



Various Traction Methods for Safe Liver Operation in the Era or Area of Scarce Assistants

Chong-Woo Chu, Je-ho Ryu, Ki-myung Moon, Kwang-ho Yang,
Young-mok Park, Hyun-Yong Lee

Pusan National University, Korea

The appliers of the surgery department have been decreased in Korea these days. Many surgeons have usually operated with physician assistants and students and sometimes they should perform some operations with only one assistant. It is no exception even in the hepatopancreatobiliary (HBP) operation field. When I moved to a new hospital named Pusan National University Yangsan Hospital Feb. 2010, there was no resident and I usually carried out HBP operations with a physician assistant and a student or sometimes one of them. So I adopted in various traction methods to overcome not enough assist.

Right hilar dissection with traction with several threads and a feeding tube placed in the cystic duct

During cholecystectomy, I always inserted a feeding tube through the cystic duct. It could facilitate the common bile duct (CBD) to lift upward and left side. And hilar dissection usually starts from beneath the cystic duct. A bundle of right side CBD soft tissue dissects until exposing of the main portal vein. A 3-0 black silk is encircled with soft tissue and black silk is grasped with a mosquito clamp that is fixed with a towel clamp at right outside of the operation field. It allows to easily exposure the 12p and 13 lymph nodes and the right hepatic artery.

Liver parenchymal transection with the triple traction method

During hepatic parenchymal transection, transfixing sutures with 1-0 Vicryl are always applied in both side of dissection starting point of liver. Each 1-0 Vicryl is grasped with a mosquito clamp that is fixed with a towel clamp at both outside of the operation field. Through that traction, the liver is slightly lifted upward and moved to caudal. This traction allows exposing cranial part of the liver and makes the left hands of the operator and the first assistant free. Both counter tractions with the freed hands are easily applied in the surfaces of dissecting liver parenchyma. With the last traction with hanging maneuver, it serves facilitating to dissect the remained deeper parenchyma safely.

The triple traction method is also applicable in the laparoscopic liver resection. Parenchymal transfixing sutures are

changed with 1-0 Nylon with the straight needle and it is fixed at the in and out site of the straight needle. Gradually proceeding more parenchymal resection, transfixing sutures are pulling out and refixed. Parenchymal counter traction is produced by the peanut retractors. Final traction with modified hanging maneuver is followed with the Goldfinger (blunt Dissector and Suture Retrieval System, Ethicon Endo Surgery, Johnson & Johnson, New Brunswick, N.J., USA) after transection of the glissonian pedicle.

I usually applied this triple traction method for all liver resection. This triple traction method can be used to facilitate liver resection with only one assistant safely in the era or area of scarce assistants.

Triple traction method in the vascular anastomosis

For large vessel anastomosis such as Vena Cava and hepatic veins, I usually preferred to use triple traction method. The first traction is that both side wall of recipient's and graft's Cava is sutured with 4-0 prolene and it was clamped with the shard mosquito clamp that is fixed with a towel clamp at both outside of the operation field. The second traction is that midpoint of each Cava is also sutured with 4-0 prolene and it is fixed as same manner. The last traction is that 5-0 prolene is stitched at the anterior wall of each Cava and it is also fixed at outside of the operation field. The posterior wall of each Cava is continuously sutured until reaching to mid-point traction as considering size matching of each Cava guided by side point traction and mid-point traction. And then mid-point traction suture is removed and the remnant posterior wall is continuously sutured as usual manner. This triple traction method is essential to matching the size of each vessels and eversion of both vessels. And it is also applicable in the hepatic vein and the portal vein anastomosis.