

Hepatic Parenchymal Transection; CUSA(Cavitron Ultrasonic Surgical Aspirator)

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CUSA is a device for ablating the liver or brain parenchyma by utilizing the cavity phenomenon occurring at the end of the vibrating shaft. CUSA's handpiece provides ultrasonic vibration with aspiration and irrigation. and its probe resects hepatic parenchyma while giving little influence to the structure having fibrous tissue such as glissonian pedicle and blood vessel. CUSA began to be used in liver resection surgery in the mid 1980s. Unlike now, the handpiece at that time was not equipped with an electrocautery. the first assistant should had electrocauterized the remaining small blood vessels or Glisson structures during hepatic resection. The main body of the CUSA shows the function of each color, the green indicates suction power, the blue indicates irrigation flow, the orange indicates vibration power, and the yellow indicates tissue sensitivity degree. Generally, it can be adjusted according to the situation where the surgery is carried out by placing 70 to 80 for green, 20 to 30 for blue, 60 to 70 for orange, and standard mode for yellow. Especially, the appropriate adjustment of orange(vibration power) and yellow(tissue sensitivity degree) allow the surgeons to make smooth operation in the following cases. First, liver conditions such as liver cirrhosis. Second, When it is difficult to quickly respond to bleeding during laparoscopic liver resection. Third, when exposing the hepatic vein. The vibration power should not be too high because small structures can easily be damaged, increasing the risk of bleeding or bile leakage. The tissue sensitivity or tissue select mode indicates the degree of sensitivity to the structure. When increasing the sensitivity, the rate of liver resection may be slower, but it has the advantage of reducing the risk of hemorrhage. Because CUSA has a suction function, when exposing the hepatic vein, the resection without vibration helps to protect small branches of the hepatic vein from being damaged. It is always important to proceed shallowly and horizontally, not to be deeply penetrated

References

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