

Novel intraoperative use of the "Tensipresser" to assess factors predictive of pancreatic fistula after pancreaticoduodenectomy

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Abstrak

PURPOSES: Pancreatic fistula (PF) is a challenging complication of pancreaticoduodenectomy (PD). Soft pancreas is reported as a risk factor for PF; however, palpation by the surgeon is not an objective method of evaluating pancreatic texture. We conducted this study to investigate whether a texture analyzer called a Tensipresser can be used to quantify pancreatic tissue hardness and predict the development of postoperative PF.

METHODS: We assessed pancreatic texture in 85 patients who underwent PD. After surgeons assessed the texture of the pancreas subjectively, the physical properties were measured on the pancreatic margin intraoperatively, by the two-bite method using the Tensipresser. The incidence and severity of PF were based on the definitions of the International Study Group on Pancreatic Fistula.

RESULTS: Symptomatic PF (grade B and C) developed in 16% of the patients. Patients were divided into two groups based on the Tensipresser measurement: those with a soft and fragile pancreas with hardness <math>< 2070 \text{ gw/cm}^2</math> and cohesiveness <math>< 0.65</math> (SF group); and all other patients (non-SF group). In the univariate and multivariate analysis, a small pancreatic duct diameter (<math>< 4 \text{ mm}</math>), no conduction of preoperative chemoradiation therapy, and inclusion in the SF group were significant predictors of PF.

CONCLUSION: The Tensipresser can evaluate pancreatic texture objectively, helping to define intraoperatively, those at risk of the development of PF.