



## Pictorial Review

# Squamous-lined cyst of the pancreas: Radiological–pathological correlation



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## ARTICLE INFORMATION

## Article history:

Received 16 November 2013

Received in revised form

13 March 2014

Accepted 20 March 2014

Pancreatic cystic lesions are increasingly being detected incidentally because of the increased use of cross-sectional imaging. Squamous-lined cysts of the pancreas (lymphoepithelial cyst, epidermoid cyst, and dermoid cyst) are rare cystic lesions lined with squamous epithelium. Distinguishing squamous-lined cysts from other cystic lesions of the pancreas is important to avoid unnecessary surgery, because squamous-lined cysts of the pancreas have no malignant potential. The purpose of this review is to describe findings on computed tomography and magnetic resonance imaging and the histopathological characteristics of squamous-lined cysts, and to summarize the key points of differential diagnosis for pancreatic cystic lesions.

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## Introduction

Cystic lesions of the pancreas can be divided into three groups: true cysts, pseudocysts, and cystic neoplasms. Squamous-lined cysts represent a rare group of true cysts lined by squamous epithelium, and comprise three kinds: lymphoepithelial cyst, dermoid cyst, and epidermoid cyst.<sup>1</sup> Distinguishing these lesions from each other may be difficult, but characteristic clinical and histopathological findings have been reported. As no squamous-lined cysts of the pancreas have shown any malignant potential, differentiating squamous-lined cysts from other cystic lesions is important.<sup>1</sup>

This review describes the clinical presentations and radiological and histopathological findings of squamous-lined cysts, and presents other cystic mass lesions of the

pancreas for the differential diagnosis of squamous-lined cyst. A summary of clinical, histopathological, and radiological features and differential diagnosis of squamous-lined cysts is shown in [Table 1](#).

## Squamous-lined cyst of the pancreas

### Lymphoepithelial cyst

Lymphoepithelial cyst ([Fig 1](#)) of the pancreas is a type of true cyst that presents an epithelial lining, and constitutes about 0.5% of all pancreatic cysts.<sup>2</sup> Lymphoepithelial cysts are mainly seen in middle-aged men, with a mean age at onset of 56 years (range 35–74 years), and a ratio of males to females of between 4:1 and 7:1.<sup>1,3,4</sup> Lymphoepithelial cysts may occur in any part of the pancreas.<sup>1</sup> Patients with this cyst are generally asymptomatic or show non-specific gastrointestinal symptoms such as abdominal pain, nausea, anorexia, diarrhoea, and fever.<sup>1,2</sup>

In terms of pathogenesis, lymphoepithelial cysts have been hypothesized to develop from ectopic pancreatic tissues in a peripancreatic lymph node, aberrant positioning of

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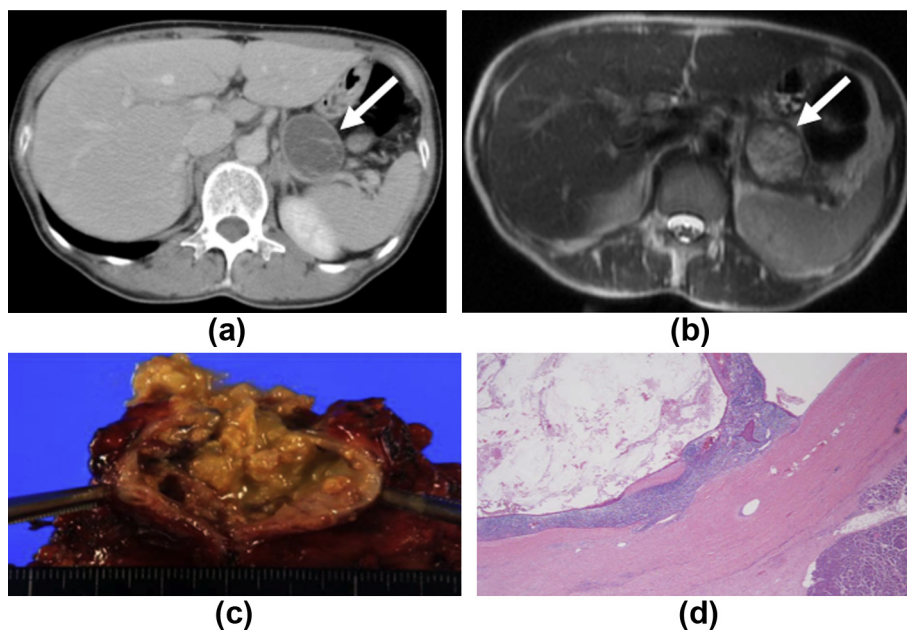
**Table 1**  
Clinical, histopathological, and radiological features and differential diagnosis of squamous-lined cysts.

	Lymphoepithelial cyst	Epidermoid cyst	Dermoid cyst
Age (range), years	56 (35–74)	43 (12–70)	36 (4–74)
Sex (male:female)	4:1 to 7:1	1:1	1:1
Location	Any	Tail	Any
Histopathology	<ul style="list-style-type: none"> <li>Dense lymphoid tissue with follicles</li> </ul>	<ul style="list-style-type: none"> <li>Splenic tissue (sometimes not prominent)</li> </ul>	<ul style="list-style-type: none"> <li>Sebaceous material or hair follicles</li> </ul>
CT	<ul style="list-style-type: none"> <li>Exophytic growth</li> <li>Higher attenuation (granular keratinized materials)</li> <li>Occasionally lower attenuation (due to fat)</li> </ul>	<ul style="list-style-type: none"> <li>Lower attenuation (infrequently higher attenuation)</li> <li>If sufficient amount of splenic tissue is present, it shows same enhancement as the spleen.</li> </ul>	<ul style="list-style-type: none"> <li>All kinds of density, such as fluid, soft tissue, fat, and calcification</li> </ul>
MRI	<ul style="list-style-type: none"> <li>“Cheerios-like” appearance</li> <li>Signal reduction in out-of-phase compared with in-phase</li> <li>Hyperintense signal on DWI</li> </ul>	<ul style="list-style-type: none"> <li>Hyperintense signal on DWI</li> <li>If sufficient amount of splenic tissue is present, it shows SPIO-enhanced</li> </ul>	<ul style="list-style-type: none"> <li>Fat–fluid level, if fat present</li> <li>Signal defect with MRCP</li> </ul>
Radiological differential diagnosis	<ul style="list-style-type: none"> <li>Pseudocyst</li> <li>Mucinous cystic neoplasm</li> </ul>	<ul style="list-style-type: none"> <li>Mucinous cystic neoplasm</li> <li>Cystic neuroendocrine tumour</li> </ul>	<ul style="list-style-type: none"> <li>Lymphoepithelial cyst</li> <li>Epidermoid cyst</li> </ul>

DWI, diffusion-weighted image; SPIO, superparamagnetic iron oxide; MRCP, magnetic resonance cholangiopancreatography.

branchial cleft cysts at embryogenesis, or squamous metaplasia in an intrapancreatic duct.<sup>5</sup> Lymphoepithelial cysts of the pancreas are not associated with Sjögren’s syndrome and malignant lymphoma, but show a possible association with human immunodeficiency virus (HIV) infection.<sup>6</sup> No reports have described malignant change or recurrence after surgery.<sup>7</sup> These cysts may be associated with raised

levels of carbohydrate antigen (CA)19-9 and carcinoembryonic antigen (CEA). Lymphoepithelial cysts are unilocular (40%) or multilocular (60%) cystic lesions lined with squamous epithelium without atypia and surrounded by dense epithelial lymphoid tissue and follicles accompanied by germinal centres. The mean diameter is 4.7 cm (range 1.2–17 cm).<sup>1</sup>



**Figure 1** A 40-year-old woman with a lymphoepithelial cyst of the pancreas. (a) Axial contrast-enhanced CT image shows a round cystic mass with septa (arrow). (b) Axial T2-weighted imaging shows a markedly hyperintense mass, with linear hypointense septa (arrow). (c) Surgical specimen shows the cyst containing yellow keratinaceous debris and covered by a thick fibrous capsule. (d) The cyst wall is lined by squamous epithelium and surrounded by dense lymphoid tissue and follicles, with no signs of atypia (high-power field, haematoxylin–eosin stain).

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