PRIMARY MUSCULOSKELETAL HYDATID CYST DISEASE.


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Introduction

- Hydatid disease is an infestation by the larval stages of *Echinococcus Granulosis*. It’s the commonest disease in humans caused by *helminths*.

- More frequent occurrence in the Mediterranean countries, East Africa, South Africa, Russia and Australia.

- Hydatid disease more frequently affects the liver and the lungs.

- Musculoskeletal involvement is seen in only 1-4% of cases.
Patients and methods

- Review a 10 cases (7 men, 3 women) of isolated and primary hydatid cyst in muscle all location combined, diagnosed in our department between 2000 and 2006.
- The mean age of patients was 30 years [20-54 years].
- Clinical findings:
  - slowly growing mass: 10 cases
  - Located pain: 3 cases.
- Imaging techniques:
  - Ultrasonography (n=8),
  - CT scan (n=6),
  - MRI (n=4).
  - In all cases: hepatic sonography and chest radiography.
### Results: Table I

- In seven patients, hydatid cyst was located in the **peripheral muscle (70%)**.
- In three cases, hydatid cyst interested the **thoracic muscle (30%).**
- There was **no hepatic or pulmonary involvement** in those patients.
# Table I - Musculoskeletal Hydatid cyst: and imaging findings

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<th>Cases</th>
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<td>Tumor</td>
<td>Left quadricipital muscle</td>
<td>US</td>
<td>multilocular cystic lesion</td>
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<td>Tumor</td>
<td>Paravertebral muscle</td>
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<td>7</td>
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<td>Left gluteal and pelvic muscle</td>
<td>US - CT</td>
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<td>8</td>
<td>Tumor</td>
<td>Intercostal muscle</td>
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<td>9</td>
<td>Tumor</td>
<td>Posterior left knees</td>
<td>US – CT - MRI</td>
<td>Tissular lesion</td>
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<td>10</td>
<td>Tumor</td>
<td>Left quadricipital muscle</td>
<td>US- MRI</td>
<td>multilocular cystic lesion</td>
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Diagnosis was highly suspected on ultrasonography in 6 patients, showing:

- **unilocular cyst** lesion in 1 case and **multilocular cyst** (Fig. 1) lesion in 5 patients.
- **tissular** lesion in 3 patients.

**Fig. 1**: ultrasonography of left quadricipital muscle showed multilocular cystic lesion
CT scan

- Lesion density:
  - thoracic lesions in 3 patients: 1 unilocular (Fig.2) and 2 multicystic lesions
  - 1 pelvic and tissular mass (Fig.3)
  - gluteal and left iliopsoas: multicystic lesion in 1 patient (Fig.4)
  - bone was affected in 1 patient (femoral head and pubis bone).
  - precise extension and associated lesion.
Fig. 2: chest CT scan showed intercostal unilocular cystic lesion.
**Fig. 3:** pelvien CT scan showed tissular lesion in pelvien muscle with bone lesion (arrow).
Fig. 4: Pelvien CT scan showed left gluteal and pelvien cystic mass without bone lesion.
MRI

- Multilocular cystic lesion (Fig. with endovesicular daughter cysts and low-signal intensity on T1-weighted MR images was observed in 2 patients.

- Like-tissular lesion, with intermediary signal on T1-weighted MR images in 2 cases.

- On T2-weighted images, all cystic lesions were visualized with high signal intensity.
Fig. 5: Multilocular hydatid cystic of right knees:

- a- ultrasonography
- b- axial T1 weighted MRI
- c- axial T2 weighted MRI
- d- frontal T2 weighted MRI
Fig. 6: Sonography and MRI of left upper leg showed like-tissular lesion on sonography and heterogeneous cystic lesion on T1 and T2-weighted images.
Treatment

- Radical surgery was performed in all patients, associated with a medical treatment.
- Recurrence was observed in 3 patients.
Discussion

- Musculoskeletal lesion of cystic echinococcosis was usually occurred as isolated findings and without concomitant hepatic or pulmonary involvement.
- In our study, musculoskeletal hydatid lesion was isolated.
- Most cases of muscular hydatid disease have been associated with skeletal lesions. One patient have bone lesion in our study.
- Immunologic tests are useful in the diagnosis of hepatic hydatidosis. However, in other series, serological tests was not positive for muscular echinococcosis in all cases.
Several patterns of disease have been recognized using various imaging techniques.

These include:

- Unilocular cyst,
- Multilocular lesion
- Atypical complex or solid lesion.

The multilocular lesion with several daughter cysts inside the mother cyst is characteristic, but not pathognomonic of hydatid disease.
The CT scan:

- Cystic lesion in soft tissues, described as homogeneous and isodense with liquor, (4 patients)
- Inhomogeneous and hyperdense (2 patients in our study), or abscess-like.
- Peripheral contrast enhancement was showing for all this lesion.
- CT scan can showed linear calcification and adjacent bone lesion (1 bone lesion in our study)
MRI signal intensity pattern of the hydatid cysts reflects their contents.

Production of hydatid fluid stops when they dead.

Presence of a bacterial infection, abundant intracystic debris or inflammatory changes may affect the typical cystic morphology, transforming it into complex or solid lesion mimicking a tumor.

A T1-weighted low intensity surrounding the cyst and it may help to distinguish hydatid cysts from other lesion.
The “rim sign” on the MR images appears as a low signal intensity surrounding the cyst and it may help to distinguish hydatid cysts from other lesions.

On T2-weighted images, all cystic lesions were visualized with high signal intensity (4 in our series).

In our series, diagnosis was easily evoked in MRI images.

The endovesicular daughter cysts and calcifications were typically seen in hepatic cystic echinococcosis, but were the exception in musculoskeletal lesion.
Treatment

- Adjuvant administration of benzimidazole derivatives preoperatively and for about 3 months post-operatively is advocated by some authors.
- Surgery mast makes with a broad safety margin.
- Several recurrence can be reported (3 in our series).
Conclusion

- Muscular lesions of cystic echinococcosis are rare even in endemic areas.
- Several patterns of disease have been recognized using various imaging techniques.
- However, echinococcosis should be always suspected and bared in mind in the differential diagnosis of cystic lesions in soft tissue.
- Once the diagnosis is established, the surgeon should consider performing a radical procedure aiming in minimizing the possibility of a recurrence.