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Preoperative characteristics of patients with presumed pancreatic cancer but ultimately benign disease: a multicenter series of 344 pancreatoduodenectomies

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Background: Differentiation between malignant and benign pancreatic tumours can be difficult. Consequently, a proportion of patients undergoing pancreatoduodenectomy for suspected malignancy will ultimately have benign disease. A predictive model might prevent unnecessary pancreatoduodenectomies in a subgroup of these patients.
Aim: To compare preoperative clinical and imaging characteristics of patients with unexpected benign pathology after pancreatoduodenectomy with those of patients with confirmed (pre)malignant disease.

Patients & methods: We performed a multicenter retrospective cohort study in 1629 consecutive patients undergoing pancreatoduodenectomy for suspected malignancy between 2003 and 2010. Preoperative characteristics were compared in a 1:3 benign: malignant ratio. Malignant cases were randomly selected from the entire cohort. A multivariable logistic regression prediction model was constructed to predict benign disease.
Results: 107 patients (6.7%) had unexpected benign disease after pancreatoduodenectomy. 86 fulfilled the inclusion criteria and were compared to 258 patients with (pre)malignant disease. Patients with benign disease presented less frequently with jaundice (60% vs. 80%, P<0.01), pancreatic mass (54% vs. 70%, P=0.03), double duct sign on CT (27% vs. 52%, P=0.01) or EUS (22% vs. 51%, P=0.02), but more often with pain (56% vs. 38%, P=0.04). In a prediction model using these clinical and CT parameters, only 27% of patients with benign disease were correctly predicted and 6% of patients with malignant disease were missed.
Conclusion: Nearly 7% of patients undergoing pancreatoduodenectomy for suspected malignancy were ultimately diagnosed with benign disease. Although some preoperative clinical and imaging signs might indicate absence of malignancy, their discriminatory value is not sufficient for clinical use.