

## CLINICAL STUDY OF HYDATID CYST IN SOUTH RAJASTHAN

Dr. Vinod Kumar<sup>1\*</sup>, Siddhartha Verma<sup>2</sup>, Vandna Yadav<sup>3</sup>

1. Resident, Department of Surgery, RNT Medical College, Udaipur(Raj), India, 2. Associate Professor, Department of Surgery, RNT Medical College, Udaipur(Raj), India 3. Assistant professor, Department of Pathology, SMS medical college, Jaipur

\*Email id of corresponding author- [binnu\\_yaddi@ymail.com](mailto:binnu_yaddi@ymail.com)

Received: 06/01/2017

Revised: 11/07/2017

Accepted: 20/07/2017

### ABSTRACT

**Background:** Hydatidosis is a zoonotic disease of Mediterranean countries caused by larvae of Echinococcus, the exact burden of the which is either largely unknown or ignored. Our aims are to study the incidence, clinical presentations, pre and post operative complications and surgical interventions used for treatment of hydatidosis. Surgery is still the mainstay of treatment in developing countries like India. **Methodology:** This study was done in RNT Medical College, Udaipur from July 2012 to June 2016 over 100 patients. Children and pregnant females were not included. **Results:** A total of 100 patients were studied over a span of 48 months. Males were 57. Farmers were affected most followed by housewives. Liver (N=68) was most commonly affected organ followed by lung (N=26). Six cases presented at unusual sites. Most patients presented within 1 year of onset of symptoms but after 1 month. Wound infection was the most common pre and post operative complication. Various surgical modalities were used for treatment and partial pericystectomy with external drainage (N=43) was commonest followed by thoracotomy with enucleation and ICD (N=24). There were no mortality in this study. **Conclusion:** Hydatid cyst remains one of the fatal, preventable, ignored and under diagnosed disease. It affects people of both low and high socio-economic groups. Timely surgical interventions are most effective treatment with very few complications and recurrence.

**Key words:** zoonotic disease, Farmers, Wound infection.

### INTRODUCTION:

Hydatidosis is a one of the oldest zoonotic infection to affect humans. Now a days it is a disease of cosmopolitan distribution. It is caused by Echinococcus larvae having canines as definitive host and various herbivores/rodents as intermediate host. Although worms are of many types, Echinococcus granulosus and Echinococcus multilocularis are the commonly

found ones which cause cystic and alveolar echinococcosis respectively. (1)

The exact burden of the infection in communities is either largely unknown or ignored. Also the prevalence varies from area to area. Based on Food and Agricultural Organization (FAO) report, economic damages caused by parasite

infection in developed and developing countries are respectively 16% and 30% of their whole livestock production and it is even more in countries where there is no serious prevention policy against parasite infections (WHO,2001).(2)

The disease has a worldwide distribution and is more prevalent in central Europe, Australia, South America and Middle East Asia.(3) It is well recognized and documented in India specially in Andhra Pradesh, Telangana, Tamilnadu and Saurashtra(4) but not much literature is available about the disease prevalence and other factors in north India.

Clinical presentation varies from asymptomatic illness to acute emergencies. With advancement in surgical techniques, organ imaging as well as immunological techniques, diagnosis and treatment of hydatid disease is at the most sophisticated level, resulting in marked decrease in morbidity and mortality. Hydatid cysts have been reported from many parts of human body like lungs, ovaries, bones, peritoneum, breast, brain etc(5)

Among many modes of treatments, Surgery remains the mainstay of definitive treatment throughout the world. Newer surgical techniques like PAIR, PEVAC (6) and laparoscopic surgery have been in vogue and have given good results in situations where in they are indicated. Medical therapy with Albendazole has advantages especially in cases of recurrent disease or in patient in whom surgery is otherwise in advisable.(7) These infections negatively impact the health and productivity of both human and lower animals.

Though sheep rearing is not main profession of people living in south Rajasthan, they have pets for one or other reasons. Hydatid disease has been reported in different regions of Rajasthan

and the incidence is also variable.(8) The RNT Medical College mainly caters to the rural and tribal population in South Rajasthan. Majority of the population are dependent on farming for their live hood. As it is known that this disease usually affects the younger age group, who happen to be the more economically productive age group, a study of this disease, its distribution in the population and its burden on the community attains significance.

In this observational study done over a period of 51 months, we have made an attempt at studying the different modes of presentations, diagnostic modalities used, different surgical options used and their final outcome.

## MATERIALS AND METHODS

**Study Design:** Observational Study. **Study setting:** The clinical study of hydatid disease was conducted in Rabindra Nath Tagore Medical College, based on the available and documented data. **Study Duration:** It was carried out over a span of 48 months from July 2012 to June 2016. **Study subjects:** Inclusion Criteria: Surgically confirmed cases were included in the study. Exclusion criteria: Pregnant females and children<12 years of age.

**Study Methodology:** All case records of patients during this period with a confirmed diagnosis of hydatid disease were sorted out from the medical records and data were retrieved from these case records in relation to: Demographic details, symptoms at presentation, features in clinical examination, any complications of hydatid disease, investigations done, treatment given and surgical intervention details with postoperative outcome.

Diagnosis of hydatid disease was made on the basis of history, clinical examination, and radiological investigations. Routine

hematological profile was obtained with special reference to the eosinophils count. Liver function test was done in patient with hepatic hydatid. The cases were treated surgically and confirmed histopathologically.

## RESULTS:

Among total study population of 100 patients, the mean age of presentation was 40.7 years. The youngest patient was 13 years of age, whereas the oldest patient was 72 years of age. The maximum numbers of patients were in the age group of 31-40 years (26 patients, 26%) followed very closely by 5th and 6th decade age group patients. Males were affected slightly more than females (M=57, Females=43 Most of the people (61%) belonged to rural area and were mainly farmers (40%) followed by housewives (26%) and daily wage workers (12%).

Patients presented with a variety of symptoms and most of the patients were having >1 symptom either at a time or over a span of time. Maximum number of patients (61%) presented within 1-6 months of onset of symptoms. When there was multiple organ involvement, cyst of larger size/ number was counted as organ affected. In our study, 7 patients had multiple organ involvement, 5 of them were counted with liver and 2 in lungs.

Patients of abdominal hydatidosis presented mainly with pain (62), Lump (49), vomiting (37), fever (26) and jaundice (11) either alone or in combination. Those with pulmonary hydatidosis had cough (21), chest pain (19), fever (17) and hemoptysis (8) as chief complaints.

Various investigations were done pre and postoperatively for confirmation of diagnosis. Absolute eosinophilic count of >600 cells/cumm were counted as eosinophilia. Presence of laminated membrane (along with clinical and

radiologic correlation), hooklets or scolex were counted in favour of confirmed diagnosis.

Liver was the most commonly affected organ (N=56) followed by lungs (N=26). In liver, right lobe (42) and in lung right lung and lower lobes were mainly affected.

**Table I: Study population distribution according to the affected organ**

Organ affected	Number of patients
Liver	56
Lung	24
Multiple organs involved	7
Spleen	5
Kidney	2
Muscle	6
Total	100

**Table II: Duration of presenting complaints.**

Duration of symptoms	Abdominal hydatid	Pulmonary hydatid	Others
< 1 month	7	4	1
1-6 months	41	18	2
6 months-1 yr	18	3	1
>1 yr	3	1	2
Total	68	26	6

**Table III: Incidence of Complications in the study population (Pre-operative)**

Organ	Simple Cysts/ Uncomplicated	Infected	Rupture	Total
Abdominal	37	19	12	68
Lung	10	12	04	26
Others	06	0	0	06
<b>Total</b>	<b>53</b>	<b>31</b>	<b>16</b>	<b>100</b>

**Table IV: Type of surgical intervention done in the study population.**

Type of surgical intervention	Procedures done
Partial pericystectomy with drainage	43
Thoracotomy with enucleation and ICD	24
Pericystectomy/Deroofing	14
Partial Pericystectomy with omentoplasty	12
Laparoscopy partial pericystectomy with external drainage	04
Splenectomy	03
<b>Total</b>	<b>100</b>

**Table V: Incidence of post-operative complications in the study population.**

Complications	Number of patients
<b>Total patients</b>	<b>38</b>
<b>Wound infection</b>	<b>15</b>
<b>Residual cavity</b>	<b>12</b>
<b>Intra abdominal collection</b>	<b>5</b>
<b>Bile leak</b>	<b>2</b>
<b>Bronchopleural fistula</b>	<b>3</b>
<b>Pyothorax</b>	<b>1</b>

## DISCUSSION

In the present study of 100 cases done over a period of 4 years, we studied various demographic details along with interventions done and their complications. We also compared our findings with other authors.

Data on sex distribution had been and are still variable with some showing males and others showing female predominance and few showing almost equal distribution.

Many studies (8), (12) have found the highest incidence of the hydatid disease in 2nd and 3rd decade. This distribution of age emphasizes that main targets of disease is younger and productive population.

Regarding the occurrence of hydatid disease in different occupation patients, our findings (farmers=40 %, housewives=26 %) are in concordance with the work of Ramdayal et al(13) (2016) (Farmers=40%,

Housewives=33%). Kayal et al(12) (2015) found that housewives were affected (N=11) more commonly than farmers (N=8).

The most appropriate explanation for this finding is that these two groups are most commonly engaged in the care of live stock.

As mentioned earlier, RNT medical college mostly deals with rural and adivasi population, who seeks medical attention relatively later attributed to their economical condition. The

course of disease is slow and they try to neglect any asymptomatic lump in abdomen which does not hamper their routine activities.

According to Saxena et al(8) (2016) and Dayal et al(13) (2016), pain in abdomen has been the most common presenting symptom, followed by lump in abdomen. Ghosal et al(14) (2012) did their study on 106 patients of lung hydatids and found cough and chest pain as main presenting complaints as we did.

**Table VI: Comparison of Sex distribution in Study population**

Author	Year	Total no. of cases	Males (%)	Females
Ayles HM(9)	2002	70	43 (61)	27 (39)
Tsaroucha(10)	2005	135	54 (40)	81 (60)
Abdelraouf AMR et al(11)	2015	54	35 (64.8)	9 (35.2)
Kayal A et al(12)	2016	25	09 (36)	16 (64)
Saxena S(8)	2016	50	19 (38)	31 (62)
Present study	2017	100	57 (57)	43 (43)

**Table VII: Comparison of most common presentations of hydatid disease.**

Symptoms	Dayal(13) (n=30)(2016)	Kayal et al(12) (N=25) (2015)	Saxena S et al(8) (n=50) (2016)	Present study (N=100) (2017)
Asymptomatic	-	-	-	-
Lump abdomen	20 (66.3)	17	1 (2)	49
Pain in abdomen	23 (76.6)	-	23 (46)	62
Jaundice	-	-	-	11
Fever	7 (23.3)	-	2 (4)	43
Vomiting	14 (47.6)	-	13 (26)	37

<b>Cough</b>	-	02	1 (2)	21
<b>Chest pain</b>	-	-	3 (6)	19
<b>Others (hemoptysis etc.)</b>	-	06	7 (14)	8

**Table VIII: Comparison of organ specific distribution of hydatid disease**

<b>Author</b>	<b>No of case</b>	<b>Year</b>	<b>Liver</b>	<b>Lung</b>	<b>Spleen</b>	<b>Kidney</b>	<b>Others</b>
<b>Ayles(9)</b>	70	2002	33 (47.1)	8 (11.4)	-	-	29 (41.4)
<b>Kayal A et al(12)</b>	25	2015	12 (48)	03 (12)	02 (8)	01 (4)	07 (28)
<b>Saxena(8)</b>	50	2016	40(80)	4(8)	2(4)	-	4 (8)
<b>Dr. RamDayal(13)</b>	30	2016	26(86.7)	-	1(3.3)	-	3(9.9)
<b>Present study</b>	100	2017	61 (61)	26 (26)	4 (4)	2 (2)	7 (7)

**Table IX: Comparison of surgical intervention of Hepatic hydatid in study population**

<b>Author</b>	<b>Year</b>	<b>Partial Pericystectomy with drainage</b>	<b>Pericystectomy/ Deroofing</b>	<b>Partial cystectomy with omentoplasty</b>	<b>Thoractomy with ICD</b>	<b>Others</b>
<b>Balik et al(15)</b>	1999	122(40.15%)		40(13.2%)	-	42(13.8%)
<b>Ghoshal et al(14)</b>	2012	-	76 (91.4%)	-	2 (2.4%)	3 (6.1%)
<b>Saxena S et al(8)</b>	2016	36 (72%)	6 (12%)			8 (16%)
<b>Present study</b>	2017	43 (86%)	14 (28%)	12 (24%)	24 (48%)	7 (14%) (splectomy Cyst excision etc.)

**Table X: Post operative complications.**

Author	Year	No. of Cx	Wound infection	Residual cavity	Intra-abdominal collection	Bile leak	Others
Mehta RB et al(16)	1982	14	5(35.7)	-	-	1(7.1)	8(57.1)
Barros JL et al(17)	1978	63	10(15.57)	3(4.76)	5(7.93)	8(12.69)	37(58.7)
Present study	2017	38	15	12	05	02	O1

We found wound infection as the most common post-operative complication and our findings are in concordance with Mehta RB et al(16) and Barros JL et al. (17) There were no mortalities in our study.

#### **CONCLUSION:**

We conclude that hydatid cyst is one of the under diagnosed and ignored fatal disease which is preventable. It mostly affects younger people who are more in contact with pets/cattles. People seek medical attention only after being symptomatic because of economical reasons and lack of knowledge regarding this particular disease. Possibility of hydatid cyst should be considered in differential diagnosis of cystic swellings. Pre-operative laboratory tests are of not much value. Casoni's intradermal test is usually not done. Early treatment is mandatory to avoid local and general complications which are directly related to duration of cyst. Aim of treatment should be complete removal of parasite without any spillage during operation and unnecessary damage to host tissue.

#### **CONFLICT OF INTERESTS:**

The authors declare that there is no conflict of interests regarding the publication of this paper.

#### **REFERENCES:**

1. Saidi F. Surgery of Hydatid Disease, 1976, W B Saunders Company Ltd, Philadelphia.
2. World Health Organisation Office International des Epizooties 2001. WHO/OIE manual on echinococcosis in human and animals: a public health problem of global concern. World Organisation for Animal Health, Paris, France.
3. Sayek, Rifat Y, Yilmaz S. Surgical treatment of Hydatid disease of the liver, Archives of Surgery, 1980;115:847-50.
4. Tiwary AK, Tiwary N et al. Hydatid disease in Chotanagpur region of South Bihar, Indian journal of surgery. 1988:14-8.
5. Nepalia S, Joshi A, Shende A, Sharma SS. Management of echinococcosis, JAPI Jun 2006;54,:458-62.
6. Schipper HG, Lameris JS, van Delden OM, Rauws EA, Kager PA et al. Percutaneous evacuation(PEVAC) of multivesicular echinococcal cyst with or without cystobiliary fistulas which contains non drainable material:

first result of a modified PAIR method. Gut 2002;50:718-23.

7. Khuroo, M.S., S.A. Zargar and R. Mahajan. Echinococcus granulosus cysts in the liver: management with percutaneous drainage. Radiology 1991;180:141-5.
8. Sangeeta Saxena, Radhey Sankhala, Dharmraj Meena, Harshverdhan Khokhar, Richa Jhuria, Arpit Samdani. Common mode of presentation of Hydatid cyst in Hdoti Zone of Rajasthan, India- a one year study. IOSR Journal of Dental and Medical Sciences Jun 2016;15(6)Ver.XIV;123-8.
9. Ayles HM, Corbett EL, Taylor I, Cowie AGA, Bligh J, Walmsley K, Bryceson ADM. A combined medical and surgical approach to hydatid disease: 12 years experience at the hospital for tropical disease, London, Ann R Coll Surg Engl 2002;84:100-5.
10. Tsaroucha AK, Polychronidis AC, Lyrantzopoulos N, Pitiakoudis MS, Karayiannakis JA, Manolas KJ, Simopoulos CE. Hydatid disease of the abdomen and other locations, World J Surg. 2005 ;29(9):1161-5.
11. Abdelraouf AMR, Abd El-Aal AA, Shoeib EY, Attia SS, Hanafy NA, et al. Clinical and Serological Outcomes in Different Surgical Approaches for Hepatic Human Hydatidosis. J Bacteriol Parasitol 2015;6:231. doi: 10.4172/2155-9597.1000231
12. Ankit Kayal and Akhlak Hussain. A Comprehensive Prospective Clinical Study of Hydatid Disease. ISRN Gastroenterology, 5 pages
13. Dayal R, Rathore SS, Verma D, Parmar S, Yadav RR, Gupta MK. The study of hydatid disease- a retrospective study of last 10 years in western Rajasthan India, Journal of Dental and Medical Sciences 2016;15(2):45-7.
14. Ghoshal AG, Sarkar S, Saha K, Sarkar U, Kundu S, Chatterjee S et al. Hydatid lung disease: an analysis of five years cumulative data from Kolkata, Assoc Physicians India 2012 1;60:12-6.
15. Balik AA, Basoglu M, Celebi F, Oren D, Polat KY, Atamanalp SS, Akcay MN. Surgical treatment of hydatid disease of the liver. Arch Surg. 1999;134:166-9.
16. Mehta RB, Ananthkrishnan N, Gupta BK, Srivastava KK et al. Hydatid disease in Pondicherry, Indian journal of Surgery, 1982;44:88-94.
17. Jose Luis Barros. Hydatid Disease of the liver, American Journal of Surgery, 1978;135:597-600.