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CONTENTS

	Page
LIVER ENZYMES CHANGES IN RA PATIENTS AND IN PATIENTS WITH CONCOMITANT VIRAL HEPATITIS (B & C) <i>By: Ahmed Hosny, Abdel Rahman A. El Saied</i>	161
WHAT IS THE BEST FOR PTERYGIUM ? <i>By: Ali M. Ismail, Ahmad M. Abdullah, Gamal A. Radwan</i>	175
EVALUATION OF PRIMARY INTESTINAL MALIGNANCIES IN CHILDREN AND ITS MANAGEMENT <i>By: Nabil Y. Abou EL-Dahab, Mohamed Galal Mostafa and Ali Abd EL-Rahman Abd-Allah</i>	183
DAYA CERCLAGE: A NEW MODIFICATION FOR MCDONALD'S OPERATION IN THE TREATMENT OF CERVICAL INCOMPETENCE. <i>By: Salah R. Ahmed</i>	209
HOLMIUM LASER INCISION TECHNIQUE FOR BILHARZIAL URETERAL STRICTURE <i>By: Atef Galal Abdel Wahab, Abdel-basset Abdou Badawy, and Abdel-Moniem Abu-Zeid</i>	217
DIAGNOSIS OF VARICOCELE BY COLOR DOPPLER ULTASONOGRAPHY AND SPECTRAL ANALYSIS OF VENOUS BLOOD FLOW <i>By: Atef G. Abdel Wahab and Ismail F. Abo-Kerasha</i>	227
RETROSPECTIVE & PROSPECTIVE MANAGEMENT OF LIVER CYSTS IN SOHAG LOCALITY. <i>By: Alaa H. El-Suity</i>	243
EXTRACORPOREAL SHOCK WAVE LITHOTRIPSY FOR TREATMENT OF RADIOLUCENT URETERIC CALCULI WITH USE OF INTRAVENOUS CONTRAST MEDIUM <i>By: Atef, G. Abdel Wahab, Abdel-Basset Abdou Badawy, and AllA A. Abdelhafez</i>	267

ANOPLASTY FOR THE MANAGEMENT OF POST-
HEMORRHOID ECTOMY ANAL STENOSIS

By: *Samy Osman, Mohamed A. S. ALY, Mansour Kabbash,
Hamdy M.Hussin, and Mohamed K.A. El- Amary.....* 275

OBSTRUCTIVE JAUNDICE DUE TO THE FASCIOLA
HEPATICA "LIVER FLUKE"

(A Case Report)

By: *Mohamed Abd-El Naem Sayed, Hamdy M. Hussein and
Samy Osman* 283

POSTNATAL DEVELOPMENT AND AGING CHANGES OF THE
MOTOR CORTEX OF ALBINO RAT

(Morphometric and Histological study)

By: *Mohmed El-Badry Mohamed, Esam Salah Kamel
and Ahmed El-Zuhry Zayed.....* 289

NECROTIZING FASCIITIS : A KEY OF EARLY
DIAGNOSIS AND TREATMENT

By: *ALAA - El - Suity* 311

HUMAN KERATINOCYTES CULTURED ON INTEGRA™ AS A
NEW COMPOSITE GRAFT: *IN VITRO* AND *IN VIVO* STUDIES

By: *Samia M. A. Saied^{**}, H. Bannasch^{*}, R. Horch^{*}, and
G. B. Stark.....* 329

RETROSPECTIVE & PROSPECTIVE MANAGEMENT OF LIVER CYSTS IN SOHAG LOCALITY

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ABSTRACT:

Objective : Surgical strategy of hepatic cysts is based on its type. Although most hepatic cysts can be managed with wide unroofing, others should be resected:

Aim of the work: To define the indications and evaluate the results of various management options in patient with liver cyst in Sohag locality.

Patients and methods: Between May 1995 and May 2000, 31 patients with liver cysts were managed in Sohag University Hospital, South Valley University. Diagnosis was made by U.S, C.T scan and included hydatid cysts (univesicular 13, multivesicular 5), simple liver cysts (solitary 10, multiple 1), PCLD (1) and cystadenoma (1). Serology was positive only in patients with hydatid cysts. Operative procedures included conservative resection of hydatid cysts in (16 cases) and cystopericystectomy in (2). Open unroofing was done in (8 cases) with simple liver cysts and laparoscopic unroofing in (3). In the other 2 patients, open unroofing was done for PCLD and partial hepatic resection was done for cystadenoma. Diagnosis was confirmed by histological examination of the cysts after surgery.

Results: Hepatic cysts were predominantly in females (female to male ratio 1.8: 1) and mostly affected the right lobe 71%(22/31). Abdominal pain was the predominant symptoms (61.3%) and hydatid cysts were the most frequent type encountered 58% (18/31). Postoperative complication rate was 16% without statistically significant difference in between the procedures. Postoperative confirmed recurrences were 8 (29%), 5 of which (16.1%) were symptomatic. ELISA showed gradual decline of serum levels of total IgG to its normal standards within one year after surgery in 13 patients (72.2%) with hydatid disease and five patients maintained high levels, 3 of which developed recurrence during the period of follow up.

Conclusion: Hydatid disease is a growing problem in our locality and hygienic measures should be followed in order to eradicate the disease. Conservative approach is an appropriate procedure in most patients with hydatid disease and immunodiagnostic study using ELISA is a reasonable method for early detection of recurrent disease. Laparoscopic unroofing of simple liver cysts is safe with acceptable recurrence and complication rate provided the symptomatic cyst is present in a favorable location. Cystadenomas require complete resection to prevent recurrence and liver transplantation is a reserved option in patient with PCLD.

INTRODUCTION

Once thought to be rare, hepatic cysts are now routinely detected in adults with CT, MRI and ultrasound. The overall prevalence in general population is about 2.5 %, increasing with age(1). Many cysts are asymptomatic and need no therapy whereas certain type of cysts, or those that are symptomatic require surgical intervention(2). Cyst types are variable, but most are simple unilocular epithelial lined cavities without malignant potential. They can be solitary or multiple. A multiple cystic liver is differentiated from that of polycystic liver disease (PCLD) by having less than 50% of the hepatic parenchyma occupied by cysts(3). Polycystic liver disease is an autosomal dominant disease that may be associated with other organ affections especially the kidneys. About 80% of simple liver cysts and polycystic liver disease (PCLD) are found in females(4). Other liver cysts are either neoplastic or parasitic. Neoplastic cysts such as cystadenomas are lined by columnar or pseudo columnar epithelium and have a risk of undergoing malignant transformation (5). The most common form of parasitic cyst is hydatid. It is due to infestation with the dog tape worm, *Echinococcus granulosus*. It is common in Australia, Newzeland, Greece, Turkey and Middle East. The hydatid cyst characteristically has two layers, an outer fibrous layer (ectocyst) formed by the host and an inner parasite derived layer (endocyst) that contains the scolices and daughter cysts. These may float freely in a highly antigenic hydatid fluid. There is a natural plane of cleavage between these two layers(6). Post traumatic heamatoma, amoebic and pyogenic liver abscesses may give cystic lesions in the liver, however they are considered to be secondary cysts because they have no identifiable epithelium on histologic examination (7).

Satisfactory long term out-come of operative management hinges on the ability to differentiate between the types of hepatic cysts because although most hepatic cysts can be managed with wide unroofing, others should be resected(2). Minimally invasive techniques may be used for treating a variety of benign hepatic lessons. The size of the lesions is less important than the anatomic location in antero-lateral region (8).

AIM OF WORK

The aim of the study was to define the indications and evaluate the results of various management options in patients with liver cysts retrospectively & prospectively in Sohag locality.

PATIENTS AND METHODS

All patients operated on for hepatic cysts between May 1995 and May 2000 at Surgery Department of Sohag University Hospital were included in the study. A total of 35 patients were admitted during this period. Of those, 4 patients were not contacted during the period of follow up so they were excluded reducing the study population to 31 patients. Patients with secondary liver cysts such as amoebic and pyogenic liver abscesses were not included in the study.

Beside the history and clinical examination, routine laboratory investigations including liver function tests and blood urea were performed. Preoperative diagnosis of hepatic cysts (simple versus others) was based on the identification of intra-cystic septations on both ultrasonic examinations (U.S) and computed tomography scans (C.T). Their absence; as described by Caremani (9); was 100 % predictive of a simple liver cyst. It was made in all cases except for "one case". In that single patient, a large simple cyst was found incidentally at the time of other abdominal operation.

Beside ultrasonography & C.T scans, preoperative diagnosis of hydatid disease was made by using Enzyme Linked Immunosorbent Assay (ELISA, IgM for diagnosis and IgG for follow up). The serum levels of total IgM were markedly elevated in patients with hydatid disease. Postoperative serum samples were taken from these patients in order to monitor remaining or recurrent cysts. Endoscopic retrograde cholangiopancreatography (ERCP) was performed in one patient with large simple liver cyst to demonstrate the presence of coexistence biliary communication. In all cases the diagnosis was confirmed by histological examination of the cyst after surgery.

After diagnosis patients were classified according to the type of liver cyst and the operative technique that done for cure :-

1- Hydatid cyst (n = 16):

Two techniques were performed: a - the conservative approach, as described by Dawson, *et al.* (10), was appropriate in "16 cases". It involved removal of all parasite elements: the laminated and germinal membranes, cyst fluid and when present daughter cysts, followed by management of any residual cavity. It included adequate exposure of the liver cyst either by a subcostal or roof top incision. The surrounding tissues and wound edges, are protected with swabs soaked in hypertonic saline 20 % "scolicidal agent". preliminary withdrawal of the cyst fluid was followed by injection of hypertonic saline into the cyst. Using the plane of cleavage between the endo- and ectocyst, the endocyst was easily lifted out by sponge holding forceps. Folds in the

collapsing cavity were carefully inspected to remove fragments of laminated membrane and daughter cysts. Biliary leak should be sutured. The cavity was then wiped with scolicide – soaked swabs and the ectocyst on the liver surface was excised. Deep cavities were obliterated either by pedicle omental graft or capitonage "internal suturing". Closed suction drains were left until the absence of bile leak was confirmed. b-cystopericystectomy was justified only in "2 cases" with calcified symptomatic hydatid cysts. It involved, as described by Morris (11); excision of the entire cyst wall, including the ectocyst. The operation was carried out through a non – existent surgical plane, the ectocyst and normal host liver with which it is continuous. Ultrasound dissector and fibrin – based glue were used to minimize bleeding from the raw surface of the liver .

2- Simple liver cysts (n = 11):

Wide unroofing was performed either by open surgery or via the laparoscope .Open unroofing was justified in "8 cases" of simple liver cyst. It involved, as described by Edward *et al.* (12), resection of the exposed cyst wall at the junction with the surrounding hepatic parenchyma, with or without cholecystectomy .The base of the cyst was ablated with electrocautery. Omentum was placed into the cyst defect to assist in prevention of recurrence. Bile leaks were oversewn. Closed suction drains were left in place until the absence of bile leak was confirmed.

Three cases were selected for laparoscopic unroofing following preestablished inclusion criteria "solitary liver cysts in the anterolateral! segments of the livers" .The technique was first introduced by Z'graggen *et al.*(13) . It involved opening of the blue dome of the cyst by sissors and aspiration of the fluid inside the cyst . The wall of the cyst was excised to within 3mm of the liver parenchyma . Careful hemostasis of the cyst edge was performed with electro cautery and closed suction drains were placed .

3- Polycystic liver disease (n = 1):

Wide unroofing was performed by open surgery .This patient had type I disease according to Morino *et al.* (14) classification: type I, limited number of large, superficial cysts; type II; multiple small cysts distributed through the liver "swiss cheese."

4- Cystadenoma (n = 1):

The cyst was exposed through right long paramedian incision . The cyst was removed by dissection combined with partial excision of the liver parenchyma. The base of the cyst was ablated with electrocautery. Omentum was placed in the cyst defect . Closed suction drain was in place.

Follow up:

Was obtained in all patients . Median follow up was 21 months (range 3 to 54 months). All patients underwent a routine ultrasonography every 3 months in the first year after surgery. Subsequent ultrasonography examinations were obtained only if patients were symptomatic. C.T scans were done when ultrasonic findings were not conclusive. ELISA was performed at 1st day, one week, one month, 6 months, and one year after surgery in order to monitor remaining or recurrent hydatid cysts.

Statistical analysis:

Was done by using Student's & Chi square tests. If $P < 0.05$, it was considered statistically significant.

RESULTS

Thirty one patients who underwent operation for hepatic cysts comprised the study . The mean age was 45 years (range 11 – 65 years). There were 20 females and 11 males with female to male ratio (1.81:1). Ninety seven percent of patients (30 /31) were symptomatic , while only one case (3.2%) with simple liver cyst , was detected incidentally at the time of other abdominal operation . The majority of patients complained of abdominal pain (19/31, 61.3 %) irrespective to the type of liver cysts. Other symptoms and signs included , palpable mass (6/31, 19.3 %), anorexia and nausea (4/31; 13%) and weight loss (1/31; 3.2 %). Laboratory studies showed that prothrombin time and total bilirubin were normal in all patients .Alkaline phosphatase and serum creatinine were mildly elevated in the only case of PCLD . Ultrasonic examinations were performed in all cases except for one case that detected at the time of other abdominal operation (30/31; 97 %). Ultrasonography distinguished the type of hepatic cysts in 11 cases ; 35.4 % . Of those, 5 cases (16.1 %) were multivesicular hydatid cysts with feature of cartwheel sign as described by Gharbi *et al.* (15) and 6 cases (19.7 %) were solitary simple liver cysts with anechoic pattern