METHODS OF TREATMENT IN OBSTRUCTIVE JAUNDICE CAUSED BY LIVER HYDATID CYST

**INTRODUCTION**

The incidence of hydatid disease (caused by E. granulosus) is a public health problem in some areas in the world, including countries of Central America and South America, Western and Southern/Southeastern Europe, the Middle East and North Africa, some sub-Saharan countries, Russia and adjacent countries, China. The annual incidence rates per 100,000 inhabitants vary widely, from less than 1 case per 100,000 to high levels as Bulgaria: 3 cases for 100 000 inhabitants, Greece - 13 cases per 100,000 persons, rural regions of Uruguay - 75 cases per 100,000 persons, rural regions of Argentina - 143 cases per 100,000 persons in Rio Negro province, parts of Xinjiang province of China - 197 cases per 100,000 persons, parts of the Turkana district of Kenya - 220 cases per 100,000 persons.

**MATERIAL AND METHODS**

We studied a group of patients with obstructive jaundice caused by hydatid cyst admitted in the I-st Clinic of Surgery, County Hospital Timisoara, in the period January 2002 – January 2009. The patients represented

**SUMMARY:**
The incidence of hydatid disease is a public health problem in some areas in the world. We studied a group of patients (20 cases) with obstructive jaundice caused by hydatid cyst admitted in the I-st Clinic of Surgery, County Hospital Timisoara, in the period January 2002 – January 2009 from 752 cases of obstructive jaundice. The types of surgical interventions were: partial pericystectomy (Lagrot operation) - 87.5% of cases, associated cholecystectomy - 62.5 %, Kehr drainage - 25%, transcystic drainage - 37.5% of cases, residual cavity drainage - 100% of cases, total pericystectomy: 12.5% of cases. The postoperative evolution was good in all cases, in 37.5% with a postcystectomy cavity that disappeared after proper treatment (ultrasonography guided puncture) at 2 months after surgery.

**Key Words:** obstructive jaundice, liver hydatid cyst

**Rezumat:** Incidența chistului hidatic este o problema de sănătate publică în unele zone ale lumii. Am studiat un grup restran de pacienți (20 cazuri) cu icter obstructiv cauzat de chistul hidatic, internați în Clinica de Chirurgie, în Spitalul Județean de Urgență Timișoara, în perioada ianuarie 2002 – ianuarie 2009, dintr-un grup de 752 cazuri de icter obstructiv. Tipurile de operații practice au fost: perichistectomia parțială (Lagrot), colecistectomia asociată, drenajul biliar extern și al cavității restante, perichistectomia totală. Evoluția postoperatorie a fost favorabilă în toate cazurile, în 37.5% din cazuri cu o cavitate postchistectomie ce a dispărut sub tratament adecvat (punctie ghidata ecografic) la 2 luni postoperator.

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2.6% of obstructive jaundice causes from a group of 752 patients.

The obstructive jaundice in hydatid cysts appears in the following situations:
- obstruction of the common bile duct (CBD) by the outer membranous layer after cyst rupture in a bile duct
- compression of the CBD by the cyst
- association with CBD lithiasis or cirrhosis
- infection of the hydatid cyst with fistula in a bile duct

70% of cases presented communications of the cyst with bile ducts and 25% - migration of hydatid membranes. The mean age of the patients was 44 years and the distribution by gender was: 70% - women and 30% - men.

The clinical signs and symptoms found for hydatid cyst with communication in bile ducts were:
- icterus – 100% of cases
- hepatomegaly – 50% of cases
- dyspeptic biliary syndrome – 30% of cases
- intermittent pains – 70% of cases
- skin pruritus – 30% of cases

The surgical treatment was performed in 16 cases (80% of cases) and it consisted of:
- treatment of the cyst
- desobstruction of the common bile duct
- efficient drainage of the residual cavity and common bile duct

The types of surgical interventions were:
- partial pericystectomy (Lagrot operation): 87.5 % of cases
- associated cholecystectomy: 62.5 % of cases
- Kehr drainage: 25% of cases
- transcystic drainage: 37.5% of cases
- residual cavity drainage: 100% of cases
- total pericystectomy: 12.5% of cases

The conservative treatment was applied in 4 cases when the diameter of the cyst was lesser than 1 cm or the patients didn’t agree with surgery. (Fig. 1)

The main problem in the surgical treatment of this disease is the pericystic cavity that remains after removal of the parasite. The majority of the postoperative complications are due to the inadequacy of the surgical procedure to the morphologic particularities of the cavity. There are 2 main types of surgical procedures: one so-called „conservative” that abandons the pericystic cavity or resects only a little of the pericyst and other called “radical” that removes totally the pericystic membrane, with more or less hepatic resection.

The presence of the biliary fistula in the cyst is a main problem for the evolution of the cavity and determines the surgical procedure of choice. If we can not detect preoperatively the presence of the biliary fistula we must surely do intraoperatively when we see the bile leakage in the interior of the cyst. So, for cysts without biliary fistula we may perform:

1. Pericystotomy and suture of the pericystic membrane without drainage; the risks are: accumulation of secretions ( lymph, fragments of pericyst, blood ) in a closed cavity that may develop a hepatic abscess
2. Pericystotomy and external drainage of the cavity

![Fig.1 Treatment of hydatid cyst](image-url)
These 2 types of methods are indicated for recent, unilocular cysts, with thin walls, mostly observed at young patients.

3. Partial pericystectomy (Lagrot operation) – indicated mostly for the cysts on the visceral part of the liver; the drainage of the residual cavity is necessary and can be performed also trans-thoracic-diaphragmatic or transomphalic; this is the procedure preferred by us and used in the majority of our cases associated with cavity drainage

4. Percutaneous ultrasonography guided puncture of the cyst

5. Laparoscopic resection

For the cysts with biliary fistula there are some procedures of choice:

1. Partial pericystectomy with suture of the fistula – not always very easy because the visual and instrumental access in the cavity may be difficult; the suture of a lateral fistula on an important biliary duct may determine stenosis of the biliary duct with subsequent biliary stasis.

2. Partial pericystectomy with extern bipolar drainage of the residual cavity: it associates the extern drainage of biliary ducts (by Kehr tube – in cases with important biliary fistula and migration of hydatid material in the biliary tree or transcystic tube – in cases without migration of hydatid material in the biliary tree, CBP with normal diameter) and the cavity drainage. There is also the possibility of intern drainage of CBP by endoscopic or intraoperative sphincter papilotomy; this procedure is preferred by us because it prevents the formation of the residual cavity filled with bile from the fistula with subsequent infection and developing a liver abscess

3. Percysto-biliary drainage: extern - with a “T” tube – one branch in the cavity crossing the fistula and other branch in CBP, with suture of the cavity; intern – by Endoscopic papilosphincterotomy; this type of drainage is suitable for a large and low situated fistula’s orifice.
Fig. 4 Intraoperative images – steps of operation

- The cholecyst very closed to the cyst - tactical cholecystectomy
- Hydatid cyst
- Aspiration of the hydatid liquid
- Cyst membrane removal
- Biliary fistula
4. Pericysto-digestive drainage: it consists of an anastomosis between the cystic cavity and a jejunum loop type “en Roux”

5. Total pericystectomy: only in a few cases – cysts located at the anterior edge of the liver or at its left or right extremities; for deeper locations in the liver parenchyma the technique may be difficult due to the risk of biliary branch or vascular lesions

6. Atypical hepatectomy: used for important cysts that occupy a big territory of hepatic parenchyma (segments 2 and 3)

The best investigation for establishing the suitable surgical procedure is abdominal computer tomography that points the precise location of the cyst, its diameters, the aspect – unilocular or multilocular, the thickness of its membrane, the neighboring with major liver vessels and biliary tree. (Fig 2)

Also ultrasonography is a good investigation that makes the difference between a solid and a liquid tumor of the liver and show the interior of the cyst – unilocular or multilocular, the number of cysts in the liver parenchyma. (Fig.3)

The main operation was puncture of the cyst, aspiration of the liquid, inactivation with 98% alcohol, extraction of hydatid membranes, partial pericystectomy associated with cholecystectomy for tactical reasons or for prevention of an early acute postoperative cholecystitis. The biliary drainage (transcystic or Kehr) (performed in 10 of our cases) was a good maneuver for prevention the appearance of the residual cavity filled with bile that could develop an infection - a liver abscess. So we observed that in all cases with biliary drainage there was no residual cavity and no postoperative complications. These patients were discharged at 7 days postoperative by comparing with the cases without

![Fig.5 Postoperative ultrasonography aspects](image)
biliary drainage (6 patients) from which 3 developed liver abscess with a good evolution but in a longer time (average of hospitalization 14 days). (Fig.4)

The postoperative evolution was good in all cases, with a residual cavity at 1 month in 37.5% (6 cases) (all the cases were without biliary drainage) but with it’s disappearance at 2 months after surgery. In 3 of these cases a liver abscess was developed but it was drained by ultrasonography guide puncture and subsequent lavage. The treatment is continued with albendazole 800 mg / day, 3 cures of 28 days with 14 days pause between them. The patients were discharged at 11 days (in average) after operation. (Fig. 5)

**CONCLUSIONS**

This disease is frequently observed in our region but there are not many cases associated with obstructive jaundice. The age of patients is decreasing in the last years. The main investigations for the diagnosis are ultrasonography and CT. The most involved segments of the liver are V, VI, VII and VIII.

The efficient treatment is surgical – in our study – we chose partial pericystectomy associated with cholecystectomy, extern cavity drainage (in all our cases) and biliary drainage (transcystic or Kehr tube) when is associated a biliary fistula with or without signs of hydatid material inside the biliary tree (when is needed a Kehr tube). The hospitalization time was 7 days for the majority of our cases and 14 days for the complicated cases. The medical treatment is associated pre- and post-operative: albendazole 800 mg / day.

**REFERENCES**


REFERENCES (CONTINUED)


