

Analysis of Mucinous Cystadenoma of Pancreas with Honeycombing Appearance

Awais Jamil¹*, Atique -ur-Rehman², Usama Shahid², Shafaat Hussain³

¹Department of Medical Sciences, Quaid-e-Azam Medical College, Bahawalpur, Pakistan

²Department of Medical Sciences, Bahawal Victoria Hospital, Bahawalpur, Pakistan

³Department of Medical Sciences, Riphah International University, Islamabad, Pakistan

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ABSTRACT

Introduction: Large quality of imaging examination helps in the discovery of Cystic Pancreatic Lesions (CPLs).

Objectives: The main objectives of the study is to evaluate the mucinous cystadenoma of pancreas with honeycombing appearance.

Methodology: This prospective study was conducted in Bahawal Victoria Hospital, Bahawalpur during 2019 to 2020. All the cases of cystic pancreatic lesions were

observed by Ultrasound and contrast-enhanced CT and contrast-enhanced MRI.

Keywords: Mucinous cystadenoma; Pancreas; Honeycombing appearance

***Correspondence:**

Awais Jamil, Department of Medical Sciences, Quaid-e-Azam Medical College, Bahawalpur, Pakistan, E-mail: Usamashahid@gmail.com

INTRODUCTION

Large quality of imaging examination helps in the discovery of Cystic Pancreatic Lesions (CPLs). Now it is easy for the radiologist to diagnose lesion inside the body with the help of Computed Tomography (CT) and Magnetic Resonance (MRI) technique (Megibow AJ, *et al.*, 2011). Some institutions detect 25% CPL cases during an autopsy (Kimura W, *et al.*, 1995). In all around the world Pancreatic Pseudocysts (PPSs), Serous Cystadenomas (SCAs), Mucinous Cystadenomas (MCAs), mucinous cyst carcinoma, Intraductal Papillary Mucinous Neoplasms (IPMNs), and solid pseudo-papillary neoplasm are some common CPLs which detect through CT (Khan A, *et al.*, 2011; Scheiman JM, *et al.*, 2015; Klöppel G and Kosmahl M, 2001). Around the globe recently 16%-39% (Yoon WJ and Brugge WR, 2012; Valsangkar NP, *et al.*, 2012; Jais B, *et al.*, 2016) cases of serous cystadenoma were observed whereas 10%-50% (Scheiman JM, *et al.*, 2015; Yoon WJ and Brugge WR, 2012) cases of mucinous cystadenoma detect in different regions. With this high ratio, these two cyst types are considered as one of the most prevalent tumors of CPLs. Both of them have a complete difference in biological composition and in severity (Khashab MA, *et al.*, 2011). Serous cystadenoma is non-malignant which ranges from 1 to 30 cm in size with a smooth outer surface and contained some liquid fluid inside their thin wall. It has a composition of cysts and papillae lined by non-stratified or stratified cuboidal to columnar cells resembling fallopian tube epithelium (Seidman JD and Mehrotra A, 2005). Whereas mucinous cystadenoma is considered as recognized neoplasm, malignant in severe cases lined by mucinous epithelium with the need for surgical intervention (Klöppel G and Kosmahl M, 2001). Small size mucinous cysts can be treated without any need for the surgical procedure (Scheiman JM, *et al.*, 2015). In contrast, there is no specific guideline build to describe the need for surgery among patients carrying large size mucinous cyst. It is hard to predict the malignancy stage in a mucinous cyst so there is a need to differentiate SCLs and MCLs in order to assess its risk factors (Ketwaroo GA, *et al.*, 2016). Conventional ultrasound imaging is considered as the best technique of imaging modalities to diagnose and evaluate the condition of MCAs and SCAs (Gandolfi L, *et al.*, 2003).

OBJECTIVES

The main objectives of the study is to evaluate the mucinous cystadenoma of pancreas with honeycombing appearance.

METHODOLOGY

This prospective study was conducted in Bahawal Victoria Hospital, Bahawalpur during 2019 to 2020. All the cases of cystic pancreatic lesions were observed by Ultrasound and contrast-enhanced CT and contrast-enhanced MRI. Before the CEUS examination written consents were collected from the patients in which we describe all the objectives and expected outcomes. People with having allergy from intravenous contrast agents, patients with inadequate ultrasonic, acute pancreatitis were excluded from the research. In the study period, a total of 69 patients from the age group, 16-76 years were diagnosed. At study time one patient had surgical pathology whereas 18 of them had comprehensive clinical outcomes. All these 18 patients were first analyzed by using CE-CT and CE-MRI less and than went for CEUS examination and Endoscopic Ultrasound (EUS). After the CEUS examination, EUS was performed by using needle aspiration. After the analysis totals 35 SCA and 26 MCA patients. Before the examination, we recommend the patient not to eat or drink anything. The ultrasound instrument used was Sequoia 512 (Siemens Ultrasound, Mountain View, CA, USA) equipped with a 1-4 MHz 4 V1 vector transducer with an installed sequence software program.

All the information regarding size, location of the tumor, echogenicity (anechoic and mix-echoic), tumor shape, wall characteristics, enhancement patterns were recorded during the CEUS examination. We count <3mm thickness in the thin category and 3mm in the thick category.

STATISTICAL ANALYSIS

For the statistical analysis, we used SPSS version 23.0 to apply a t-test for the independent group. All the data were analyzed by using the Chi square test χ^2 . A Chi square test was applied to calculate the original ratio with our expected outcomes.

RESULTS

All the demographic information is noted in table 1. We observed that out of 35, a total of 27 patients had serous cystadenoma and high prevalence among the female population. We mention all

those complaints' initial symptoms of the selected cyst. In our studies, 6 cases of mucinous cystadenoma were observed due to abdominal pain whereas no symptoms emerge among 16 patients (Table 1).

Table 1: Parameters of lesions observation under CEUS

Parameters of lesions	Mucinous cystadenoma (n= 26)	Serious cystadenoma (n=35)	p value
Size (mm)			0.205
Mean size ± SD, range (Male)	52.3 ± 23.8	44.1 ± 25.3	
Mean size ± SD, range (Female)	19.2-85.1	16.0-122.0	
Location			0.003
Head-neck	6 (23.1)	16 (45.7)	
Body-tail	20 (76.9)	19 (54.3)	
Echogenicity			0.226
Anechoic	21 (80.8)	23 (65.7)	
Mix-echoic	5 (19.2)	12 (34.3)	
Wall thickness			0.005
Thick (≥ 3 mm)	16 (61.5)	9 (25.7)	
Thin (<3 mm)	10 (38.5)	26 (74.3)	
Shape			0
Lobulated	1 (3.8)	14 (40.0)	
Round/oval	19 (73.1)	7 (20.0)	
Irregular	6 (23.1)	14 (40.0)	
Septa characteristics			0.066
Septa thickness			
Thick (≥ 2 mm)	8 (57.1)	4 (21.1)	
Thin (<2 mm)	6 (42.9)	15 (78.9)	
Enhancement pattern			0.402
Iso-/hypo-enhancement	5 (19.2)	10 (25.6)	
Hyper-enhancement	21 (80.8)	25 (71.4)	
Nodules			0.675
Negative	24 (92.3)	33 (94.3)	
Positive	2 (7.7)	2 (5.7)	
Number of septa			0.001
>2 septa	7 (19.2)	25 (40)	
0-2 septa	19 (73.1)	10 (28.6)	
Honey comb pattern			0.001
Negative	26 (100)	24 (68.6)	
Positive	0 (0)	11 (31.4)	

During studies, we found that out of 35 SCAs 16 were located on the head-neck position whereas 19 cases were found on the body tail position. Among 11 patients of serous cystadenoma honeycomb pattern emerge whereas mucinous cases had no visible honeycomb pattern. In SCAs patients, 23 were anechoic, 12 mixed anechoic. Lobusted shape had high frequency among the SCAs group whereas 19 patients of MCAs had around

and oval shape. Thickness has a high frequency in the mucinous groups whereas a high frequency of thinner wall is found in the SCAs group.

The sensitivity and specificity of both groups had no significant relationship with the thickness of the wall, septa, and location even two, three, and four CEUS results were also observed to depict any significance. All the AZ values were greater than 0.05.

DISCUSSION

In all around the world, both common type Cystic Pancreatic Lesions (CPLs) have distinctive biological behaviors. These tumors involve serous cystadenoma with honeycomb presentation and mucinous cystadenoma type. Non- malignant honeycomb serous cystadenoma is constituted on cuboidal epithelium which is responsible for producing serous fluid that needs proper follow up. On the other hand, mucinous cystadenoma has the potency to convert into malignant because of its columnar mucin composition, responsible for producing epithelium and need surgical intervention (Megibow AJ, *et al.*, 2011; Klöppel G and Kosmahl M, 2001). In the case of Cystic Pancreatic Lesions (CPLs) detection, it requires a complete diagnosis and management. Though radiological and pathological features of CPL's are completely known still it creates a serious difficulty in pre-operative diagnosis (Recaldini C, *et al.*, 2008).

During real-time diagnosis, dynamic information like focal lesions and in normal parenchyma regarding these two cysts can be attained with the help of Contrast-Enhanced Ultrasonography (CEUS). In terms of pancreatic diagnosis, this technique is less common as compared to its utilization in liver diagnosis. It is recognized as the best tool to analyze the inner structure of CPLs such as septa, nodules, and clearer wall characteristics (D'Onofrio M, *et al.*, 2012). In recent years different studies were published to demonstrate the efficacy of CEUS over conventional ultrasound for the diagnosis of CPLs (Megibow AJ, *et al.*, 2011).

In our study, we found middle-aged women are highly affected by SCA and MCA. The ratio of their positive symptoms, 17.1% of SCAs patients, and 38.5% of MCAs are in accordance with the previous research (Scheiman JM, *et al.*, 2015). Several significant CEUS criteria are formed to observe the location, shape, the thickness of the wall, the number of the septa, and the existence of a honeycomb pattern.

CONCLUSION

This study concludes that the majority of the tumor arises on the head-neck location with a lobulated shape. These are significant for the diagnosis of SCAs patients. Honeycomb pattern along with thin wall measurements also plays a significant role in the examination of SCAs patient. For the diagnosis of MCAs patients, physicians should analyze the body or tail location for tumor analysis. Mostly MCAs have thick wall round or oval shape with the presence of septa (0-2). CEUS provides a great benefit to practitioners in the evaluation of SCAs and MCAs.

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