Percutaneous treatment of a complex hydatid cyst of the liver under sonographic control
Report of the first case

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SUMMARY
Surgical procedures are considered the gold standard treatment of hydatid cysts. We report the first case of percutaneous treatment of a complex hydatid cyst of the liver, using radio frequency as a sclerocidal agent in a 28-year-old man. The procedure was performed under real-time ultrasound control and with the patient under general anesthesia. Injection of alcohol was performed at the end of the procedure to induce retraction of the residual cavity. The percutaneous procedure was associated with oral albendazole therapy. Six months after the procedure, the patient was in very good condition. Liver and blood tests were normal and the cyst cavity was reduced. Further studies are required to define the indication of this new therapeutic strategy of hydatid cyst.

H ydatidosis (cystic echinococcosis) is a serious public health problem worldwide. Due to improvements in imaging techniques and immunodiagnostic methods, there has been an increase in the number of cases of hepatic hydatidosis.

Surgical removal of a hydatid cyst is still considered to be the gold standard treatment. Until now surgical management by marsupialization and tube drainage, omentoplasty, pericystectomy or partial hepatectomy was the mainstay of treatment.

In recent years, percutaneous drainage has been increasingly used as an alternative to surgery and chemotherapy alone and has been shown to be effective. The procedure is commonly called PAIR (Percutaneous Aspiration, Injection of sclerocidal agent and Reaspiration). Despite recent technical improvements, percutaneous treatment of hepatic echinococcal cysts is still far from satisfactory in case of complex septated cysts and new techniques are needed. However, the PAIR technique is considered safe and efficient, and has been published by the World Health Organization (WHO informal working group on echinococcosis), collecting the data from selected centers, including our experience [1, 2].

Case-report
A 28-year-old Tunisian man, with no particular medical history, was referred for upper quadrant abdominal pain, with posterior irradiation. He was in good condition. Ultrasound and computed tomodensitometry showed a large 14 cm septated cyst of the posterior part of the right lobe of the liver (figure 1). Hydatid serology was strongly positive with no abnormality of hepatic biological tests. Oral albendazole treatment (800 mg per day) was started 3 days before percutaneous treatment, for an 8 week period. The whole percutaneous procedure was performed under real-time ultrasound (Kontron Sigma 880, 3.5 MHz probe) and general anesthesia. Written informed consent was obtained.

Using a right sagittal plane, with an anterior approach to interpose the normal hepatic parenchyma between the hepatic capsule and the cyst, fine-needle aspiration was first performed. The appearance of the contents of the cyst, were evaluated, and shown to be with no bile contamination, and this procedure resulted in a decrease in intra-cystic pressure. A twenty millimetre sample was referred for parasitological examination to confirm the presence of live scoleces. Then an electrode 150 mm long (active naked 20 mm tip) was inserted into the cyst, connected to a generator (Radionics-Tyco CT 1520). The initial impedance was 50 ohms. The maximum power (195-200 watts) was used throughout the procedure. The treatment was performed for 12 minutes at two different locations for a total of 24 minutes. At the end of the procedure, the whole cyst had a hyperechoic appearance (figure 2). Then, 4 fine-needle punctures were performed in different parts of the cyst to collect cystic contents and confirm that all scoleces had been destroyed. No live scoleces were found. Moreover, 40 ml of sterile absolute alcohol were injected to induce retraction of the treated cavity. Bronchospasm and a slight allergic reaction occurred at the end of the procedure, between the 43th and the 45th minute, and was successfully treated.

Six months after the procedure, the patient was in good condition. The clinical examination was normal. Liver and blood tests were strictly normal. The cyst had a pseudo-solid sonographic appearance and measured 10 cm in its largest diameter.

Discussion
Percutaneous treatment of hydatid cysts of the liver may only be proposed if there is no communication with the biliary ducts based on the following criteria: no past clinical history of cholangitis, normal hepatic biological tests, normal morphological study of biliary ducts (sonography, CT scan and MRI), clear water cystic contents during the initial decompression, and no diffusion of the sclerocidal agent under real-time sonographic control (echo inside the biliary ducts) [2-10]. If any comunica-
tion with the biliary ducts was shown during the procedure, only normal saline was injected to wash the cavity and no scolecidal agent was used.

In case of a unilocular hydatid cyst, the PAIR technique, which, in our opinion, should be associated with alcohol therapy (the term PAIR should be changed to PAIRA to include alcohol injection) is an efficient alternative to traditional surgery. Alcohol is injected to reduce the residual cavity, because of the induced fibrosis. But the percutaneous treatment is limited in case of septated cysts, because all the different cavities cannot be sterilized. Therefore for these cysts, a new scolecidal agent must be tested.

This first case suggests that radio frequency, used percutaneously under sonographic guidance may be used as a scolecidal agent in complex, septated hydatid cysts of the liver. Further studies and follow-up of these patients are required to define how this new therapeutic techniques can be integrated in the treatment of hydatid cysts. A pilot study is being undertaken by our group.

ACKNOWLEDGEMENTS - The authors gratefully thank Tyco Company to support this study.

REFERENCES