We report the case of a 74-year-old woman living in a rural area, hospitalized for acute lateral myocardial infarction seen late at H48. The electrocardiogram showed ST elevation in DI, AVL and ST depression in inferior leads (Fig. 1-A). Troponin level was 9412 ng/l. Two-dimensional Trans-thoracic echocardiography (TTE) revealed a large multiloculated pericardial cyst measuring 9cm × 6cm adjacent to the left ventricle, suggesting a type 3 hydatid cyst (Fig. 1-B). The systolic function of the left ventricle was preserved at 50 %, with anterolateral hypokinesia. The coronary angiography revealed severe stenosis in the mid left anterior descending (LAD) artery (Fig. 1-C). The hydatid cyst extension evaluation was performed to discuss the therapeutic approach and the revascularization modalities.

The patient’s chest X-ray showed no lung parenchymal abnormality, cardiomegaly with convex left middle arch (Fig. 1-D). Thoraco-abdominal computed tomography (CT) imaging, performed to further characterize the lesion, confirmed the presence of a multivesicular pericardial cyst compressing and repressing the trunk of the pulmonary artery, the left ventricle and the LAD artery, as well as a second mediastinal cyst developing at the left cardiophrenic angle (Fig. 1-E).

Hydatid serology was positive. The definite diagnosis of mediastinal and pericardial hydatid cyst was made based on the radiological findings and serology. We started preoperative albendazole at a posology of 10 mg/kg/day then the patient was referred to cardiovascular surgery for further management.

A left anterolateral exploratory thoracotomy was performed. Peroperative exploration showed a large hydatid cyst of 10cm × 8cm located in the anterior mediastinum developing in the pericardium. The cyst was sterilized by injection of hypertonic saline solution, then the cystic material was aspirated, a partial peri-cystectomy was performed and the cavity was closed (Fig. 1-F).

Coronary angiography control was performed one month later and showed persistent stenosis. Percutaneous transluminal coronary angioplasty was performed successfully. Medical treatment with albendazole was continued three months after surgery. At 6-month follow-up, the patient was asymptomatic and there was no postoperative recurrence.

**Discussion**

Hydatid cyst disease, or echinococcus, is a parasitic disease caused by the larval stage of Echinococcus granulosus. Hepatic
Hydatidosis is by far the most common (75%), followed by lung locations (20%) [1].

Intrathoracic extra pulmonary locations like the chest wall, mediastinum, pericardium, myocardium, lobar fissure, diaphragmatic and pleural are rare even in endemic areas (5–7%) [2]. The hydatid cyst of the pericardium or mediastinum is unusual with a reported frequency of 7% and 0.1% - 0.5% respectively of all cases with hydatid cyst disease. Commonest location is posterior mediastinum/paravertebral (55%), followed by anterior mediastinum (36%) [2]. Two hypotheses can explain this particular location: the parasite passed the liver and lung filter and ends up in the systemic circulation or it reaches the mediastinum via the lymphatic pathways [3].

Hydatid involvement of the mediastinum is isolated in the majority of published observations, an association with cardiac involvement is found in 33% of cases [4]. An anterior mediastinum hydatid cyst can result in tracheal or superior vena cava compression and can occasionally invade the pericardium. [5].

Clinical features depend on the size and location of the cysts and involvement of neighboring structures [2,6]. Patients are usually asymptomatic, or may present with mild, recurrent, non-specific chest pain, owing to pericarditis resulting from episodes of partial rupture into the pericardium, or external compression over the coronary artery [7]. Our patient was asymptomatic for many years after infection, and the discovery was incidental following a myocardial infarction.

The geographical origin of the patient, the notion of living in a rural area and the close contact with dogs and sheep are important elements of orientation [8]. Diagnosis is established on the basis of ultrasound examination, CT scan and serology [8]. Cardiac magnetic resonance imaging (MRI) can provide interesting information in case of discrepancy between echocardiography and CT scan [6]. Serological studies are not found to be sensitive for the diagnosis, however in our case, hydatid serology was positive [9].

Untreated cardiac cysts usually rupture in the heart chambers or pericardium, causing pulmonary/systemic embolization, tamponade or anaphylactic shock. There were also some reported cases of constrictive pericarditis secondary to pericardial hydatid cyst [7,10].

The curative treatment of cardiac hydatidosis is above all surgical, it must be carried out early as soon as the diagnosis is made to prevent occurrence of complications [2]. Medical treatment by albendazole minimize the risk of per-operatively dissemination of the parasite and the reduce the incidence of recurrence [5]. In our case, the post-operative follow-up was simple and the set-back to one year is satisfying.

Conclusion

Intrathoracic extra pulmonary location (mediastinal and pericardial) of hydatid cyst is rare, even in endemic countries, which makes initial diagnosis difficult. Diagnosis can be established based on the typical radiographic, echocardiographic signs findings and hydatid serology. CT/MRI are the main tools for diagnosis and the study of possible extension. Surgery is the best treatment and must be carried out early to prevent complications. Additional adjuvant medical therapy is essential to avoid recurrence. Prevention is still the best way to eradicate this parasite.

Consent

Written informed consent was obtained from the patient for the publication of this case report and its accompanying images.
Declaration of Competing Interest

No conflict of interest to declare. Funding source: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

[1] Shah JR, Joshi A, Patkar D. A young woman with multiple cardiac mass lesions. BJR 2009;82:344–7, doi:http://dx.doi.org/10.1259/bjr/64927200.
[2] Ozyurtkan M, Koçyiğit S, Cakmak M, Oszoy I, Balci A. Case report: mediastinal hydatid cysts. Türkiye Parazitoloji Dergisi / Türkiye Parazitoloji Derneği = Acta Parasitologica Turcica / Turkish Soc Parasitol 2009;33:179–81.
[3] Ali D. Kyste hydatique médiastinal. Rev Med Liege 2019;74:.
[4] Skalli AEA, Amraoui FE, Chikhaoui N. Kyste hydatique du médiastin. À propos de 2 cas. J Radiol 2020;4:.
[5] Erdogan A, Arife A, Demircan A. Two patients presenting with mediastinal mass. Breathe 2005;1:261–3, doi:http://dx.doi.org/10.1183/1806838.0103.261.
[6] Mouhsine A, Belkouch A, Athmane EM, Roukhssi R, Fikri AE, Belyamani L, et al. Hydatid cyst of the pericardium: a case report. Pan Afr Med J 2014;19:., doi: http://dx.doi.org/10.11604/pamj.2014.19.310.5542.
[7] Panda SN. Mediastinal and pericardial hydatidosis—a case report and review of literature. OJCD 2016;06:13–7, doi:http://dx.doi.org/10.4236/ ojcd.2016.62003.
[8] Mlika M. Multiple thoracic hydatidosis: a case report. TOIDJ 2012;6:12–4, doi: http://dx.doi.org/10.2174/1874279301206010012.
[9] Kumar V, Gulati P, Anand S, Saha S, Gupta A, Singla R. A rare case of both mediastinal and pericardial hydatid cysts. 2014 4.
[10] Sahin I. An uncommon localization of a giant hydatid cyst presenting with cardiac tamponade. Arch Turk Soc Cardiol 2015;43:86–8, doi:http://dx.doi. org/10.5543/tksd.2015.59207.