

### **Definitive Surgery for Liver Trauma in a Tertiary HPB Center (with video)**

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### **Abstract**

*Background:* Surgery for severe liver trauma remains challenging even for HPB surgeons, mainly due to the hemodynamical instability, involvement of major vascular and biliary elements, impaired background liver and frequent anatomical variants. In this setting, despite conservative policy, major liver resection is still required in selected cases. Also salvage liver transplantation may be needed. Our study aims to analyze the results after definitive surgery for hepatic injury (HI) in a tertiary HPB center.

*Methods:* Sixty-six patients with HI were admitted and treated in our center between June 2000 and June 2021. The median age was 29 years (mean 35, range 10-76). The male/female ratio was 50/16. According to the American Association for the Surgery of Trauma (AAST) system, HIs were grade II in one patient (1.5%), grade III in 11 pts (16.7%), grade IV in 25 pts (37.9%), and grade V in 29 pts (43.9%); no patient had grade I or VI HI.

*Results:* Fifty-two pts (78.8%) benefitted from surgery and 14 pts (21.2%) from non-operative treatment (NOT). Perihepatic packing was previously performed in 38 pts (73.1%). Surgery consisted in hepatic resections (HR) in 51 pts (77.3%) and liver transplantation in one patient (1.5%). The rate of major HR was 51.9% (27 HRs). The overall major morbidity and mortality rates were 33.3% (20 pts) and 13.6% (9 pts), respectively. For surgery, the major complication rate was 35.3% (18 pts), while for major and minor HR were 40.7% (11 pts) and 29.2% (7 pts), respectively; the mortality rate was 15.7% (8 pts). After NOT, the major morbidity and mortality rates were 14.3% (2 pts) and 7.1% (1 pt), respectively.

*Conclusions:* Hepatic resections, especially major ones and/or involving vascular and biliary reconstructions, as well as non-operative treatment for severe hepatic injuries, are to be carried out in tertiary HPB centers, thus minimizing the morbidity and mortality rates, while having the liver transplantation as salvage option.

**Key words:** hepatic trauma, high-grade hepatic injuries, major liver resection, non operative treatment, tertiary HPB center