

Incidental Pancreatic Lipomas Diagnosed by Computed Tomography

Bilgisayarlı Tomografi ile Tanısı Konulan Rastlantısal Pankreas Lipomları

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Abstract

Objective: Fatty tumours of the pancreas are rarely reported. With the advent of the imaging techniques, diagnosis of such tumours based on radiologic imaging is increasing.

Materials and Methods: Between June 2006 and June 2012, four patients with pancreatic lipomas that were diagnosed by computed tomography were reviewed retrospectively with regard to their imaging findings. There were 3 male and one female patient with a mean age of 60.8 years (from 53 to 67 years).

Results: A single well-bordered nodular fatty lesion with well-delimited thin homogeneous capsule was seen in all patients. The mean densitometric measurement of the lesions was -76 Hounsfield units (HU) (from -83 HU to -63 HU). The size of the lesions was from 7 mm to 12 mm with a mean of 8.75mm. They were located in the tail, body and neck of the pancreas in two, one and one patient, respectively. There was no associated pancreatobiliary pathology. Histopathologic evaluation was not planned because of their incidental diagnosis in these asymptomatic patients.

Conclusion: Pancreatic lipomas are silent lesions, incidentally found during imaging procedures. They have specific computed tomography findings and do not require any additional diagnostic imaging.

Key Words: Pancreas, lipoma, computed tomography, diagnosis

Özet

Amaç: Pankreasın yağlı tümörleri nadiren bildirilmektedir. Görüntüleme yöntemlerinin yaygınlaşması ile bu tür tümörlerin radyolojik görüntüleme temelli tanısı giderek artmaktadır.

Gereç ve Yöntem: Haziran 2006-2012 dönemi arasında bilgisayarlı tomografi ile tanı konulan pankreas lipomlu dört hasta, görüntüleme bulguları açısından retrospektif olarak değerlendirildi. Ortalama yaşı 60.8 yıl (değer aralığı 53-67 yıl) olan 3 erkek ve bir kadın hasta vardı.

Bulgular: Hastaların tamamında, ince homojen kapsüllü ve düzenli sınırlı nodüler yağlı tek bir lezyon görüldü. Ortalama densitometrik ölçüm değeri -76 Hounsfield ünitesi (HU) (değer aralığı -83 ile -63 arası) idi. Lezyonların büyüklüğü 7 ile 12 mm arası (ortalama 8,75 mm) değişiyordu. İki hastada kuyrukta olmak üzere, diğerleri gövde ve boyun bölgesi yerleşimli idi. Eşlik eden pankreatobiliyer patoloji yoktu. Asemptomatik hastalarda rastlantısal tanı nedeniyle, histopatolojik inceleme planlanmadı.

Sonuç: Pankreas lipomları görüntüleme yöntemleri esnasında rastlantısal olarak görülen sessiz lezyonlardır. Spesifik tanısal bulguları olması nedeniyle ilave girişimlere ihtiyaç yoktur.

Anahtar Kelimeler: Pankreas, lipom, bilgisayarlı tomografi, tanı

Introduction

Among the pancreatic neoplasms, mesenchymal tumours account only for 1%-2% [1-4]. Fat originated tumours such as lipomas and liposarcomas are the rarest neoplasms in the pancreatic mesenchymal group with unknown incidence [1, 2]. These lesions are usually detected as incidental tumours by computed tomography (CT) or magnetic resonance imaging for unrelated reasons [1]. It is also mentioned that diagnostic and therapeutic interventions seem to be irrelevant in case of silent clinical presentation and if there is exact diagnostic criteria for pancreatic lipomas (PL) [4].

It may be expected that both the widespread use of imaging techniques and the familiarity of the radiologists to this entity are going to increase the number of the cases diagnosed as PL [4].

In this paper, we aim to review our experience with PL diagnosed using CT.

Materials and Methods

Patients' data was collected from Istanbul 29 May Hospital, Department of Radiology between June 2006 and June 2012. The hospital institutional review board approval was taken.



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Patients were identified retrospectively from a radiology information system (RIS) by entering the words "pancreas and lipoma" into a keyword search system function. The system automatically searched previously dictated CT reports during the designated time period for reports with the words "pancreas and lipoma".

A total of four patients diagnosed as PL from the RIS search as mentioned above were originally identified as potential study participants including three men and one woman with a mean age of 60.8 years (from 53 to 67 years). The CT indications were non-specific abdominal pain in two, macroscopic hematuria in one patient with carcinoma of the gallbladder, and follow-up CT in one patient with carcinoma of the stomach.

All the stored images of the identified patients in the picture archiving and communication system (PACS, GE Healthcare, Milwaukee, Wisconsin, USA) were reviewed by two radiologists, who were blinded to each other's interpretation, to determine whether the findings were or were not compatible with PL. The CT images were evaluated according to the diagnostic criteria for lipomas including well-bordered fatty lesion, well-delineated thin homogeneous capsule, homogenous distribution of fat, no central or peripheral contrast enhancement, densitometric measurements between -30 to -150 Hounsfield units (HU), sharp demarcation without infiltration, and the absence of associated pancreatobiliary pathologies [4]. Lesions found in the pancreas tissue were also evaluated for their number, location, and diameter measurements.

Imaging Techniques

All abdominal CT examinations were performed with a 64-detector CT scanner (Lightspeed VCT, GE Healthcare, Milwaukee, Wisconsin, USA). Images were obtained in the craniocaudal direction with detector collimation 64×0.625 mm; voltage 120 kVp; and tube current 150-250 mAs. CT examinations were performed with oral and intravenous contrast medium. Water soluble oral contrast agents between 750-1500 mL (2%) were consumed 1 hour before the exami-

nations. An upper extremity 18-20 gauge IV cannula was used for venous access. Between 70-100 mL of non-ionic contrast medium with 300 mg/mL iodine concentration was injected at a flow rate of 2-3 mL/s, followed by a 50 mL saline chaser with the same flow rate. The scan was started after 70-80 seconds delay. All images were reconstructed as 2.5 mm axial sections and sent to the PACS. Stored image data sets in the PACS were analysed again for the study group. The collected data were compiled in an electronic database (Microsoft Excel for Windows, Microsoft Corporation, Redmond, WA); mean values for numeric items were calculated and data was evaluated.

Results

Lipomas found in the pancreas are detailed in Table 1.

In all patients, a well-bordered nodular and homogeneous fatty lesion, which was completely circumscribed by the pancreatic tissue, was incidentally detected in the pancreas (Figure 1a-d). A well-delineated thin homogeneous capsule around the lesions was seen in all patients. Pancreatic and biliary dilatation or compression to the adjacent structures was not present. Central or peripheral contrast enhancement was not detected. Histopathologic confirmation of the diagnosis was not planned in each case because of their clinical settings.

Discussion

Lipomas within the pancreas are rare lesions diagnosed incidentally during several imaging techniques from a variety of indications. Although there has been a limited number of cases published previously, the information with regard to PL is increasing in accordance with the widespread use of imaging techniques and the familiarity of the radiologists to this entity [4].

On CT imaging, which is accepted as the primary diagnostic modality of choice for these tumours, PLs are usually solid, well-circumscribed, homogeneous fatty lesions with thin interlobular septa [1, 4-7]. However, the latter feature can-

Table 1. Characteristics of the patients with PL

Patient	Age/sex	Number	Location	Diameter (mm) ^μ	Mean densitometric value (HU) ^β
1	53/male	Single	Body	8	-77
2	59/female	Single	Neck	7	-63
3	67/male	Single	Tail	12	-83
4	64/male	Single	Tail	8	-81
HU: Hounsfield unit; PL: Pancreatic lipomas					
^μ : The mean diameter was 8.75 mm					
^β : The mean HU value was -76					

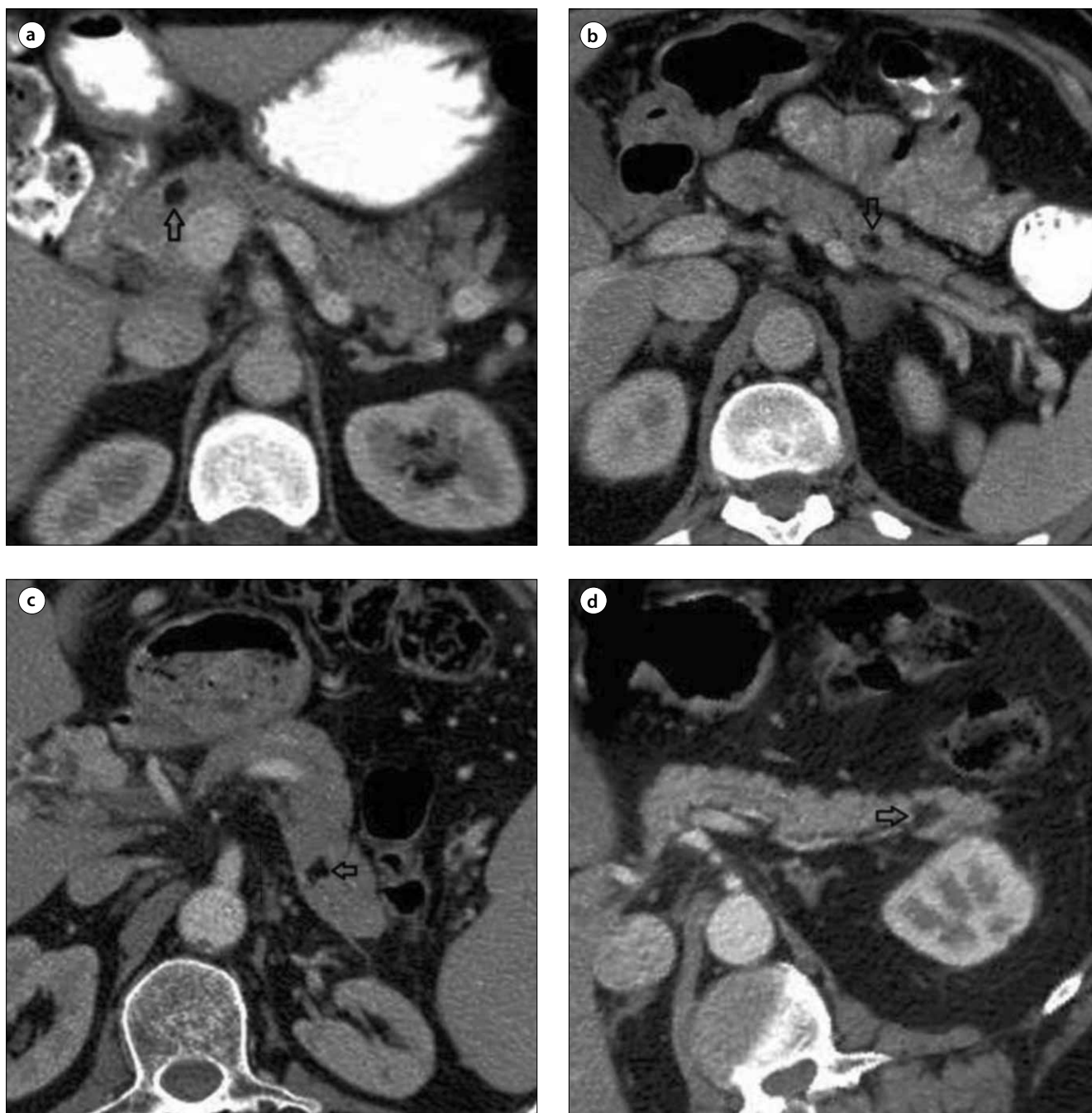


Figure 1. a-d. Computed tomography images of pancreatic lipomas. Well circumscribed, homogenous fatty lesions (arrows) which are located in the neck (a), body (b) and tail (c, d) of the pancreas in the axial CT images.

not be shown in small lesions. Lack of peripheral and central enhancement, sharp demarcation without adjacent intra- and extra-pancreatic infiltration and HU measurements between -30 and -150 are other diagnostic criteria for PL during CT examinations [2, 4]. It was possible to see all features in the cases presented here.

The number of fatty lesions in the pancreas and their diameters are other important clues for PL. Although the diameter has been reported to vary between 1 cm and 30 cm, PLs were usually shown as single and smaller lesions (<3 cm) [2, 4-6, 8]. The lesions in this study was also shown to be also single and smaller than 3 cm in accordance with oth-

ers [4, 6]. Although these lipomas might be seen in each part of the pancreas with variable frequencies as in this study, the head and tail of the pancreas could be accepted as the region in which PLs are most probably seen [1, 3-6].

Differential diagnosis of PL includes fatty lesions of the pancreas such as focal fatty infiltration of the pancreas, liposarcoma and teratoma [2, 4, 6, 9]. Among these, focal fatty infiltration is the most important process [4, 7]. Lacking a distinct capsule and the continuation of the focal fatty infiltration with the peripancreatic adipose tissue are two important criteria for differentiation of focal fatty infiltration from PL [1, 4, 6].

Liposarcoma and cystic teratoma of the pancreas are very rare tumours [2, 4, 6]. Although differentiation of a well-differentiated sarcoma from lipoma is a very difficult issue, homogeneous fatty attenuation is a reliable diagnostic clue for PL [6]. In difficult cases, an endoscopic ultrasound guided fine-needle aspiration is recommended. If there is any suspicion about malignant change e.g. large size, rapid growth, aspiration biopsy or surgery can be offered as an option for treatment and histopathological confirmation [10]. Cystic teratoma of the pancreas may contain cartilage, bone, teeth, hair, muscle, calcifications and dermal appendages, which can all be seen during CT examinations [1].

Lipomas in the pancreas are benign lesions with silent clinical progress [4]. With regard to their generally benign clinical course, these lesions are usually not resected unless they impede the normal bile flow to the digestive tract and interfere with the blood flow in adjacent vascular structures, which is especially true for the lesions found in body and tail of the pancreas [4, 5]. No diagnostic and therapeutic interventions seem to be relevant if diagnostic criteria taken from imaging procedures are present in an asymptomatic and incidental case [2, 6]. Most investigators also believe that histologic confirmation of PL is not required because of the almost diagnostic radiologic criteria [1, 2, 5]. Therefore, these asymptomatic and incidental lesions in all cases were managed conservatively in accordance with the previously published recommendations [1, 3, 4].

In conclusion, PLs rare lesions, incidentally found during imaging procedures. Well-bordered homogeneous fatty lesion, well-delineated thin homogeneous capsule, no central or peripheral contrast enhancement, densitometric measurements between -30 to -150 HU and thin interlobular septa are the classic CT findings of PL. With the widespread use of imaging techniques such as CT, and the increasing familiarity of the physicians to diagnose this entity, the number of the

cases is also increasing. PL are clinically silent lesions and do not require any additional diagnostic imaging.

Conflict of Interest: No conflict of interest was declared by the authors.

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Informed Consent: Written informed consent was obtained from patients who participated in this study.

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