

THE LAPAROSCOPIC TREATMENT OF THE HEPATIC HYDATID CYSTS – THE SECOND SURGICAL CLINIC’S SIBIU EXPERIENCE

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Keywords hepatic hydatid cyst

Abstract: The hepatic hydatid cyst, as an extremely serious disease, with great social and economic expenses, is also treatable by using modern techniques. The laparoscopic treatment is made possible with the use of special patented devices, which led to better results than the classic, open interventions.

Cuvinte cheie: Chistul hidatic hepatic

Rezumat: Chistul hidatic hepatic, afecțiune extrem de gravă și cu repercursiuni sociale și economice semnificative, beneficiază de soluții terapeutice moderne. Tratatamentul laparoscopic al chistului hidatic hepatic a necesitat apariția instrumentarului specific, brevetat OSIM, cu ajutorul căruia s-a ajuns la rezultate superioare chirurgiei deschise în tratarea acestei afecțiuni.

INTRODUCTION

The hydatid hepatic cyst is a disease rather frequent for Romania, with serious complications that require in almost all cases a surgical treatment. Due to length of healing process in open surgery, the laparoscopic approach is a better solution in the management of these cases.

THE AIM OF THE STUDY

Our paper is analyzing the results of laparoscopic treatment for the hepatic hydatid cysts, using the specially designed devices – The device for fluidization of the hydatid cyst content (State Office for Inventions and Trademarks Patent No.120810 – Prof. Dr. Dan Sabau) and the Suction device for hydatid cyst and ovarian cyst (State Office for Inventions and Trademarks Patent No.120809 – Prof. Dr. Dan Sabau), comparing them with the results of classic treatment by open surgery approach.

MATERIAL AND METHOD

We have analyzed a 15 years period (1996-2010), with 128 interventions for hepatic hydrated cysts performed in the Second Surgical Clinic, out of which 36 by laparoscopy (28%), and 92 cases resolved by open surgery (72 %).

The annually distribution demonstrates an increasing percentage of the laparoscopic interventions, with a 6 cases-peak in 2004. We also underline the fact that for the 2004-2007 interval, and also for the year 2010, the percentage of the laparoscopic treated cases is exceeding the percentage of cases treated with open surgery. From the 15 years studied, the first two 1996, 1997 are the years without laparoscopic interventions at all. The annual average of cases treated by laparoscopy starting from 2008, the year when this type of treatment was introduced in the Second Surgical Clinic, in the Clinical Emergency County Hospital of Sibiu is 2,769 cases/year, with a ratio of 32,14% from the total number of cases.

The sex ratio demonstrates a slowly greater number of male patients, a result different from the literature data, where the sex distribution of patients is equal or even reversed. We explain this result by the greater implication of males in the

sheep-growing industry in our region and country.

The age groups with biggest number of patients are between 21-30 years and 51-60 years; the younger patients have a better access to medical care and better acceptance of surgical treatment, after they are diagnosed in the ambulatory centers. Between 51-60 years, the addressability is higher due to the longer natural history of the hydatid disease, with more serious symptoms, that forces the patients to seek for medical care, special investigations and finally for the surgical treatment.

The extreme age groups, under 18 years are often treated in the Pediatric Surgery Units, while the age group over 70 is less exposed to infestation with the parasite, or they are free of symptoms due to a previous cure.

The average age for the patients who have suffered from the disease and were treated in our Clinic and included in this study was 46,57 years for the group with open interventions and 39,25 years for the group with laparoscopic treatment, a statistically significant difference ($p < 0,05$). The younger age of patients from the laparoscopy group can be explained by the better addressability and acceptance of the laparoscopic treatment, especially at the beginning of our experience with this type of approach for the pathology (1996-2000).

The data concerning the origins of the patients are similar with those of the literature, with a greater incidence of the parasitic infestations in the rural areas, due to more frequent contact with animal carriers, but also due to lack of treatment for the animals. Although, the general tendency is towards the equalization of the number of patients from rural and urban areas, because of the changes in the population's distribution, and reduction of the number of the people involved in agriculture in general. Other factors are the increase of dog populations in urban areas, the movement of people towards urban areas, as a result of globalization and urbanization.

The intra-hepatic topography of the cysts is respecting the hepatic volume and portal vascular distribution, the location of cysts being dependant of the blood quantity that reaches each hepatic lobe through the portal vein branches; the parasitic embryos are transported by the blood into the liver, where they transform into the metacystode, after the intestinal absorption.

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Article received on 28.05.2011 and accepted for publication on 24.10.2011
ACTA MEDICA TRANSILVANICA December 2011; 2(4)247-248

CLINICAL ASPECTS

We have studied the difference between the incidences of single cysts compared with multiple ones, with a clear dominance of single cysts (85%), a normal proportion considering the prevalence of Echinococcus Granulosus Sp. in our country, as a variety that rarely appears in multiple hepatic locations. The charts presented above are illustrating the ratio between absolute numbers and also between percentiles

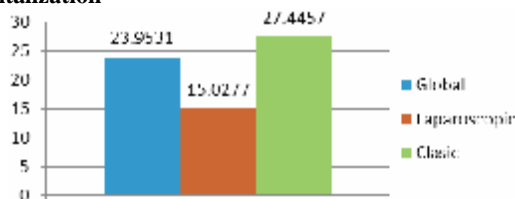
RESULTS

One of the most representative criteria for assessing the effectiveness, usefulness and benefits of this type of treatment in our current practice is the average number of hospitalization days, with a greater significance considering the fact that all the patients discharged are "surgically cured".

The global average of hospital stay is of 23,95 days, arithmetic average between the laparoscopy group (15,02 days), and the open surgery group (27,44 days), with a faster healing in the first one due to the lesser aggression to the abdominal wall structures. The statistical analysis demonstrates a $p < 0,05$ (0,0001), with a highly significant difference.

As features of the laparoscopic interventions we can list the lower pain at the incision sites, less frequent haemorrhages, the lack of eviscerations, and less frequent infections. For our group we had no immediate complications at the level of the abdominal wall.

Figure no. 1. The global average of the period of hospitalization

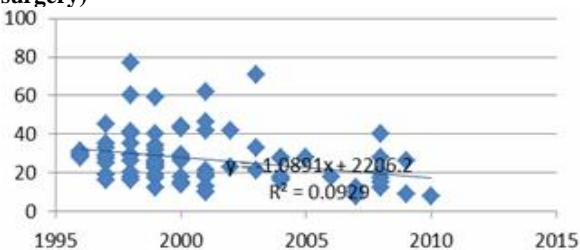


The correlation charts between the length of hospital stay and the year of the intervention show no significant differences in both groups, laparoscopic or open surgery, with the results non-dependant of the learning curve in the case of laparoscopic surgery. The slight increase in the length of hospital stay during the end of the studied period is more likely linked to the increase in the number of more complicated cases treated by laparoscopy.

The duration of the surgery is another factor analyzed, with an average of 1,84 hours for the laparoscopic interventions, and 2,3 hours for the cases treated by the classic open approach, with a statistically significant $p = 0,0031$.

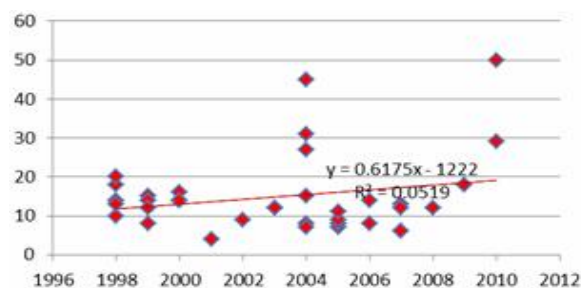
The time spent in the OR had a minimal annual increase for the group treated with open surgery ($R = 0,070257874$), and a decrease for the laparoscopy group ($R = -0,35930$), showing a significant decrease by the years in the second group, although the complexity of the cases also increased

Figure no. 2. Correlation charts between the length of hospital stay and the year of the intervention (open surgery)



The cyst size is another very important parameter for our group, with an average of 7,532 cm., resulted from 7,8456 cm. for the cases treated with open surgery, and 6,731 cm. for the cases treated with laparoscopic interventions ($p = 0,0537$ non-significant).

Figure no. 3. The correlation charts between the length of hospital stay and the year of the intervention (laparoscopic)



The correlation between the origin of the patients and the length of the hospital stay show a minimal difference between the patients from the rural areas versus the patients from the urban areas, with a light increase for patients from rural areas ($p = 0,922$), with low statistical significance. In the group treated by laparoscopic approach, we revealed a slightly increased length of the hospital stay in the group from rural regions, that can be explained by the difficulty of follow-up in such areas, requiring a longer hospitalization.

CONCLUSIONS

The surgery addressed to the hepatic hydatid cysts benefits heavily from the appearance of the laparoscopy, with all its advantages, especially after the introduction of the patented devices that we are currently using: The device for fluidization of the hydatid cyst content (State Office for Inventions and Trademarks Patent No.120810 – Prof. Dr. Dan Sabau) and the Suction device for hydatid cyst and ovarian cyst (State Office for Inventions and Trademarks Patent No.120809 – Prof. Dr. Dan Sabau), offering a better treatment alternative for the patient, and also from the economical point of view.

Note: Fragments of this article are part of the PhD thesis entitled "Laparoscopic surgery of hepatic hydatid cyst" Author: Alexandru-Dan Sabau, being taken with the written consent of the author

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