



The role of minimally invasive liver surgery to treat hepatic benign disease

Benign liver disease is extremely frequent and often asymptomatic. During the recent years, the widespread use of radiological imaging, in particular the use of abdominal ultrasound, has significantly increased the incidence of benign liver lesions incidental diagnosis (1-3). Incidental diagnosis of a benign liver lesion by abdominal ultrasound usually occurs in asymptomatic patients or in patients with other symptoms not related with the presence of the hepatic benign nodule.

Improvements in radiological imaging, especially in the use of magnetic resonance imaging with liver-specific contrast agents, together with a better knowledge of the natural history of benign liver disease, have contributed to consider surveillance as the best management option in most cases (4,5). Indeed, liver resection for benign disease is rarely indicated. Common accepted indications for surgery include malignancy suspicion and symptoms related with the presence of a liver mass (pain, compression, cholestasis due to intrahepatic bile ducts obstruction) (5,6). In such patients, when liver resection is indicated, the minimally invasive approach may be considered as a valid option. Indeed, all the recognized advantages related with the minimally invasive approach, such as the reduction of the abdominal wall damage with a decreased postoperative pain, the shorter hospital stay, the earlier return to previous activity and the cosmetic smaller incisions are particularly evident in the treatment of benign disease, which often regards young female patients (7-9). In the literature, several studies have showed that minimally invasive liver surgery (MILS) for benign disease is a safe procedure in selected patients (7-12) and is associated with consequent significant improvements of quality of life after surgery (11,12).

However, it should be highlighted that indications for resection of a benign liver lesion must remain appropriate, even if liver resection is planned by minimally invasive approach. During the last years, an exponential growth of the use of MILS has been documented (13). The crucial issue related with these reported surgical advances is that the increased confidence and expertise with the laparoscopic approach may have pushed some surgical teams to extend the indications to liver resections for benign disease (14,15). This suggestion is controversial and may be difficult to exactly quantify. In a recent study the results following MILS for benign disease in patients prospectively enrolled in the registry of the Italian Group of MILS (I Go MILS Registry) were evaluated (10). These results were analyzed together with the total number of MILS performed by the Italian Centers during the same period of time and together with the total number of liver resections performed by open approach. The study showed that about 20% of MILS were performed for benign disease (10) and this rate was significantly lower than that reported in a previous Italian survey (27%) (16). Moreover, the overall rate of liver resections for benign lesions (open + MILS) was 11%. This rate was comparable to that reported in previous large open series and did not increase during the study period of time (17,18). Finally, the time-trend analysis showed that, although an evident exponential growth of the use of MILS was observed during the study period of time, this trend was clear for malignant indications but did not correspond to an increase of the number of resected benign disease (10). This study highlighted the correctness of indications for liver benign disease resection in a prospective Italian registry. This registry may show a real snapshot of the MILS activity in Italy today, by including patients from both high-volume hepatobiliary centers and from experienced and advanced laparoscopic centers.

The aim of this series was to report and analyze by review articles, the surgical results following MILS for the most frequent liver benign lesions that a surgeon may have to manage. The review articles in this series evaluated the correct indications for MILS performed for the treatment of hepatic adenoma and hepatic hemangioma that are often incidentally diagnosed in asymptomatic patients. Another important chapter carefully analyzed in this series, was when and how treat nonparasitic simple liver cysts that represent an increasingly common radiological finding. Finally, indications for MILS were analyzed also for less frequent benign disease that requires a specialized hepatobiliary management due to the complexity of the disease, such as the polycystic liver disease, and due to the risk of malignant transformation like in the case of biliary malformations (primary intrahepatic lithiasis, Caroli disease and choledochal cysts).

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