survival was 68% at 48 months and only 3 patients (1.3%) died, or lost
transplants due to biliary complications. Conclusions: These results indi-
cate that classic biliary reconstruction is sufficiently robust to accommo-
date the demands of partial grafts and extensive tumor resections. Up to 4
duct anastomoses were constructed with a complication rate not differ-
ent from single anastomosis. Generous use of interventional techniques
was essential to successful long term outcomes. The impact of this analy-
isis is somewhat limited by a relatively short follow-up period.

158

Major Iatrogenic Injury of Biliary Tract During Laparoscopic
Cholecystectomy
Maria Helena G Silva, Michelle Lucinda Oliveira, Edson J Lobo, Alberto
Goldenberg, Tarcisio Trivino, Universidade Federal de Sao Paulo –
Escola Paulista de Medicina (UNIFESP-EPM), Sao Paulo, Brazil;
(UNIFESP-EPM), Sao Paulo, Brazil

The laparoscopic cholecystectomy is nowadays teh gold sandard treat-
ment for cholelithiasis. Despite the expertise gained in performing the
procedure, biliary tract injury remains the most serious complication. It
is important for the affecte patient's prognosis not only to recognize the
lesion during the operation or at least at the earliest moment but also to
choose the best therapeutic modality for the biliary tract reconstruction.

Through a anonymous questionnaire patients who underwent laparo-
scopic cholecystectomy between March 1994 and November 1999 were
analyzed. A series of 17 patients presenting with major iatrogenica bili-
ary tract injury was available. Parameters analyzed were mechanisms of in-
jury, methods of diagnosis, therapeutic modalities and early and long
term results. The iatrogenic injury was mainly in elective surgery, with-
out factors reisk, anatomical anomalies or bleeding. It was intraopera-
tively identified in 52.9% of the patients and in its majority the proce-
dure was converted for repair. The abdominal ultrasound and endoscopic
retrograde cholangiopancreatography are important methods for the di-
agnosis of iatrogenic injury in the postoperative period. The lesions
were classified according to STRASBERG. The repair was either endoscopi-
cally or surgically made being the hepatic-jejuno anastomoses with Y of
Roux the treatment with best results, independente of lesion level.

BILARY

Other

159

ERCP, Papillotomy and Internal Stenting: The Treatment of
Choice of Bile Leak Following Complex Hepatic Trauma
Menahem Ben-Haim, Dan Rosin, Yosef Kurausky, Richard Nakache,
Shimon Bar-Meir, Fred Kanikof, Mashe Shabtai, Yosef Klausner, Amram
Ayalon, Yoram Kluger, Tel Aviv Sourasky Medical Center and Sheba
Medical Center, Tel Hashomer, Tel-Aviv, Israel

Introduction: Trends toward non-operative treatment and judicious
usage of “damage control” techniques improved dramatically the out-
come of complex hepatic injuries. Bile leak secondary to hepatic trauma
(blunt or penetrating) is a challenging complication. Application of ERCP in this setting was suggested before but its role in the
“conservative approach” is not yet established. Patients and methods:
Accumulated experience in the management of traumatic bile leak is
presented. All patients were initially treated according to the ATLS
principles. Bile leak was diagnosed by fistula to surgical wounds or in-
tra-abdominal drains or by HIDA scan. ERCP, papillotomy and tem-
porary (6-10 weeks) trans -papillary stenting were performed within
24 hours after diagnosis. Enteral feeding was maintained. Recovery
was defined as the cessation of leakage. Results: Between 1996 and
2001, 6 patients were treated accordingly. The clinical data is sum-
marized: Conclusions: ERCP, papillotomy and temporary internal
stenting, together with percutaneous drainage of intra-abdominal or
intra-hepatic collections is safe and efficient in the management of
bile leak following both blunt and penetrating hepatic trauma. It is
recommended as the treatment of choice in patients who were man-
ged non-operatively and also in those who were operated before to
control bleeding or other intra-abdominal injuries.

160

Prooxidant-Antioxidant State in Rat Plasma During the
Creation of Supraduodenal Cholestatic Condition
Sergei Temiyalanchyk, Yanka Kupala Grodno State University,
Grodno, Belarus

Aim: We investigated the prooxidant-antioxidant state in rat plasma
under the conditions of supraduodenal cholestasis for 3 or 10 days.
Material and methods: Experiments were performed in 28 male rats
Wistar (250,0 ( 10,0 g). In 14 treated animals the common bile duct
was ligated near its inflow into the duodenum, with its complete dis-
section between two silk ligatures (no duct ligation in 14 control an-
imals). After 3 and 10 days (n = 7 treated and 7 control rats for both
times) the conjugated diene (CD), malondialdehyde (MDA) and
Schiff base (SB) concentrations, superoxide dismutase (SOD) and
catalase (CAT) activities and antioxidant vitamin (α-tocopherol and
retinol) levels were determined according to V.B. Gavrilov et al.
(1988), R.S. Timoshin et al. (1987), B.L. Fletcher et al. (1973), S.I.
Chevary et al. (1985), M.A. Korolik et al. (1988) and V. Ch.
Chernyuskene (1984), respectively. Results: 3 days of cholestasis re-
sulted into higher MDA content (27.57 ± 3.2 nmol/ml vs. 17.57 ±
2.96 in control; P < 0.05). SB levels insignificantly increased from
13.01 ± 2.55 to 20.43 ± 10.21 units/ml, however CD concentration
decreased from 10.21 units/ml, however CD concentration
increased from 3.2 nmol/ml vs. 17.57 ±
2.96 in control; P < 0.05) -
perhaps, due to the lower contents of their precursors (polyunsatu-

<table>
<thead>
<tr>
<th>Age/ mechanism</th>
<th>Hepatic injury, co-injuries</th>
<th>Initial treatment</th>
<th>Presentation, leakage site</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>21/ GSW</td>
<td>Tear, massive bleeding, ACS</td>
<td>Packing, decompression</td>
<td>E-C fistula, right hepatic duct</td>
<td>Complete recovery</td>
</tr>
<tr>
<td>45/ GSW</td>
<td>Tear, massive bleeding, gastric perforations</td>
<td>Laparotomy (X2), LHA ligation</td>
<td>E-C fistula, left hepatic duct</td>
<td>Complete recovery</td>
</tr>
<tr>
<td>60/ MVA</td>
<td>Intra-hepatic hematoma, tear</td>
<td>Observation, percutaneous drainage</td>
<td>Bile ascites, sepsis, R lobe–peripheral</td>
<td>Complete recovery</td>
</tr>
<tr>
<td>31/ MVA</td>
<td>Tear</td>
<td>Packing, pe-operation (X2)</td>
<td>Bile in drain, left hepatic duct</td>
<td>Complete recovery</td>
</tr>
<tr>
<td>29/ MVA</td>
<td>Tear</td>
<td>Observation</td>
<td>Biloma, sepsis, R lobe–peripheral</td>
<td>Complete recovery</td>
</tr>
<tr>
<td>34/ Stab wound</td>
<td>Tear, gastric perforation, pancreatic tear</td>
<td>Laparotomy, distal pancreatectomy</td>
<td>Bile in drain, R lobe–peripheral</td>
<td>Complete recovery</td>
</tr>
</tbody>
</table>

ACS, abdominal compartment syndrome; E-C, entero-cutaneous; LHA, left hepatic artery.