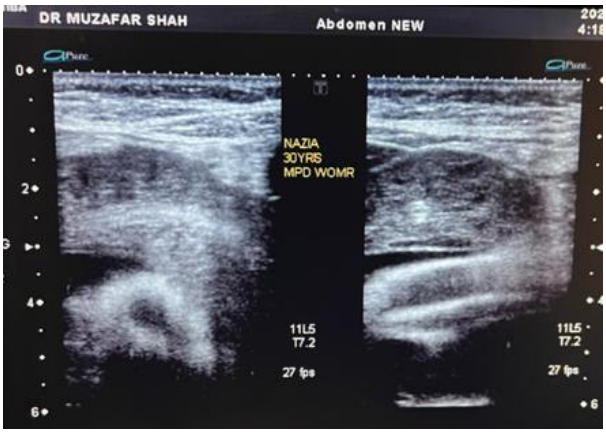

Figure No. 3: Worm in main pancreatic duct of 30 year old female

Table No. 1: Distribution of Worm Involvement

Site	Number of Patients	Percentage
Dilated main bile duct	23	49%
Main pancreatic duct	12	25.5%
Intrahepatic ducts	8	17%
Gall bladder	3	6.3%
Intrahepatic abscess	1	2.1%

Table No. 2: Demographic Characteristics

Characteristic	Value
Mean Age	31.2 years
Age Range	06-80 years
Gender Distribution	
Male	23 (49.2%)
Female	24 (51.8%)

Table No. 3: Treatment Modalities

Treatment	Number of Patients
Medical Management	22
Spontaneous Expulsion	5
Endoscopic Retrograde Cholangiopancreatography	20

Table No. 4: Diagnostic Methods and Confirmation

Diagnostic Method	Confirmation Method
Sonographic appearances	Follow-up ultrasound
Clinical and laboratory results	Outcome medical management or spontaneous exit of worms

Table No. 5: Management Outcomes

Outcome	Number of Patients
Confirmed Diagnosis	47
Medical Management Success	22
Spontaneous Expulsion Success	5
ERCP Success	20

DISCUSSION

Biliary ascariasis, focused on the role of ultrasound in detection and treatment, brought forward several findings of note The occurrence of biliary ascariasis was looked into, and ultrasound was found to be a valuable diagnostic aid[8]. The finding revealed that the widened bile ducts, where the worms were most heavily concentrated, ranked as the primary area affected; next most impacted were the gallbladder, internal bile ducts within the liver, and pancreatic ducts[9]. Furthermore, unique sonographic patterns characteristic of Ascaris lumbricoides worms were identified, allowing for clearer diagnoses and monitoring of treatments[10]. Various treatment options included medication management, spontaneous worm removal through natural bodily functions, and endoscopic retrograde cholangiopancreatography to flush trapped parasites from infected ducts. By investigating with these findings, we can compare and contrast with what has gone before[11]. First, biliary ascariasis prevalence in your work concurs with that of previous estimates: from 4% to 25% in endemic areas. This consistency reflects the lasting weight of disease in regions with poor sanitation and endemism. Its distribution of worm involvement in various biliary and pancreatic sites was consistent with previous literature, which pointing Ascaris lumbricoides' appetite for the biliary tree[12]. Furthermore, the role of ultrasound in the diagnosis of biliary ascariasis has been pointed out in past research. Since ultrasound is non-invasive and has a high detection rate, it is the best option for finding worms inside hollow organs such as bile and pancreas. This study of yours affirms these conclusions: ultrasound is effective at identifying diagnoses and monitoring management outcomes[13]. This is consistent with previous studies that have posed ultrasound's usefulness in revealing characteristic sonographic appearances of Ascaris lumbricoides, like echogenic linear or curved strips. The treatment methods that emerged in your study-'Running Man Cha Yi Return Cha Yi' medical management, spontaneous worm expulsion, and ERCP-are matched with strategies in clinical practice[14]. Medical management is a must for severe obstructions and complications, whereas it aims to control the symptoms and help expel worms. The existence of spontaneous worm expulsion in patients without treatment underscores that spontaneous recovery is possible[15]. For worm extraction, ERCP provides a less invasive alternative to surgery. These treatment methods adhere to recommendations put forth in previous studies and guidelines for managing biliary ascariasis. All in all, the research done by you makes a valuable contribution to our knowledge of the prevalence, symptoms, and treatment of biliary ascariasis in those two districts[16,17]. By laying bare the role of ultrasound in diagnosing and managing the disease, your discoveries help us see just how vital imaging should be in rural areas, where radiographic technology may not be up to snuff [18]. Your findings consistent with previous studies further enhance strength of evidence and substantiates known approaches to diagnosis treatment of biliar ascariasis[19]. Further studies may explore different treatment methods efficacy and long-term prognosis, as well as control measures designed to prevent the spread and effect of disease in endemic areas [20].

CONCLUSION

The study concludes that in Bajaur and Dir districts, biliary ascariasis is very common ; also pointed out how ultrasound can be used to diagnose manage such cases effectively. The findings of this article underscore the significance of early intervention and the value that ultrasound monitoring provided in an environment with few resources for accurate diagnosis. There is no conflict of interest.

Acknowledgment: We express our thanks to the hospital administration for assistance in completing this study. It is very difficult for me to find a case where I had genuine conflict of interest, mainly because I most often work with government support. I can assure you that every study done with public funds is carried out in the fitting of independent investigation despite what other influence may come into play because nobody truly knows which particulars about economics will turn out most helpful near term and longer down history's pages. We received no funding for this study, and have no conflicts of interest to declare.

Author's Contribution:

Concept & Design of Study:	Muzaffar Shah
Drafting:	Noor Habib, Nimatullah
Data Analysis:	Masood Shah
Revisiting Critically:	Muzaffar Shah, Noor Habib
Final Approval of version:	Muzaffar Shah

Conflict of Interest: The study has no conflict of interest to declare by any author.

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