

01. A Giant 25cm Hepatobiliary Mucinous Cystic Neoplasm Mimicking Hydatid Disease- A Diagnostic Pitfall with Radiological Water-Lily Sign: A Case Report with Literature Review

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Background: Hepatobiliary mucinous cystic neoplasm is a rare type of liver tumor that primarily occurs in middle-aged women. Their radiological appearance can mimic that of parasitic liver disease, which can be a major challenge. We describe a rare case of giant hepatobiliary mucinous cystic neoplasm, which presented imaging features similar to a hepatic hydatid cyst.

Case presentation: A 55-year-old woman had a complaint of progressive abdominal distention with dull right upper quadrant pain for six months. The computed tomography with contrast enhancement revealed a huge multilocated cystic mass, approximately 176 × 164 × 250 mm, located in the right hepatic lobe. The classical radiological appearances of hydatid disease were seen, such as the 'water-lily sign' and daughter cyst-like structures. The first diagnosis was a hepatic hydatid cyst. Laparotomy showed there was a large cyst compressing the surrounding intraabdominal organs. Intraoperatively, approximately 3 liters of thick mucinous fluid were aspirated, followed by almost complete resection of the cyst wall. The initial histopathological examination performed at the Department of Pathology, Allama Iqbal Medical College, confirmed the diagnosis of a simple seromucinous cyst with endometriosis due to ovarian torsion, which is a benign gynecological process. Further detailed histopathologic evaluation at Shaukat Khanum Memorial Cancer Hospital & Research Centre however revealed multiple cystic spaces lined by cuboidal to columnar epithelium secreting mucin with typical ovarian-like stroma confirming the diagnosis of hepatobiliary mucinous cystic neoplasm, non-invasive, non-cancerous. The patient had a superficial surgical site infection post operatively and developed from multidrug resistant Klebsiella species, which was well responded to by targeted antibiotic therapy.

Conclusion: The case illustrates an uncommon radiological manifestation of hepatobiliary mucinous cystic neoplasm showing typical hydatid imaging characteristics. The presence of a giant lesion and water-lily sign along with daughter cyst-like structures is an extremely rare diagnostic pitfall. In complex cystic liver lesions, histopathology is the gold standard for diagnosis. Complete surgical removal and early diagnosis is critical for optimal management and prevention of recurrence.

Figure or Table:

Author (Ref)	Year	Lesion Size	Water-Lily Sign	Aspirated Volume	Final Diagnosis	Key Distinguishing Note (The "Ours" vs "Them")

Pedrosa et al.	2000	Variable	Yes	N/A	Hydatid Disease	Establishes the "water-lily sign" (PMID: 10835129) as a specific sign of parasite membranes.
Quigley et al.	2018	2–18 cm	No	Scant	MCN-L	Analyzed 36 cases (PMID: 29016404); found MCN-L rarely exceeds 18 cm and lacks parasitic signs.
Hutchens et al.	2023	5–15 cm	No	Moderate	MCN-L	Confirmed MCN-L (PMID: 37016682) is usually misdiagnosed as simple cysts, not parasites.
Devaney et al.	1994	Mean ~10 cm	No	NR	MCN-L	Defining study (PMID: 7943529) of 70 patients; focuses on ovarian-like stroma histology.
Cicerone et al.	2025	15 cm	No	NR	MCN-L	Recent review (PMID: 40901324) noting that parasitic mimicry in MCN-L is rare.
Present Case	2026	~25 cm	Yes	3.0 Liters	MCN-L	Gargantuan size, 3L mucinous volume, and "perfect" water-lily sign mimicry.

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