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Evaluation of pancreatic cysts in patients: A Magnetic resonance cholangiopancreatography study

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Abstract
Background: Cystic lesions of the pancreas are closed cavities containing liquid or semisolid material. The present study was conducted to assess pancreatic cysts in patients.
Materials & Methods: The present study was conducted 103 patients visited to department with suspected lesions of pancreas. All were subjected to magnetic resonance cholangiopancreatography (MRCP) using using a 1.5 Tesla Magnetom Avanto (Siemens Healthcare, Erlangen, Germany) with a 280 mT/m gradient.
Results: Age group 10-20 years had 22, 20-30 had 35, 30-40 had 20, 40-50 had 14 and >50 years had 12 patients. The difference was significant ($P< 0.05$). Out of 103 patients, 54 (52.4%) had pancreatic cysts. Common risk factors were alcohol seen in 24, smoking in 26, diabetes in 34 and positive family history in 12. The difference was significant ($P< 0.05$).
Conclusion: Authors found that 52.4% had prevalence of pancreatic cysts. Magnetic resonance cholangiopancreatography (MRCP) is effective method of diagnosing pancreatic cysts.

Keywords: Magnetic resonance cholangiopancreatography, pancreatic cysts, Smoking

Introduction
Cystic lesions of the pancreas are closed cavities containing liquid or semisolid material, which can either be neoplastic or non-neoplastic. Among the neoplastic cysts accounting for 10%–15% of all pancreatic cystic lesions, the serous type is seen as benign, whereas the mucinous form tends to have malignant potential [1]. Reports indicate that common cystic tumours with a mucinous epithelial lining can harbour carcinoma in situ or invasive cancer in up to 60% of resected specimen depending on the size of the lesion, clinical symptoms caused by the lesion as well as signs of malignancy on imaging. However, the rate of malignancy is variable and precise risk assessment can only be given for an individual patient and should be based on current guideline recommendations [2].
Salvia *et al.* [3] in retrospect, 2832 consecutive computed tomography (CT) scans were reviewed. Patients with known pancreatic disease or symptoms related to the pancreas were excluded. A prevalence of 13.5% was found in another recent retrospective study in 616 patients using MRI.
Pancreatic cysts represent a small yet increasingly detected entity of pancreatic abnormalities. Approximately 70% of pancreatic cystic lesions are discovered incidentally. A variety of diagnostic methods to detect cystic lesions and to clarify their nature, such as MRI with supplementary cholangiopancreatography (MRCP), CT or endoscopic ultrasound (EUS) in combination with fine needle aspiration, exist. MRI is the preferred non-invasive imaging modality for assessing pancreatic pathologies because of its high soft tissue contrast [4]. The present study was conducted to assess pancreatic cysts in patients.

Materials & Methods
The present study was conducted in the department of Radiodiagnosis. It comprised of 103 patients visited to department with suspected lesions of pancreas. All were informed regarding the study and written consent was obtained. Ethical clearance was taken prior to the study.
General data name, age, gender etc. was recorded.
All were subjected to magnetic resonance cholangiopancreatography (MRCP) using using a 1.5 Tesla Magnetom Avanto (Siemens Healthcare, Erlangen, Germany) with a 280 mT/m gradient. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table I: Distribution of patients

Age group (Years)	Number	P value
10-20	22	0.01
20-30	35	
30-40	20	
40-50	14	
>50	12	

Table I shows that age group 10-20 years had 22, 20-30 had 35, 30-40 had 20, 40-50 had 14 and >50 years had 12 patients. The difference was significant ($P< 0.05$).

Table II: Prevalence of pancreatic cyst

Total patients	Pancreatic cysts	%
103	54	52.4

Table II shows that out of 103 patients, 54 (52.4%) had pancreatic cysts.

Table III: Assessment of risk factors

Risk factors	Number	P value
Alcohol	24	0.05
Smoking	26	
Diabetes	34	
Family history	12	

Table III, graph I shows that common risk factors were alcohol seen in 24, smoking in 26, diabetes in 34 and positive family history in 12. The difference was significant ($P< 0.05$).

Discussion

The most common non-neoplastic pancreatic cysts are serous cystadenomas and pancreatic pseudocysts. Rare nonneoplastic pancreatic cysts include true cysts, retention cysts, and lymphoepithelial cysts. Patients with serous cystadenomas (SCNs) are predominantly elderly women with a median age of approximately 60 years, and the cysts can arise in any region of the pancreas [5].

Classical features of a serous cystadenoma include microcystic morphology, a central area of calcification, and a watery, nonviscous fluid content. However a macrocystic variant of serous cystadenomas exists and can easily be confused with a pseudocyst or a mucinous cystadenoma [6].

Serous cystadenomas are lined by a glycogen-rich cuboidal epithelium which can be shown with cytopathological analysis. Although a small number of cases of malignant serous cystadenocarcinomas have been described, it is generally believed that serous cystadenomas have virtually no malignant potential. Serous cystadenomas can be treated conservatively if the patient is asymptomatic. Surgery is treatment of choice when a patient has symptoms or the distinction between a serous cystadenoma and a mucinous cystic neoplasm is not possible [7]. The present study was conducted to assess pancreatic cysts in patients.

In present study, age group 10-20 years had 22, 20-30 had 35, 30-40 had 20, 40-50 had 14 and >50 years had 12 patients. Out of 103 patients, 54 (52.4%) had pancreatic cysts. Acar *et al.* [8] found that at baseline pancreatic cysts had a weighted prevalence of 49.1%, with an average number of 3.9 (95% CI 3.2 to 4.5) cysts per subject in the subgroup harbouring cysts. Cyst size ranged from 2 to 29 mm. Prevalence ($P<0.001$), number (p=0.001) and maximum size ($P<0.001$) increased significantly with age. The 5-year follow-up revealed a weighted incidence of 12.9% newly detected pancreatic cysts. 57.1% of the subjects initially harbouring pancreatic cysts showed an increase in number and/or maximum cyst size. Of all subjects undergoing MRCP, no participant died of pancreatic diseases within mortality follow-up.

It is found that strong T2-weighted MRI like MRCP allows an improved detection of cystic lesions including septa, mural nodules and ductal communication. We found that common risk factors were alcohol seen in 24, smoking in 26, diabetes in 34 and positive family history in 12. The difference was significant ($P< 0.05$).

De Oliveira *et al.* [9] found that many patients with cystic lesions of the pancreas present without abdominal complaints. Lesions are often detected when a radiologic examination is performed for another reason or when an individual decides to undergo preventive screening investigations. When the pancreatic cyst is symptomatic, patients may present with epigastric pain, postprandial fullness, palpable mass, gastric outlet obstruction, nausea, vomiting, diarrhoea, steatorrhea, and/or weight loss. Patients with IPMNs sometimes present with recurrent episodes of pancreatitis. Side-branch IPMNs are more often asymptomatic than main-duct IPMNs.

Conclusion

Authors found that 52.4% had prevalence of pancreatic cysts. Magnetic resonance cholangiopancreatography (MRCP) is effective method of diagnosing pancreatic cysts.

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