

Secondary pelvic hydatidosis in multivisceral cystic echinococcosis

Abstract:

Background. Cystic echinococcosis is endemic in Morocco. Pelvic involvement is rare and most often occurs as a secondary or multivisceral manifestation.

Case presentation. A 38-year-old multiparous woman (G5P5) living in a rural area had undergone two operations for hepatic hydatid disease 28 years earlier. Pulmonary, hepatic, splenic and pelvic lesions were identified. Pelvic ultrasound on 1 March 2022 and MRI on 7 March 2022 demonstrated two active multivesicular cystic masses, classified as Gharbi type III and morphologically corresponding to WHO-IWGE CE2. Hydatid serology was positive. Albendazole was administered before and after single-stage surgery for the hepatic, splenic and pelvic lesions; the reported total duration of medical therapy was two years. The pulmonary lesion was referred to thoracic surgery. Clinical and radiological outcome was favourable.

Conclusion. Cystic echinococcosis should be considered in the differential diagnosis of pelvic cystic masses in endemic areas, particularly when other visceral sites are involved. Management should combine multidisciplinary assessment, antiparasitic therapy, site-adapted surgery and prolonged follow-up.

Keywords: pelvic hydatidosis; cystic echinococcosis; multivisceral hydatidosis; albendazole; surgery.

Introduction

Cystic echinococcosis is a zoonosis caused by the larval stage of *Echinococcus granulosus sensu lato*. The liver and lungs are the most frequently involved organs, whereas splenic, peritoneal and pelvic sites are uncommon [1–3].

Pelvic disease may be primary or secondary to dissemination after spontaneous, traumatic or operative rupture of a visceral cyst. Its pseudotumoral presentation may mimic ovarian or peritoneal disease. We report a secondary pelvic localization occurring in multivisceral cystic echinococcosis.

Case presentation

A 38-year-old married woman, G5P5, living in a rural area had undergone two previous operations for hepatic hydatid disease 28 years earlier.

Thoracoabdominopelvic computed tomography on 26 August 2020 showed two large pulmonary cystic lesions containing daughter vesicles, including a 105 × 73 mm right lower-lobe lesion and an 86 × 64 mm intersplenodiaphragmatic lesion. Several hepatic cysts, one of which was calcified, and two right pelvic lesions measuring 74 × 67 mm and 72 × 52 mm were also described.

Pelvic ultrasound on 1 March 2022 showed a right parauterine solid-cystic mass. Pelvic MRI on 7 March 2022 demonstrated a 42 × 40 × 45 mm right parauterine mass and an 82 × 73 × 86 mm retro-uterine mass. Their multivesicular architecture, numerous daughter vesicles and detached membrane in the parauterine lesion were diagnostic imaging features of active cystic echinococcosis. Both lesions were classified as Gharbi type III and were morphologically consistent with WHO-IWGE CE2 cysts. Hepatic and splenic involvement was also present.

Hydatid serology was positive. Haemoglobin was 13.5 g/dL, white-cell count 6,800/mm³, platelet count 171,000/mm³ and liver biochemical tests were normal.

Therapeutic management

The strategy was defined jointly with the visceral surgery team, taking into account the multivisceral burden, lesion size, multivesicular stage and anatomical relationships. Albendazole was started before surgery. In this setting, the aim of preoperative therapy was to reduce protoscolex viability and the risk of dissemination should inadvertent cyst opening occur. The exact dose and preoperative duration were not available in the supplied documents and therefore cannot be presented as patient-specific data.

48 The hepatic, splenic and pelvic lesions were treated during a single abdominal and pelvic operation.
49 The essential principles of safe hydatid surgery include controlled exposure, protection of the operative
50 field, atraumatic handling and avoidance of cyst rupture or fluid leakage in order to limit anaphylaxis
51 and secondary peritoneal seeding. When anatomy permits, complete treatment should be balanced
52 against preservation of adjacent organs. In the pelvis, special attention is required for the ureters,
53 bladder, rectum, uterus, adnexa and pelvic vessels. As the detailed operative report was unavailable,
54 the resection technique, use of a protoscolicidal agent and conservative or radical nature of the
55 procedure are not attributed to this patient.

56 Albendazole was continued after surgery, with a reported total medical-treatment duration of two years.
57 Prolonged therapy ordinarily requires regular clinical and laboratory monitoring, particularly complete
58 blood count and liver enzymes, with reassessment if cytopenia, leukopenia or intolerance develops. The
59 exact monitoring schedule was not documented in the available records.

60 The pulmonary lesion was not included in the abdominal and pelvic operation. It was referred to
61 thoracic surgery for separate assessment of indication, sequencing and lung-adapted technique. This
62 illustrates the value of multidisciplinary, staged management when simultaneous treatment of all sites
63 would increase morbidity. The reported clinical and radiological outcome after abdominal and pelvic
64 treatment was favourable.

65 **Discussion**

66 **Rarity and probable mechanism**

67 The distinctive feature of this case is the exceptional association of two pelvic localizations with
68 pulmonary, hepatic and splenic disease. Pelvic hydatidosis may be primary after passage through the
69 hepatic and pulmonary filters, but is more often secondary to haematogenous or peritoneal
70 dissemination. In this patient, two hepatic operations performed 28 years earlier make remote
71 secondary seeding plausible, possibly through operative leakage or subsequent recurrence. The long
72 interval is compatible with slow cyst growth, but the available data cannot establish the exact
73 mechanism [2–4].

74 **Diagnostic contribution of imaging**

75 Clinical manifestations of pelvic cysts are non-specific and mainly reflect mass effect. Differential
76 diagnoses include ovarian cystadenoma, teratoma, endometrioma, tubo-ovarian abscess, peritoneal
77 collection and retroperitoneal tumour. In an endemic setting, daughter vesicles, detached membranes
78 or hydatid sand should suggest echinococcosis. Ultrasound is the initial examination; CT establishes
79 thoracoabdominopelvic extent and detects calcification; MRI more accurately depicts multivesicular
80 content and relationships with pelvic organs. The multivesicular Gharbi type III pattern corresponds
81 morphologically to an active WHO-IWGE CE2 cyst. Concordance of these signs with other visceral
82 lesions made the diagnosis highly probable. Positive serology provided supportive evidence but is
83 neither an independent proof nor a reliable stand-alone marker of activity [1–3].

84 **Selection of therapeutic strategy**

85 Management is not determined by cyst diameter alone. It should integrate the involved organ,
86 ultrasound stage, activity or complications, symptoms, accessibility, rupture risk, relationship to critical
87 structures, previous therapy and local expertise [1,2]. Watch-and-wait may be appropriate for selected
88 inactive lesions, whereas drug therapy alone or percutaneous techniques apply to selected situations.
89 By contrast, a large or complex multivesicular mass abutting important pelvic organs frequently requires
90 surgical discussion. Puncture–aspiration–injection–re-aspiration should not be applied automatically to
91 multivesicular cysts containing numerous daughter vesicles and may be unsuitable when access
92 carries a substantial risk of leakage or visceral injury [1,2].

93 **Surgical objectives and precautions**

94 Surgery has three main objectives: treatment of clinically relevant cysts, prevention of mechanical or
95 infectious complications and avoidance of further dissemination. The choice between complete
96 resection, pericystectomy and a conservative procedure depends on whether safe control can be
97 achieved without unnecessary organ loss. In a woman of reproductive age, preservation of the uterus
98 and adnexa is desirable whenever technically safe; this general principle does not establish which

99 procedure was performed in the present case. Isolation of the field, gentle manipulation, controlled
100 management of cyst contents and judicious protoscolicidal precautions according to local protocol are
101 essential. Spillage may cause immediate anaphylaxis and later secondary peritoneal hydatidosis
102 [1,2,5].

103 **Role of albendazole**

104 Albendazole is an important adjunct in multiple, disseminated, recurrent or surgically treated disease.
105 Given perioperatively, it aims to reduce parasite viability and recurrence after microscopic
106 contamination. Dosing is ordinarily weight- and context-adjusted and should not be reconstructed
107 retrospectively when the prescription is unavailable. Hepatotoxicity and bone-marrow suppression,
108 although uncommon, justify complete blood count and liver biochemical testing before and during
109 treatment. Duration should be individualized; the two years reported here probably reflect multivisceral
110 complexity but should not be interpreted as a universal requirement for pelvic hydatidosis [1–3].

111 **Multivisceral sequencing and follow-up**

112 In multivisceral disease, treatment order is guided by symptoms, complication risk and the feasibility of
113 an acceptable combined procedure. Single-stage treatment of hepatic, splenic and pelvic disease
114 reduced the number of abdominal operations, whereas the pulmonary lesion was assigned to a thoracic
115 team. Follow-up should be prolonged because recurrence may occur late. It combines clinical
116 assessment, comparative imaging of every initially involved site and laboratory monitoring during
117 albendazole therapy. Serology may remain positive despite morphological control and should not alone
118 dictate continued treatment [1–3].

119 **Strengths and limitations**

120 This case highlights the value of comprehensive staging and the complementary roles of ultrasound,
121 CT and MRI in an atypical pelvic mass. Its main limitations are the retrospective single-case design,
122 lack of a detailed operative report, unavailable exact albendazole dose and absence of patient-specific
123 histopathology images. The displayed histological image is therefore explicitly illustrative and literature-
124 derived; it must not be interpreted as individual pathological confirmation.

125 **Key learning points**

126 Pelvic cystic echinococcosis should be included in the differential diagnosis of a multivesicular pelvic
127 mass in patients from endemic areas, especially when hepatic, splenic or pulmonary cysts coexist.

128 Cross-sectional imaging is essential not only for diagnosis but also for mapping the relationships of
129 pelvic cysts to the urinary, digestive, genital and vascular structures before intervention.

130 Management of multivisceral disease should be individualized in a multidisciplinary setting. Surgery
131 requires meticulous prevention of spillage, albendazole requires hepatic and haematological
132 monitoring, and surveillance must include every initially involved organ.

133 **Conclusion**

134 Secondary pelvic hydatidosis is rare but should be considered in any pelvic cystic mass in an endemic
135 setting. Associated pulmonary, hepatic and splenic lesions warrant comprehensive staging. A
136 multidisciplinary strategy combining albendazole, site-adapted surgery and prolonged surveillance may
137 reduce the risks of dissemination and recurrence.

138

139 **Timeline of management**

Date or period	Step	Main findings
26 August 2020	CT	Pulmonary, hepatic, intersplenodiaphragmatic and pelvic lesions.
1 March 2022	Ultrasound	Right parauterine solid-cystic mass.
7 March 2022	Pelvic MRI	Two active multivesicular Gharbi III / WHO CE2 pelvic masses.
Perioperative period	Albendazole	Treatment before and after surgery; reported total duration of two years.
Operation	Visceral surgery	Simultaneous treatment of hepatic, splenic and pelvic lesions.
Follow-up	Outcome	Favourable outcome; thoracic referral for pulmonary involvement.

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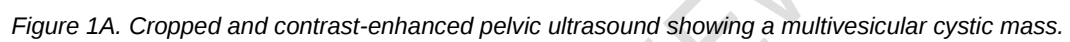


Figure 1B. Cropped and darkened pelvic ultrasound showing daughter vesicles within the mass.



Figure 1C. Pelvic ultrasound cropped to the diagnostic window; contrast enhancement improves visualization of the cystic mass.

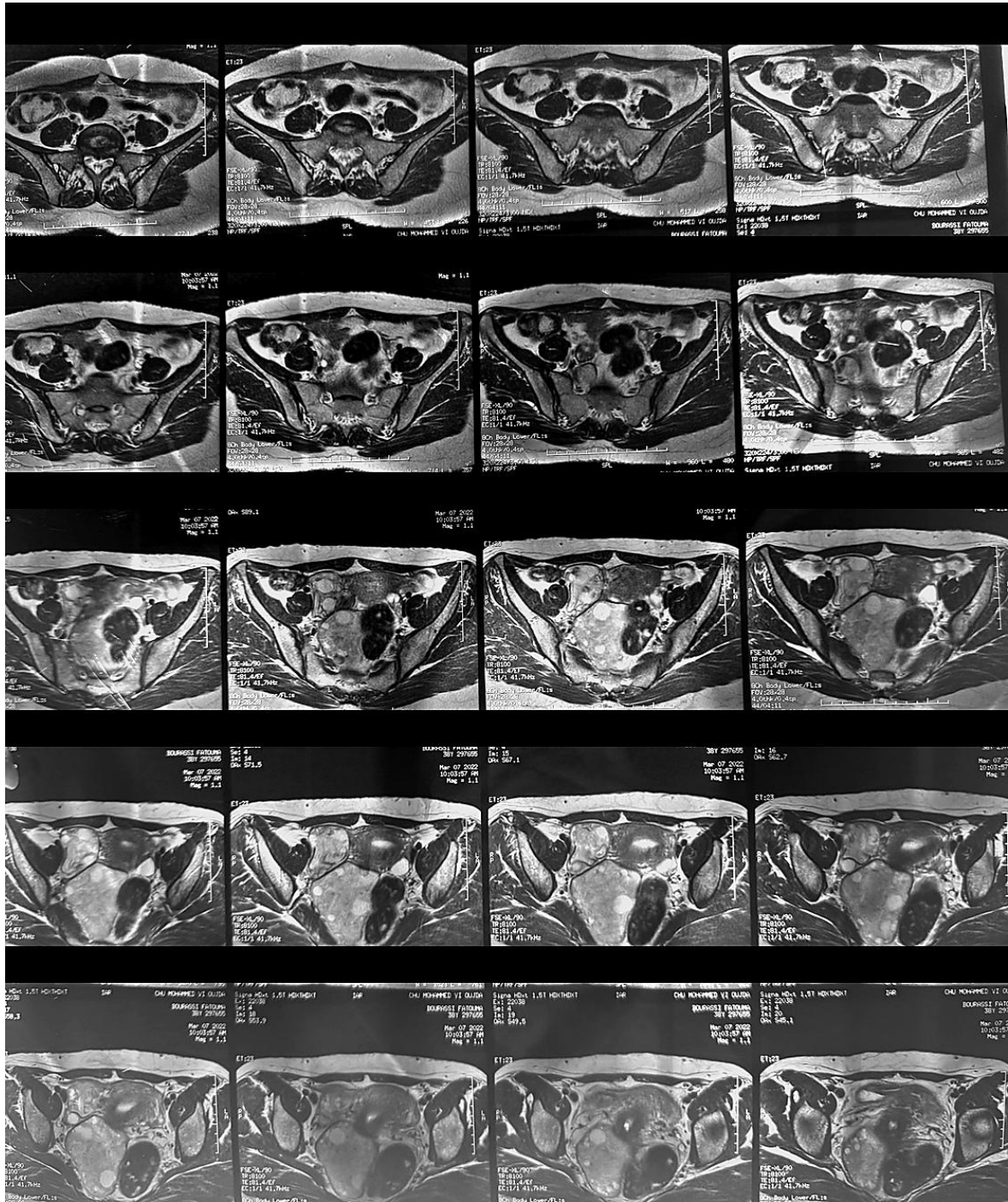


Figure 2A. Pelvic MRI dated 7 March 2022, axial image sheet, cropped and anonymized.



Figure 2B. Pelvic MRI dated 7 March 2022, sagittal image sheet, cropped and anonymized.



Figure 3. Illustrative histopathology image from the literature and not from the patient: H&E-stained section of an *Echinococcus granulosus* cyst showing host tissue, the acellular laminated layer, the germinal layer and a brood capsule containing protoscolices. Source: CDC DPDx [6].

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