

## Hydatid cyst of the spine a study of 25 patients

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### Abstract:

**Background:** The spine is rarely affected by Hydatid cyst with incidence of (1%) of all cases. Despite advances in imaging as well as surgical and medical treatment, spine Hydatid cyst (H.C) is associated with high degree of morbidity, disability, and mortality.

**Objective:** To assess the clinical presentation, imaging of spine H.C. & the outcome of surgical management regarding neurological recovery, recurrence and mortality.

**Patients and Methods:** This is a retrospective study of the 25 patients of spine Hydatid cyst during five years period (Jan.2010 to Jan.2015), where diagnosed and treated at medical city. All patients after proper clinical assessment, imaging and laboratory tests had underwent posterior decompression laminectomy and removal of all Hydatid cyst without spine instrumentation. They received Elbendazol drugs (antihelminthic drugs) for three months with follow up six months to two years.

**Results:** They presented with paraplegia in (48%), paraparesis of lower limbs in (32%), local pain and radiculopathy in (12%) and asymptomatic in (8%). The spinal level was affected by hydatid cyst lumbar (64%), dorsal (24%), cervical (8%) and sacral (4%). 23 patients posterior decompression laminectomies were done, 8 patients re-do surgery and 2 patients had evacuation of subcutaneous multiple Hydatid cyst. Complete neurological recovery was achieved in (100%) of cases after primary surgery, but recurrence rate was in (21) patients (84%) and worsening of neurological status in two patients (8%).

**Conclusions:** Management of Hydatid cyst spine disease is challenging because of high recurrence rate, requiring aggressive and repeated surgeries with high rate of surgical complications and significant long term morbidity. Results are not satisfactory and prognosis is poor.

**Keywords:** Hydatid cyst, spine, recurrence, paraplegia, Elbendazole.

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### Introduction:

The liver and lung is the most frequent organ of human body affected by H.C. 90 % (1, 2) while vertebral spine H.C. is rare (0.2- 1%). (1) The dorsal vertebral spine is the most common affected (52%), lumbar spine (32%), sacral spine (5.5%) and cervical spine (5.5%). (3, 4) Due to rarity of its presentation, unless clinical includes spine hydatid cyst in the differential diagnosis for paralysis of limbs, this potentially curable disease will be missed and confused with T.B. spine and malignancy, the hydatid cyst can affected any part of body except teeth ,nail ,and hair. The muscles and bones were secondary affected and uncommon. (5, 6) According to brainthwaite classification of the spine Ecchinococcosis (type 1) intramedullary, (type 2) intradural extramedullary, (type 3) extradural intraspinal, (type 4) vertebral body disease and (type 5) paravertebral cysts.(7, 8, 9) Spine H.C. presents with radiculopathy of limbs, myelopathy, and /or local tenderness owing to bone vertebral body destructive disease, pathological fracture and spinal cord compression.(9, 10) M.R.I is the best standard imaging in the diagnosis and the used of the DWI help to differentiate complicated infected

Hydatid cyst from abscess and other pathologies of spine.(9, 10, 11) Successful management of spine H.C. needs aggressive surgery and non-surgical (medical treatment) adjuvant antihelminthic therapy.(1, 2) The type of surgery, extent resection and spine stabilization or no fusion with or without instrumentation depends on the site, extent of bone destruction causing spinal vertebra instability, differential diagnosis of hydatid cyst of spine following tuberculosis , fungal infection, abscess and tumor, it common in cities with poor socio\_ health state.(12, 13, 14, 15) Elbandazole drug is the preferable antihelminthic agent, it reduces the risk of recurrence and / or facilities of surgery by reducing intra cystic pressure but the period of treatment is controversy.(1, 2, 16, 17) Strict follow up and regular M.R.I should be done postoperatively to detect early any recurrence.(17) Overall recurrences rate of spine H.C. are 30%-100% despite aggressive surgical and medical treatments , with high morbidity, disability, mortality and poor prognosis.(17, 18, 19, 20) Spine H.C. behaviors like locally malignancy lesion.(19, 20, 21)In patients where surgical intervention is contraindicated the medical treatment only option of management, the rupture of cyst during surgery may cause local and general spread of disease, no chemotherapy in management of hydatid cyst of spine.(21,22).

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**Patients and methods:**

A retrospective study of 25 cases of spinal H.C. during five years (Jan.2010 to Jan. 2015) were diagnosed and treated at medical city – Baghdad. All patients were investigated with routine blood tests, plain X-Ray of spine, M.R.I of spine, chest X-Ray and ultrasound of abdomen to rule out systemic H.C. Wide posterior laminectomies were performed for neurological decompression and evacuation of all H.C. with care to prevent rupturing of the cyst as need as possible. Post-Operative Elbendazole tablets 400 mg twice daily for 4-6 months was given. Recurrent Hydatid cysts were operated upon and through the same previous approach without instrumentations and fusion. Follow up were done for patients from 6 months to two years, but most of patients refused re-do surgery and follow up.

**Results:**

During the last five years, 25 patients with spinal H.C. were diagnosed and treated at governmental hospital including 23(92%) males and two (8%) females and age of patients ranged (20-45years).

**Table 1: gender distribution of spinal Hydatid cyst**

|                     | male    | female |
|---------------------|---------|--------|
| spinal Hydatid cyst | 23(92%) | 2(8%)  |

The spinal levels were affected 16 patients in lumbar spine (64%), 6 patients in thoracic spine (24%), two patients in cervical spine (8%), one patient in sacral spine (4%). Associated systemic Hydatid diseases were affected five patients in the liver (20%), two patients in the lung (8%), and one patient in the brain (4%). The anatomical locations Of the spinal Hydatid disease were involved 12 patients in extradural intraspinal(48%), 10 patients in the vertebral bodies(40%), two patients in the paravertebral soft tissue(8%), and one patient in the intramedullary of spinal cord(4%). The clinical presentations of spinal Hydatid cyst were 12 patients limbs paraplegia(48%), 8 patients limbs paraparesis(32%), three patients local pain and/or radiculopathy(12%), and two patients asymptomatic(8%).

**Table 2: clinical presentations of spinal Hydatid cyst**

|                                 |          |
|---------------------------------|----------|
| Limbs paraplegia                | 12 (48%) |
| Limbs paraparesis               | 8 (32%)  |
| local pain and/or radiculopathy | 3 (12%)  |
| Asymptomatic                    | 2 (8%)   |

Posterior decompression laminectomies were performed in 23 patients (92%),re-do surgery in eight patients (32%) because of recurrence of Hydatid cyst, and removal of multiple paravertebral H.C. in two patients (8%). 23 patients had full neurological recovery after the primary surgery, but

the recurrence rate of Hydatid cyst was high in 21 cases (84%) and two patients (8%) had worsened neurological state. No death was recorded because most patients refused follow up and no contact with them.

**Discussion:**

Bone Hydatid cyst is rare (0.5%-4%), while spine involved in (50%) of the cases. (3, 4) Gender distribution in this study was 23 males and two females which is not agree with Islekel S,Pamir MN and Ozdemir HM,(5, 10, 17) were affected rate in males 65.8% and females 34.2%. In this series the lumbar spine is most common involved by hydatid cyst (64%), thoracic spine (24%), cervical spine (8%) and sacral spine (4%) while in following studies (3, 4) the thoracic spine was commonly involved (52%) and lumbar spine (37%). According to braithwaite classification of spine H.C.the most common location of spinal H.C. is the intraspinal extradural and vertebral bodies which is agreeing with our results. (7, 8, 9) In this study the clinical presentations were complete paraplegia (48%), paraparesis(32%), local pain radiculopathy(12%)and asymptomatic in(8%)which mostly agree with studies of Fares Y, Islekel S.(6, 10) M.R.I is the gold standard imaging which was done for all cases in this study, showing multiple cystic thin wall lesions, multifocal lesions without septative of C.S.F intensity and with non-enhancement, which agree with studies of the Lam KS, Islekel S,Braithwaite P.A.(9, 10, 11) In all operated patients in this study, posterior laminectomy was done with removal of the all H.C. without scoliocidal agent used intra-operatively, neither instrumentations or fusion, after primary surgery all patients were discharged home with good neurological status, which agree with studies of Moharamzad Y, Ozdemir HM,Limaiem F,and Karray S.(1, 2, 15, 16) Re-do surgery was done for 21 cases (84%) because of high recurrent rate in this study, which is not compatible with studies of Islekel S, Schnepfer GD, Kalinova K.(5, 7, 14) Elbendazole drugs was given three months for all patients in this study without benefit, which agree with studies of Islekel S, Limaiem F,and Karray S.(10, 15, 16)

**Conclusions:**

The clinical presentation was mostly complete paraplegia and follow by paraparesis. Posterior decompression laminectomy is most effective and beneficial in the management of spinal Hydatid cyst with almost full improving after primary surgery. Recurrent rate is high (90%) in this study. Medical treatment with Elbendazole drugs post-operatively and for recurrent cases is of doubtful benefit.

In spite of advances in surgical, medical treatment and imaging technique, spinal Hydatid cyst remains challenging, complicating and associated with high rate of morbidity and mortality.

**Authors' contributions:**

Study conception: Dr.Tarik AbdulWahid.

Study design: Dr.Ali Tarik AbdulWahid.

Acquisitions of data analysis: Dr.Tarik AbdulWahid.

Interpretation of data: Dr.Ali Tarik AbdulWahid.

Drafting of manuscript: Dr.Ali Tarik AbdulWahid.

Critical revision: Dr.Tarik AbdulWahid.

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