ISSN: 2457-0400

Impact Factor: 7.675

WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

www.wjahr.com

Volume: 10, Issue: 3

Page N. 192-197

Year: 2026

Original Article

Coden USA: WJAMA3

RENAL HYDATID DISEASE: CLINICAL PRESENTATION, RADIOLOGICAL FINDINGS, AND MANAGEMENT OUTCOMES AT MOSUL AL SALAM TEACHING HOSPITAL

[1]*Dr. Luay Abdulsattar Saadallah Alhankawe, [2]Dr. Ahmad Mohammad Maree

[1,2]M.B.Ch.B./C.A.B.H.S (Urology), Al Salam Teaching Hospital.

Article Received: 04 February 2026 **Article Revised:** 25 February 2026 **Article Published:** 01 March 2026

***Corresponding Author: Dr. Luay Abdulsattar Saadallah Alhankawe**

M.B.Ch.B./C.A.B.H.S (Urology), Al Salam Teaching Hospital.

DOI: https://doi.org/10.5281/zenodo.18872338

How to cite this Article: [1]*Dr. Luay Abdulsattar Saadallah Alhankawe, [2]Dr. Ahmad Mohammad Maree. (2026). Renal Hydatid Disease: Clinical Presentation, Radiological Findings, And Management Outcomes At Mosul Al Salam Teaching Hospital. World Journal of Advance Healthcare Research, 10(3), 192–197.

ABSTRACT

Background: Hydatid disease is mainly caused by Echinococcus granulosus, is an endemic in many parts of the world. After the patient ingests food contaminated by the eggs of the parasite, the embryos will lodge in several organs, including the kidney. The formation of germinal and laminated membranes causes the production of hydatid fluid, which is later replaced with organized or calcified membranes. **Objectives:** To review 20 cases with renal hydatid disease in terms of symptoms, findings, laboratory tests, radiological findings and treatment modalities. **Methods:** This is a retrospective case-series study was carried out at the urological department of Al-Salam Teaching Hospital in Mosul city during the period from October 2020 to October 2022. The study included patients who met one or more of the following criteria; radiological signs of renal hydatid disease on ultrasonography, computed tomography with surgical confirmation of kidney hydatid cysts. In addition to histopathological confirmation after surgical removal. Patients with hydatid disease in organs other than the kidney, patients with renal cystic lesions with alternate proven diagnoses (such as simple renal cysts, abscesses, or cystic renal malignancies) and those with insufficient imaging data. **Results:** Lumbar pain formed the most common presenting symptoms and were present in 80% of the patients in our study. Four patients had also other symptoms such as nausea, vomiting and malaise. Only five patients were females (25%). The left kidney was involved in eleven patients (55%) and the right kidney in nine (45%), The presence of multivesicular cysts with mixed density due to daughter cysts was characteristics of hydatid disease. Sixteen patients underwent nephrectomy (80%, four patients underwent marsupialization and albendazole medication chemotherapy. **Conclusion:** Renal hydatidosis is a rare entity and the main challenge is preoperative diagnosis. Radiological and serologic studies, although indicative, they cannot be conclusive for the diagnosis, and only pathologic examination after surgical removal can confirm echinococcal infection.

KEYWORDS: Hydatidosis, Kidney, Mosul, Surgery.

1-INTRODUCTION

Hydatid disease, or cystic echinococcosis, is a parasitic zoonotic infection caused by the larval stage of Echinococcus granulosus.[1] It remains a major public health issue in many underdeveloped nations, particularly in areas where humans, cattle, and dogs interact often.[2] The disease is widespread in the Middle East, particularly Iraq, as a result of archaic animal husbandry practices, insufficient veterinary management, and low public health awareness.[3]

Hydatid disease mostly affects the liver and lungs, accounting for the vast majority of cases. Other organs may become involved as a result of systemic spread, resulting in uncommon and often difficult-to-diagnose presentations.[4] Renal hydatid disease is uncommon, accounting for about 2-4% of all cases. As a result, it is often ignored when diagnosing renal cystic lesions. The rarity of renal involvement, combined with its vague clinical symptoms, sometimes leads to a delayed or incorrect diagnosis.[5]

Patients with renal hydatid disease may be asymptomatic for years before lesions are identified on unrelated imaging. When symptoms appear, they are typically loin pain, hematuria, palpable abdominal mass, or recurrent urinary tract infection.[6] Hydatiduria, which is defined by the passing of daughter cysts in urine, is regarded pathognomonic but only occurs in a small percentage of patients. Because of these diverse appearances, imaging is critical for diagnosis.[7]

Radiological evaluation, particularly ultrasonography and computed tomography, is critical for diagnosing and distinguishing renal hydatid cysts from other renal cystic diseases such as simple cysts, abscesses, and cystic renal neoplasms.[8] Typical imaging characteristics include well-defined cystic lesions with internal septations, daughter cysts, calcified walls, and the presence of a detached endocyst.[9] Magnetic resonance imaging may also help in complex or ambiguous instances by better defining cyst contents and surrounding structures.[10]

The management of renal hydatid disease is determined by the cyst's size, location, and functional impact, as well as the existence of comorbidities.[11] In severe cases with substantial parenchymal destruction, treatment options range from conservative treatments with anti-helminthic therapy to surgical operations such as cyst excision, partial nephrectomy, or total nephrectomy.[12] Early detection is critical for preserving renal function and avoiding consequences such as rupture, subsequent infection, or anaphylactic reaction.[10]

Given the endemic nature of hydatid disease in northern Iraq and the scarcity of local data focusing specifically on renal involvement, the aim of this study is to assess the clinical characteristics, radiological findings, and management outcomes of patients diagnosed with renal hydatid disease at Mosul Al Salam Teaching Hospital. This study aims to raise awareness among doctors and radiologists, promote early diagnosis, and contribute to better patient treatment methods in endemic areas by focusing on institutional experience.

2-PATIENTS AND METHODS

This is a retrospective case-series study was carried out at the urological department of Al-Salam Teaching Hospital in Mosul city to evaluate all patients with renal hydatid disease during the period from October 2020 to October 2022. Twenty patients were studied.

The diagnosis was made using a mix of clinical presentation, radiographic findings, and intraoperative or histological confirmation, if available. The study included patients who met one or more of the following criteria; radiological signs of renal hydatid disease on ultrasonography, computed tomography with surgical confirmation of kidney hydatid cysts. In addition to histopathological confirmation after surgical removal. Patients with hydatid disease in organs other than the kidney, patients with renal cystic lesions with alternate proven diagnoses (such as simple renal cysts, abscesses, or cystic renal malignancies) and those with insufficient imaging data or incomplete medical records to analyze were excluded from the study.

As part of the diagnostic workup, all patients were evaluated radiologically. Ultrasonography was utilized as the first imaging modality to evaluate renal cystic lesions. In most cases, computed tomography was used to confirm the diagnosis, analyze cyst morphology, discover daughter cysts or calcifications, and examine the involvement of surrounding structures. Magnetic resonance imaging was employed selectively in difficult or unclear instances to better describe the lesion and aid in preoperative planning.

Management decisions were made depending on the cyst's size, location, renal function, and the presence of complications. Surgical intervention includes cyst excision with renal preservation, partial nephrectomy, or total nephrectomy, in cases of significant renal destruction or a non-functioning kidney.

The primary outcome measures were clinical presenting patterns, radiological features, and treatment strategies. Secondary outcome variables included surgical complications, recurrence rates, and short-term outcomes for which follow-up data was available.

Data collection form was used to evaluate these cases include history, physical examination, investigation which include urinalysis, complete blood count, abdominal ultrasonography (US), intravenous urography (IVU) and computerized tomography (CT). As well as the mode of treatment and follow up.

The statistical software SPSS-30 (Statistical Packages for Social Sciences, version 30) was used to analyze the data. Data were interpreted in simple measures of frequency and percentage.

3- RESULTS

The study includes 20 patients, there were 15 (75%) males and 5 (25%) females (figure 1). The mean age was 47.15 ± 14.84 years.

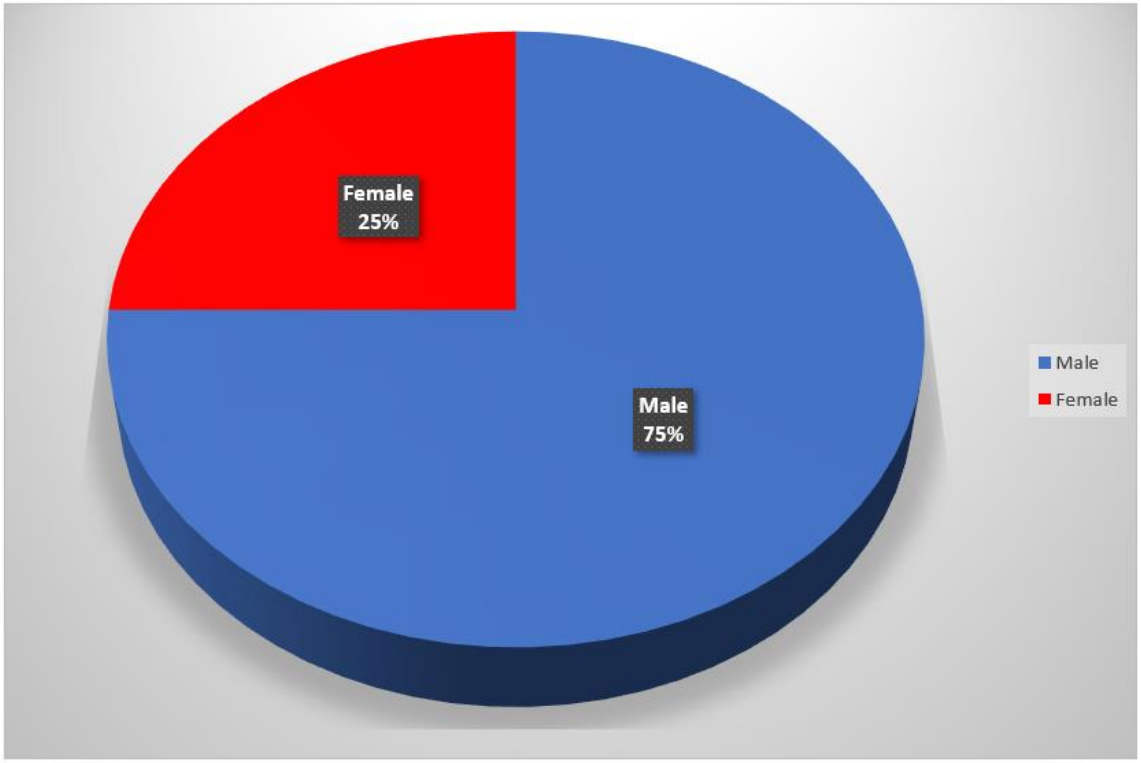


Figure 1: Distribution of the study patients according to their gender.

Table 1 shows that flank pain was the most common presenting symptoms and were present in 16 (80%) of the patients. Two patients (10%) had a palpable mass and another 2 (10%) had gross hematuria. Moreover, positive environmental contact was reported by 12 (60%) patients.

Table 1: Clinical and demographic data of the patients.

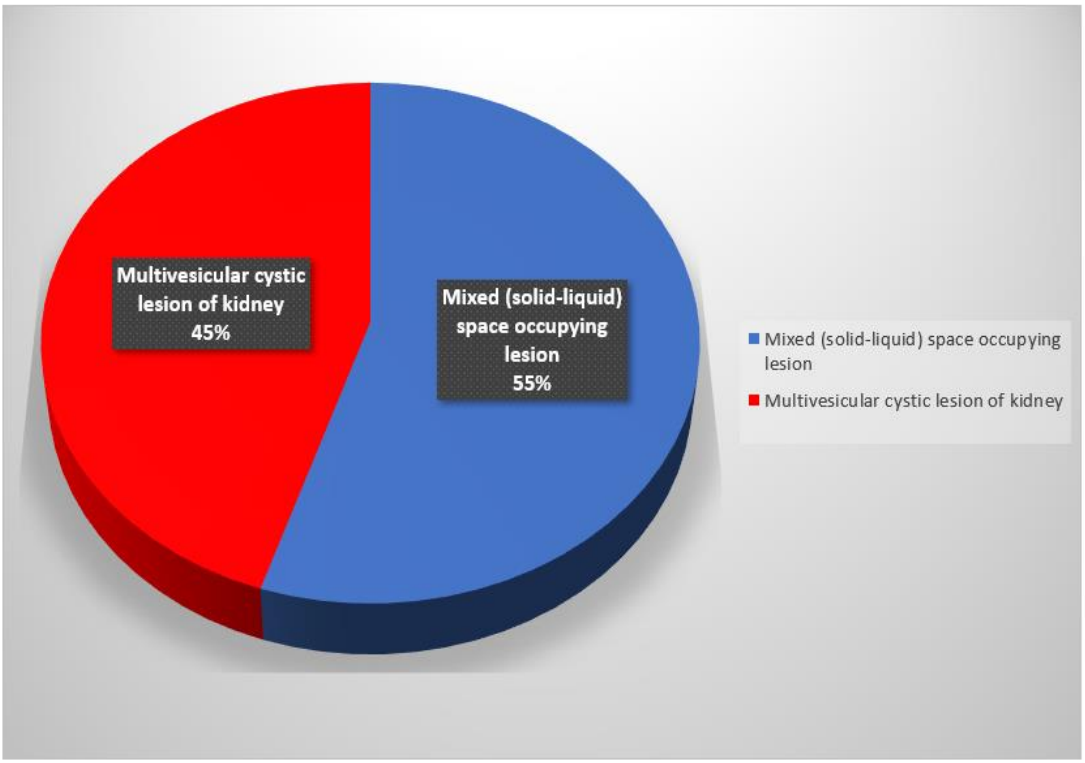
Patient Number	Age	Sex	Chief complaint	Main sign	Environmental contact
1	29	F	Flank pain	Gross hematuria	Positive
2	55	F	None	None	Negative
3	58	M	Flank pain	None	Positive
4	72	F	None	None	Negative
5	58	M	Flank pain	None	Positive
6	21	M	Flank pain	None	Negative
7	50	M	Flank pain	None	Positive
8	62	M	None	None	Positive
9	46	M	Flank pain	None	Negative
10	56	M	Flank pain	Palpable mass	Positive
11	21	M	Flank pain	Gross hematuria	Negative
12	40	F	None	None	Negative
13	58	M	Flank pain	None	Positive
14	56	M	Flank pain	None	Positive
15	59	M	Flank pain	None	Positive
16	50	M	Flank pain	None	Positive
17	21	M	Flank pain	None	Negative
18	46	M	Flank pain	None	Negative
19	56	M	Flank pain	Palpable mass	Positive
20	29	F	Flank pain	Gross hematuria	Positive

Table 2 shows that four patients (20%) had also other symptoms such as nausea, vomiting and malaise. Furthermore, left kidney was involved in eleven patients (55%) and right kidney in nine (45%). Eosinophilia was seen in ten patients (50%) and lastly 16 (80%) patients did nephrectomy.

Table 2: Patients' clinical, laboratory and treatment details.

Patient Number	Age	Sex	Location	Symptoms	Laboratory Test	Treatment
1	29	F	Right	Lumber pain, malaise	Eosinophilia (+)	Marsupialization + albendazole medication
2	55	F	Left	None	Negative	Nephrectomy
3	58	M	Left	Lumber pain	Eosinophilia (+)	Nephrectomy
4	72	F	Left	Irritative bladder symptoms	Hematuria	Nephrectomy
5	58	M	Right	Lumber pain, vomiting	Negative	Nephrectomy
6	21	M	Right	Lumber pain, malaise, nausea and vomiting	Eosinophilia (+)	Marsupialization + albendazole medication
7	50	M	Right	Lumber pain, malaise, nausea and vomiting	Eosinophilia (+)	Nephrectomy
8	62	M	Right	None	Eosinophilia (+)	Nephrectomy
9	46	M	Left	Lumber pain	Negative	Nephrectomy
10	56	M	Left	Lumber pain	Negative	Nephrectomy
11	21	M	Left	Lumber pain	Hematuria	Marsupialization + albendazole medication
12	40	F	Left	None	Negative	Nephrectomy
13	58	M	Right	Lumber pain	Eosinophilia (+)	Nephrectomy
14	56	M	Right	Lumber pain	Eosinophilia (+)	Nephrectomy
15	59	M	Left	Lumber pain	Eosinophilia (+)	Nephrectomy
16	50	M	Right	Lumber pain, malaise, nausea and vomiting	Eosinophilia (+)	Nephrectomy
17	21	M	Left	Lumber pain	Negative	Marsupialization + albendazole medication
18	46	M	Left	Lumber pain	Negative	Nephrectomy
19	56	M	Left	Lumber pain	Negative	Nephrectomy
20	29	F	Right	Lumber pain, maliase	Eosinophilia (+)	Nephrectomy

Figure 2 shows CT scan findings of renal hydatid cyst. Computed tomography was also performed in all patients and demonstrated multivesicular cystic structure in 9 patients (45%), complex cyst (Bosniac III) in 11(55%).



4. DISCUSSION

Renal hydatid disease is a rare form of cystic echinococcosis that poses a diagnostic and therapeutic challenge, particularly in endemic areas. The current study covers the clinical, radiological, and therapeutic characteristics of twenty patients diagnosed with renal hydatid disease at Mosul Al Salam Teaching Hospital, which reflect the local disease burden and therapy approaches in northern Iraq. Recent literature underlines the isolated presentation of renal hydatid disease as rare, with diversity in clinical course and radiologic characteristics, emphasizing the necessity of thorough examination in countries with hydatid endemicity.[13-14]

The current study revealed a strong male predominance, with males accounting for three-quarters of all cases. This finding is consistent with other regional studies linking male preponderance to higher occupational exposure to animals and dogs. Li et al, found males found male predominance of renal hydatid cases, which closely matched the gender distribution seen in the current study.[15] The mean age in the fifth decade is similarly consistent with prior studies, suggesting hydatid cysts' sluggish growth and prolonged asymptomatic phase.[16]

Clinically, flank pain was the most common manifestation in the study patients, and hydatiduria was not routinely detected. This clinical observation is consistent with other recent clinical reports, which emphasize the typically modest and generic symptomatic profile of renal hydatid cysts, ranging from incidental imaging detection to flank discomfort in the absence of particular pathognomonic symptoms.[17-18] Renal hydatid disease may thus have a wide clinical spectrum, emphasizing the need of considering it in the differential diagnosis of cystic renal diseases.

Environmental exposure history was reported in a high proportion of patients in this study, which is consistent with existing publications that emphasize epidemiological background when diagnosing hydatid disease. Although not present in every case, exposure to livestock and definitive hosts such as dogs is a common thread in reported instances of renal echinococcosis, supporting the endemic transmission dynamics outlined in recent single-case reports and literature summaries.[13,19]

Radiologically, complicated cystic lesions were common, demanding sophisticated imaging such as CT for appropriate characterization. Contemporary studies emphasize the role of CT in identifying internal septations, daughter cysts, and other structural hallmarks that influence management, even though imaging can mimic other complex cystic renal masses.[13,17,18] This emphasizes the ongoing diagnostic problem and the need to differentiate hydatid cysts from other benign or malignant kidney diseases.

Surgical intervention remained the primary method of definitive therapy, particularly for difficult and big cysts, as evidenced by the study outcomes. Recent studies have supported this management strategy, which recommends surgical excision, frequently with nephron-sparing purpose, when possible, to avoid complications and preserve renal function.[13,19] Preoperative antiparasitic medication, combined with careful surgical planning, is still recommended to reduce cyst rupture and dissemination.

Overall, the study's findings support developing clinical understandings that, notwithstanding its rarity, renal hydatid disease necessitates a multidisciplinary diagnosis strategy guided by current imaging, clinical awareness, and context-specific factors.

The small sample size of this study limits extensive statistical analysis, reflecting the rarity of renal hydatid disease. Mosul Al Salam Teaching Hospital's single-center design may limit its applicability in other situations. Furthermore, incomplete retrospective data collection and variable availability of serological and follow-up data may have influenced the comprehensiveness of clinical assessment and long-term outcome evaluation.

5- CONCLUSION

Renal hydatid disease is a rare but clinically significant disorder that should be included in the differential diagnosis of complex renal cystic lesions in endemic areas. Its vague clinical appearance and frequent late discovery sometimes necessitate surgical treatment. Increased awareness among doctors and radiologists, early use of relevant imaging modalities, and timely action may make renal-preserving treatment more feasible and enhance patient outcomes. More multicenter prospective trials with larger sample sizes and longer follow-up are needed to better define the best diagnostic and treatment options.

ACKNOWLEDGEMENT

We appreciate the assistance offered by the medical staff at Al Salam Teaching Hospitals and the thorough attention the Nineveh Directorate of Health gave to our study project. This study could not have been done without the assistance of each of these people.

Conflict of Intertest

About this study, the authors disclose no conflicts of interest.

REFERENCES

1. Pal M, Alemu HH, Marami LM, Garedo DR, Bodena EB. Cystic Echincoccoosis: a comprehensive review on life cycle, epidemiology, pathogenesis, clinical Spectrum, diagnosis, public health and economic implications, treatment, and control. International Journal of Clinical and

Experimental Medicine Research, Mar. 22, 2022; 6(2).
2. Hassan MF, Soomro H, Soomro MA, ul Ain Q. Hydatid Cyst and One Health Approach: Endangering Human and Animal Health. RAO ZAHID ABBAS, Ph. D., 101.
3. Ali HH, Alyasiri AJ. Zoonosis in Iraq from 2014–2018: An epidemiological study. Journal of Applied Health Sciences and Medicine, Mar. 18, 2024; 4(2): 4-13.
4. Gupta S, De AK, Ponraj P, Bhattacharya D, editors. Neglected Parasitic Zoonoses of Helminth Origin. CRC Press, 2025 Dec 18.
5. Iorga L, Anghel R, Marcu D, Socea B, Diaconu CC, Bratu OG, Andronache LF, Paunica S, Mischianu DL. Primary renal hydatid cyst—a review. Journal of Mind and Medical Sciences, Apr. 27, 2019; 6(1): 8.
6. Alanzi A, Alsaleh B, Alatefi D, AlAani KM, Mohamad H. Recurrent renal hydatid disease with suspected pelvic seeding: a case report. J Surg Case Rep., Jan. 15, 2026; 2026(1): rjaf735.
7. Das CJ, Venkatesh SS, Gupta S, Sharma R, Agarwal D, Kundra V. Abdominal hydatid disease: role of imaging in diagnosis, complications, and management. Abdominal Radiology, Nov. 2025; 50(11): 5591-606.
8. Alshoabi SA, Alkalady AH, Almas KM, Magram AO, Algaberi AK, Alareqi AA, Hamid AM, Alhazmi FH, Qurashi AA, Abdulaal OM, Aloufi KM, Alsharif WM, Alsultan KD, Omer AM, Gareeballah A. Hydatid Disease: A Radiological Pictorial Review of a Great Neoplasms Mimicker. Diagnostics (Basel), Mar. 16, 2023; 13(6): 1127.
9. Gönültaş F. Diagnosis and Treatment of Hydatid Cyst. Innovative Applications and Research Methods in Health Sciences, Dec. 2025; 181.
10. Semash K, Voskanov M. Diagnostic challenges and treatment approaches for hydatid cysts in atypical localizations. World Journal of Nephrology, Sep. 25, 2025; 14(3): 107955.
11. Malik AA, ul Bari S. Human abdominal hydatidosis. Springer Singapore, 2019 Jan 22.
12. Maachi Y, Fouimtizi J, Anas M. Renal cystic masses management: Literature review. Int J Radiol Radiat Ther., 2024; 11(2): 39-42.
13. Wubie AG, Mengistie CT, Mengistie BT, Andargie DG, Teka DC, Gebremeskel TH. Isolated renal hydatid cyst: A rare presentation of echinococcosis. Urol Case Rep., 2025; 62: 103125.
14. Ahmadi F, Karami H. A case report of renal hydatid cyst. Urol Case Rep., 2024; 59: 102928.
15. Li J, Wei J. Trends in the disease burden of cystic echinococcosis in China, 1990-2044 analysis and forecasting study. Sci Rep., Feb. 9, 2025; 15(1): 4812.
16. Kumar SA, Shetty A, Vijaya C, Geethamani V. Isolated primary renal echinococcosis: a rare entity. Int Urol Nephrol, Jun. 2013; 45(3): 613-6.
17. Maghbool M, Dehghani MR, Samizadeh B. Renal hydatid cyst mimicking malignancy: A case report. Int J Surg Case Rep., 2025; 132: 111506.
18. Velev V, Pelov T, Minova G, et al. *Diagnostic problem in a child with an isolated renal hydatid cyst: A case report.* Cureus, 2024.
19. Hivre M, Thakre P, Pandey RK, Rokade A, Singh A, Tripathy S. *Renal hydatid cyst — An exceptional presentation.* J Med Sci Res., 2024; 12(1): 98-100.