PERSONAL EXPERIENCE WITH ACTIVE ASPIRATION
IN THE TREATMENT OF PURULENT ECHINOCOCCUS
CYSTS OF THE LIVER

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Echinococcosis is still a rather frequently met with affection in this
country, corroborated also by the statistical data, according to which 0.5%
of the hospitalized patients are affected with echinococcus disease (3). The
mortality rate of the condition is high—9 to 12% (2). Hepatic echinococ­
cosis, recorded in 50—80% of all localizations of the parasite, still repre­
sents a challenge to surgeons since the problem of its treatment is far from
being fully solved (1, 2, 3). While in uncomplicated cysts, the methods
hitherto employed such as one-stage closed echinococcotomy, partial re­
section of the liver, ideal echinococcotomy and the like yield satisfactory
results, the problem of infected cysts remains unsolved. Every surgeon is
well aware, that in this category of patients, in particular, the lethality
is the highest, the disease runs a severe course and the patients are incapa­
citized for rather prolonged time. The incidence of suppurations of the he­
patic echinococcus cysts amounts to 10—30% (2). According to our mate­
rial, 21.49% of the patients were with infected cysts. In the treatment of
suppurated hepatic cysts, the surgeon usually faces the following more im­
portant problems:

1. Opening of the purulent focus and protecting the patient from into­
xication. This is achieved by wide exposure of the purulent cyst and drai­
nage — marsupialization.

2. To preclude the formation of biliary fistulae with subsequent bile
loss, which is heavily tolerated by the patients. The solution of the second
problem has not been achieved by the method of marsupialization hitherto
employed.

The application of one-stage closed echinococcotomy, suggested by
Spasokokotsky in suppurated hepatic cysts, is limited by the hazards of
persisting suppuration and intoxication of the organism.

Hence, the surgeon is compelled to employ, in most of the cases, the
method of open marsupialization.

To avoid the shortcomings of open marsupialization, namely: high
mortality rate, protracted fistulizations, prolonged hospitalization and
the like, ever since 1962, active aspiration has been used in the treat­
ment of suppurated hepatic cysts. In Bulgaria the method was applied since
1960 by G. Stanchev in the clinic of hospital surgery, Postgraduate Me­
dical Institute, in cases of huge cysts with contents exceeding 0.5—1
liter (6).
<table>
<thead>
<tr>
<th>#</th>
<th>Name/age</th>
<th>Locality of the cyst</th>
<th>Size of the cyst</th>
<th>Nature of content</th>
<th>Type of operation</th>
<th>before oper.</th>
<th>after oper.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>D. I. M. 45 y,</td>
<td>Right lobe</td>
<td>Child’s head</td>
<td>Unilocular cyst without daughter vesicles, thin whitish pus, without biliary mixture.</td>
<td>Wide exposure and cleansing of the cyst. Local application of antibiotics, hermetization of the cyst to the abdominal wall and rubber drain for aspiration.</td>
<td>4</td>
<td>22</td>
<td>26</td>
</tr>
<tr>
<td>2</td>
<td>B. K. M. 39 y,</td>
<td>Left lobe</td>
<td>Child’s head</td>
<td>Unilocular cyst without daughter vesicles, thin whitish pus, without biliary mixture.</td>
<td>Ditto</td>
<td>2</td>
<td>38</td>
<td>40</td>
</tr>
<tr>
<td>3</td>
<td>B. R. Ch. 22 y,</td>
<td>Right lobe</td>
<td>Slightly exceeding the size of child’s head</td>
<td>Unilocular cyst without daughter vesicles, thin pus with strong odour.</td>
<td>Ditto</td>
<td>3</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>S. S. G. 64 y,</td>
<td>Right lobe</td>
<td>Bigger than child’s head</td>
<td>Cyst with daughter vesicles, intact, capsule, fibrosis, absence of bile.</td>
<td>Ditto</td>
<td>14</td>
<td>15</td>
<td>29</td>
</tr>
<tr>
<td>5</td>
<td>N. D. M. 26 y,</td>
<td>Right lobe</td>
<td>Two male fists</td>
<td>Unilocular cyst with slight biliary mixture and smelling pus.</td>
<td>Ditto</td>
<td>4</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>6</td>
<td>M. R. M. 50 y,</td>
<td>Right lobe</td>
<td>Child’s head</td>
<td>Unilocular cyst without daughter vesicles. Thin, ill-smelling pus.</td>
<td>Ditto</td>
<td>3</td>
<td>21</td>
<td>24</td>
</tr>
<tr>
<td>7</td>
<td>D. P. D. 42 y,</td>
<td>Right lobe</td>
<td>Bigger than child’s head</td>
<td>Unilocular cyst with daughter vesicles, smelling pus, capsular damage, fibrosis, biliary mixture.</td>
<td>Ditto</td>
<td>3</td>
<td>79</td>
<td>82</td>
</tr>
<tr>
<td>8</td>
<td>M. P. M. 45 y,</td>
<td>Left and right lobe</td>
<td>Two male fists</td>
<td>Unilocular cyst without daughter vesicles, biliary mixture.</td>
<td>Ditto</td>
<td>34</td>
<td>15</td>
<td>49</td>
</tr>
<tr>
<td>9</td>
<td>I. D. I. 54 y,</td>
<td>Right lobe</td>
<td>Child’s head</td>
<td>Unilocular cyst with daughter vesicles, capsular damage, fibrosis, biliary mixture.</td>
<td>Ditto</td>
<td>25</td>
<td>37</td>
<td>62</td>
</tr>
<tr>
<td>10</td>
<td>M. P. G. 29 y,</td>
<td>Right lobe segment</td>
<td>Two male fists</td>
<td>Unilocular cyst with daughter vesicles, damaged fibrous capsule, bronchial perforation, biliary fistula.</td>
<td>Ditto, resection of the lung, drainage of the pleura and cyst.</td>
<td>19</td>
<td>140</td>
<td>159</td>
</tr>
</tbody>
</table>
The superiority of active aspiration over the marsupialization employed heretofore, in our opinion, consists in the following: firstly, a constant draining of pus, under a determined vacuum pressure, is secured; secondly, hyperemia is maintained within the fibrous-purulent membrane, leading to eradication of the infection and, thirdly, a quicker disintoxication of the organism occurs due to the constant draining. Proceeding from the above considerations, we made it our aim to find out the extent to which the active aspiration contributes to the obviation of biliary fistulae formation, as well as to account for its advantages in the treatment of these patients. The method was applied in a series of 10 patients, aged from 22 to 84 years (Table 1).

**Method**

The operation is performed under intubation narcosis and good relaxation. We endeavour to specify the locality of the suppurated cyst — left or right lobe — before the operation as it would allow the use of a rational surgical approach. Most frequently, the Rio-Branco approach is resorted to, which provides for wide exposure and field for atraumatic work. In one instance with bilio-bronchial fistula, we resorted to rightside thoracotomy with phrenotomy. Underestimation of the access is a very erroneous policy. The inadequately chosen access leads to trauma of tissues, soiling of the operative field and increases the incidence of suppurations of the abdominal wound, which, in turn, discredits the method. The exposure and cleansing of the cysts is performed with great care, following meticulous preparation of the field with compresses. The evacuated cysts are washed out with warm saline solution and wiped with 2% glycerin-formalin. Meticulous hemostasis with hot serum. We apply locally antibiotics and a rubber drain at the lowest point. The edges of the cyst are sutured to the abdominal wall and the space for the drain is narrowed. The abdominal wall is sutured in layers.

Both in the pre- and postoperative period, we carry out a complex treatment, depending on the condition of the patient. The drain is connected to an aspiration system with pressure 200 cm water column. Complications such as hemorrhages and others at the site of the draining were not observed. The draining tube was removed within 10 to 18 days.

**Results and Discussion**

All the patients subjected to treatment were dismissed in a healthy state. The mean postoperative term was 42 days. It should be pointed out that the above mean hospitalization period is prolonged at the expense of the last patient in the series, who stayed in the hospital for 140 days after the operation. A female patient is concerned with broncho-biliary fistula admitted in heavy general condition. She underwent lower lobectomy of the right lung and echinococcotomy with active aspiration. Promptly after the operation the patient was restored and towards the end of the fifth week the bile fistula was closed. Within a week thereafter, she developed the
picture of progressing icterus, which was assumed as mechanically substantiated and required relaparotomy. Upon revision the extrahepatic biliary tracts and the gall bladder, proved to be unaltered and with preserved patency. The left lobe of the liver was found enlarged in volume, cholestatic, and the right — with reduced sizes and completely calm. After the secondary operation, the patient gradually recovered and the icterus subsided. Actually she is completely recovered and free of complaints. The control examinations disclosed normal values.

In another patient who had to be hospitalized for 79 days, suppuration occurred around the drainage and hermitization was not complete. He developed a bile fistula, which, upon dismissal from the hospital was completely closed. At the follow-up examination two years after the operation, he was free of complaints.

The remaining 8 patients were discharged with closed wounds and on the check-up examinations, after varying periods of time, no openings occurred at the site of draining and no bile escaped.

The good results obtained in our series are attributed not merely to the active aspiration, but also to the complex treatment instituted. We believe that active aspiration constitutes only an important link in the complex treatment and contributes greatly to the quicker recovery of the patients. Insofar as bile fistulae development is concerned, it should be emphasized that active aspiration prevents their formation mainly by way of prompt cleansing of the inflammatory focus, the occurrence of granulations and filling of the cavity. As a result, the fistulae were healed within several days of removing the drainage without reopenings at a later stage. After a follow-up term of 1—6 years, they feel comfortable and have regained working ability.

**Inferences**

1. The application of active aspiration in the complex treatment of suppurated hepatic echinococcus cysts reduces the term of hospitalization.  
2. The active aspiration helps to prevent the development of protracted biliary fistulae.

**REFERENCES**

2. Захарцев, Г. Първи научен Конгрес на българските хирурзи — Наука и изкуство, 1950.  
7. Томов, Вл. Първи научен Конгрес на българските хирурзи. 1950 г.  
НАШ ОПЫТ ПРИМЕНЕНИЯ АКТИВНОЙ АСПИРАЦИИ ПРИ ЛЕЧЕНИИ НАГНОИВШИХСЯ ЭХИНОКОККОВЫХ КИСТ ПЕЧЕНИ

Д. Трифонов

РЕЗЮМЕ

Лечение нагноившихся эхинококковых кист печени в настоящее время проводится преимущественно путем марсопиэлизации. Этот метод удлиняет процесс лечения и у большинства больных развиваются желчные фистулы, незаживающие в течение многих лет.

Автор применил метод активной аспирации нагноившихся эхинококковых кист печени на 10 больных. Результаты оказались весьма положительными. Сокращается срок лечения и избегается появление длительно незаживающих желчных фистул. Методика рекомендуется для практической деятельности каждого хирургического отделения.