MR Imaging and Dynamic MRCP after Secretin Administration in the Assessment of Intraductal Papillary Mucinous Pancreatic Tumors

Riccardo MANFREDI[1], Maria Gabriella Brizi MD[2], gabriele masselli md[2], Massimiliano Mutignani MD[2], Guido Costamagna MD[2], Amorino Vecchioli MD[2], Pasquale Marano MD[2]
[1]11 Piazza Ennio, Rome, Italy; [2];

Introduction
To evaluate the MR imaging and dynamic MRCP after secretin administration (S-MRCP) findings of intraductal papillary mucinous pancreatic tumors, and assess the hydrodynamic changes in the pancreatic ducts due to mucus obstruction, on dynamic MRCP.

Methods
8 patients (6 M; 2 F) with intraductal papillary mucinous neoplasm, diagnosed by means of ERCP (8/8 patients) and surgical procedure (4/8), underwent MR and MRCP before and after secretin administration. All patients presented with recurrent episodes of acute pancreatitis.
MR imaging included coronal Hal Fourier T2-WI, axial T1WI without and with Fat sat gradient echo images, and axial half Fourier T2WI images. Coronal half Fourier MRCP were obtained before and after secretin administration. MR and MRCP images were retrospectively analyzed by three radiologists, who were aware of the diagnosis of intraductal papillary mucinous tumors but unaware of the ERCP and surgical findings; interpretation discrepancies were resolved by a majority decision.
Qualitative image analysis included: presence of main pancreatic duct involvement (diffuse or segmental); presence of cystic dilatation (unilocular or multilocular)of the main pancreatic duct and/or side branches; presence of mixed pattern (MPD involvement and cystic dilatation); presence of communication between cysts and duct system; presence of papillary projections; persistent dilatation of the normal main pancreatic duct on delayed scans; presence of ductal stenoses.
Quantitative image analysis included: size of the dilated MPD, size of the cysts and of the communication between the cysts and the duct system.

Results
Dilatation of the main pancreatic duct was observed in 4 cases (diffuse involvement in 3 and segmental in 1); cystic dilatation of the side branches was detected in 2 cases (multilocular in both); mixed patterns was observed in 2 cases. Communication between the cystic dilatation and duct system was observed in 2 patients. Papillary projections were detected in 2 patients. Ductal stenoses were detected in 2 cases. Persistent dilatation of the normal main pancreatic duct in 2 patients. The size range of the main pancreatic duct was 5-15 mm; of the cysts 2-8 mm and of the communication was 2 mm.

Discussion
MR and MRCP appear effective and non-invasive in the assessment of ductal changes in patients with intraductal papillary mucinous tumors, identifying specific findings. Furthermore dynamic MRCP is able to assess hydrodynamic changes in the pancreatic ducts secondary to stenosis due to mucus impaction.

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