# Extent of Anterior Section - Outflow Oriented

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## Background

In patients with hepatocellular carcinoma (HCC), the extent of liver resection should be decided carefully. When a HCC is located in segments 5 and 8, anterior sectionectomy may be required for curative resection as preserving the liver parenchyma of the posterior sector. However, this procedure demands resection of large extent of liver parenchyma and two cut-surfaces, leading to morbidity and mortality. In this presentation, surgical techniques of anterior sectionectomy and results are demonstrated.

## Patients

Eighteen (1.2%) of 1478 hepatic resections, which were performed at my department between April 2000 and August 2014, were anterior sectionectomies. There were 15 males and 3 females with a median age of 66 years. The procedure was indicated for HCC in 14 patients, for metastatic tumor in 1, for IPNB in 1 and for hepatolithiasis in 1. The median ICGR15 was 11% (3-30).

## Preoperative volumetric study

The whole liver volume, the volume of anterior sector and the ratio of volume of anterior sector to whole liver volume were estimated to be 1074 ml (600-1322), 339 ml (118-453.5) and 29% (12-42.2), respectively.

## Surgical techniques

After cholecystectomy, right hepatic artery, anterior branch and posterior branch are dissected and taped. Then, the right portal vein, anterior branch and posterior branch are dissected and taped. By clamping the anterior branches of the right hepatic artery and portal vein, the anterior sector is visualized as a demarcated area and is marked along the line with electro cautery. After dividing the anterior branches of the right hepatic artery and right portal vein, the liver parenchyma between segment 4 and anterior sector is transected under Pringle maneuver or hemi-hepatic clamping.

After exposing a peripheral branch of the middle hepatic vein, the liver parenchyma is transected on the plane connecting the middle hepatic vein to the demarcation line, as exposing the further proximal part of the middle hepatic vein. The same transection manner is employed for the right side transection between anterior and posterior sectors. Finally the Glisson of the anterior sector is divided and anterior sectionectomy is accomplished. On the cut surface, the middle and right hepatic veins are exposed completely.

## Results

In all patients, anterior sectionectomy was performed successfully as exposing the middle and right hepatic veins. In one patient, bile duct was resected simultaneously. There was no postoperative morbidity and mortality except for abdominal abscess in one patient. The median total time of Pringle maneuver, bleeding amount and operation time were 47 min (52-140), 500 ml (480-3480) and 297 min (252-683), respectively.

## Conclusion

The extent of liver parenchymal resection can be clearly determined by controlling arterial and portal supply to the anterior sector. Liver parenchymal transection should be performed on the plane connecting the demarcation line to the middle or right hepatic vein. This procedure will contribute to reducing bleeding amount and achieving complete resection of anterior sector.