Case Report

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Isolated omental panniculitis: two case reports and review of literature

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ABSTRACT
Isolated omental panniculitis (IOP), a rare form of acute abdominal syndrome, is defined as intraabdominal panniculitis that involves only omentum without extraabdominal fat necrosis, inflammatory bowel disease and pancreatitis. In the search made using PubMed English database, only 4 cases are determined with IOP. IOP is conceptually confused with idiopathic omental infarction (IOI). However, omental infarctions that are rare causes of acute abdominal syndromes were published by Bush for the first time in 1986 and less than 400 cases were reported. In this article we aimed to publish 2 IOP patients who applied with acute abdominal manifestation and were treated with laparoscopic omental resection to discuss the other 4 IOP cases comparing with IOP together with literature.

Keywords: panniculitis, omental panniculitis, infarction, laparascopy

INTRODUCTION

Abdominal panniculitis is a generalized, inflammatory and necrotic reaction of intraperitoneal or retropaeritoneal fatty tissue in a local region (1-3). It is rarely cause of acute abdominal syndrome (1-4). Although this disease is especially seen at the root of bowel mesentery and sometimes seen at mesocolon, it may also be observed at any region of abdomen including pelvis, peripancreatic region and omentum (5). Isolated omental panniculitis (IOP), a rare form of intraabdominal panniculitis, is defined as intraabdominal panniculitis that involves only omentum without extraabdominal fat necrosis, inflammatory bowel disease and pancreatitis (1, 6). IOP is conceptually confused with idiopathic omental infarction (IOI). In the search made using Pubmed English database, only 4 cases are determined with IOP (1, 2, 6, 7). In this article we aimed to publish 2 IOP cases who applied with acute abdominal manifestation and were treated with laparoscopic omental resection to discuss the other 4 IOP cases comparing with IOP together with literature.

CASE-1

Forty years old male patient applied to our clinics with a complaint of abdominal pain that existed for approximately 3 days. He also complained from nausea and fatigue. No feature other than smoking was reported in the anamnesis. In his physical examination subfebrile fever (37.6ºC) was detected. Sensitivity and rebound was determined in abdominal right quadrant. Blood biochemistry (glucose, amylase, lower, upper) was normal except moderate leucocytosis (WBC: 12.400 µ/l), moderate CRP (7,18 mg/dl; N: 0-0.5) level. There is no finding other than gas in colon in direct abdominal radiograph at standing position. Minimal fluid was determined in pelvic region in ultrasonographic (USG) examination. In abdominal computerized tomography (CT), hypodense massive appearance suggestive of fat necrosis in central region and that caused heterogeneity in peripheral fats was monitored that was in close relation with small intestinal loops at anterolateral at the abdominal right-middle region. Mass with 40x20mm size was evaluated as a solid lesion with small intestine origin (Figure 1). Because acute abdomen findings were found in the patient and differential diagnosis could not be done precisely with radiological and laboratory findings, the patient was sent to operation after necessary arrangements were made. In the laparoscopic exploration yellow omental mass with necrotic appearance and 7x6 cm size was monitored in the right lateral middle quadrant of abdomen in a region close to right colon that was attached on small intestine loops (Figure 2). The mass was excised from intestine loops carefully and was totally removed by partial omental resection (Figure 3). The mass was taken out with the help of endoback from trocar site. Operation was terminated. The patient was discharged from the hospital on the postoperative 2nd day without any problem. In the pathological examination of the specimen: lymphohistiocytic inflammation, necrosis and development of connective tissue were observed (Figure 4). In conclusion it was evaluated as omental panniculitis.

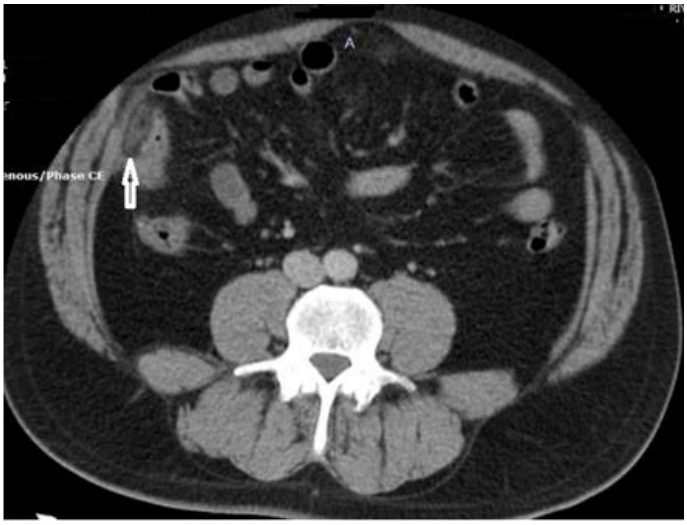

Figure 1: *CT images of the mass for case-1*

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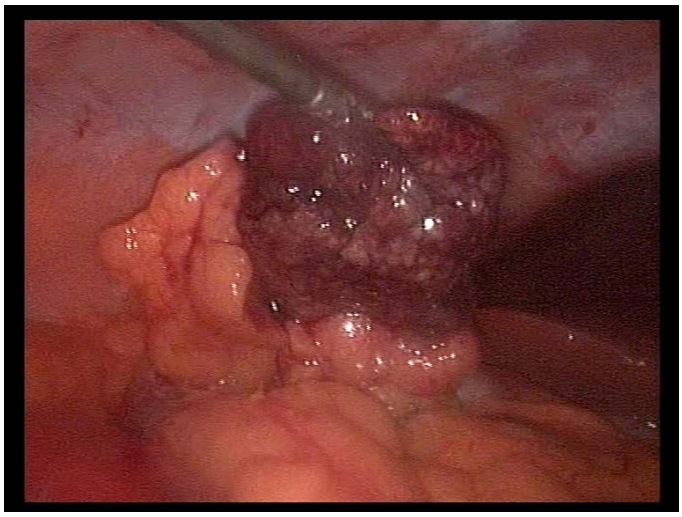

Figure 2: *Laparascopik image: Brown-yellow mass in the right lower quadrant abdominal*

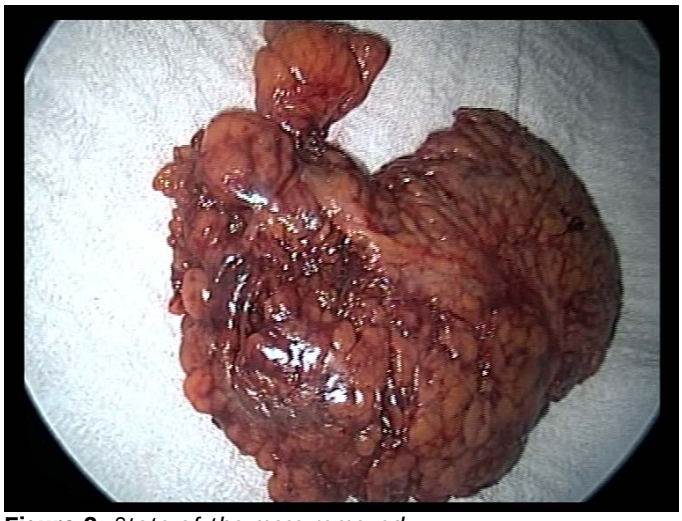

Figure 3: *State of the mass removed*

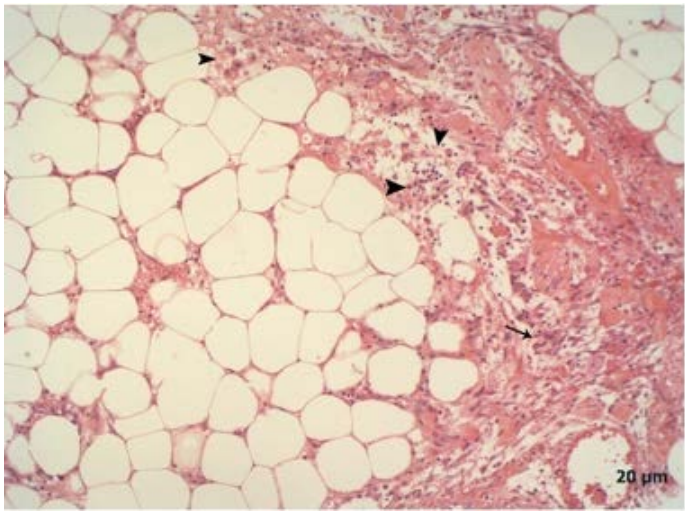

Figure 4: *Arrowhead: lymphocytic inflammation, Arrow: connective tissue formation*

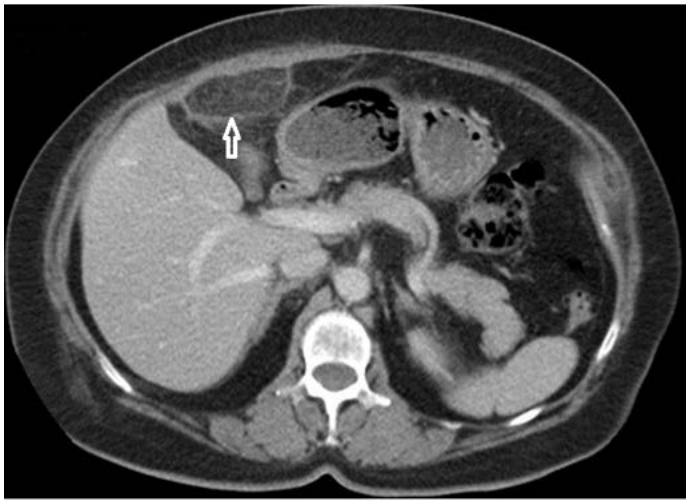

Figure 5: *CT images of the mass for case-2*

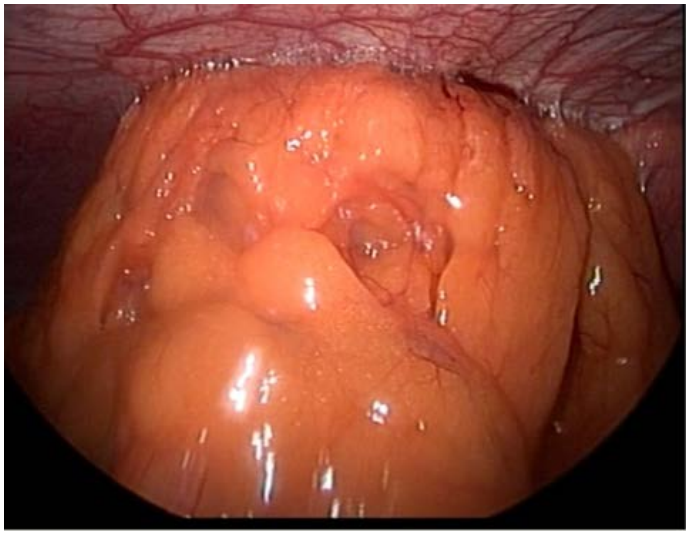

Figure 6: *Lamaparascopik image: adherent to the right lower quadrant abdominal mass*

CASE-2

42 years old, female patient applied to our clinics with a complaint of abdominal pain of two days. The patient also complained from nausea and loss of appetite. She had no characteristics determined in her history. Sensitivity and rebound was determined during physical examination in right lower quadrant. Except moderate leukocytosis (WBC:12.600 µ/l) and CRP level (12.28mg/dl) in laboratory values, all the other routine biochemistry values were normal. In the USG examination of the patient hypoechoic and heterogeneous mass was detected in the abdomen right lower quadrant. In the CT heterogeneous, hypodense mass was detected with necrotic regions inside, that was attached to abdominal wall and in the right lower quadrant of abdomen (Figure 5). The patient was sent to operation after necessary arrangements were made. An omental mass was detected in the laparoscopic exploration that was attached to abdominal wall localized right lower quadrant of abdomen (Figure 6). Mass could be excised from abdominal wall. The operation was completed after the mass was totally excised with segmental resection of omentum (Figure 7). The patient was discharged from the hospital on the postoperative 2nd day without any problem. In the pathological examination of the specimen fat necrosis in patches, lymphohistiocytic cell infiltration and fibrosis was observed. In conclusion it was reported as compatible with omental panniculitis.

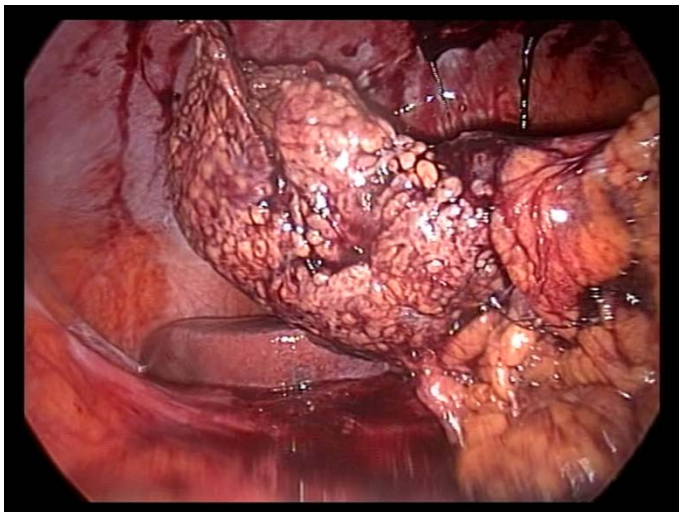

Figure 7: *After mass separation the next image*

DISCUSSION

Intraabdominal panniculitis is a course of inflammatory fat necrosis known as lipodystrophy. As a result of this course, large masses containing fat necrosis may develop (1). Most of the intraabdominal panniculitis develop sclerosing mesenteritis (mezenteric panniculitis) originating from meso of small and large intestine and approximately 300 cases were reported until today (8). This is expressed with various names such as retractile or liposclerotic mesenteritis, mesenteric weber-christian disease, xanthogranulomatosis mesenteritisis, mesenteric lipogranuloma, systemic nodular panniculitis (9). Beside these although very rarely panniculitis is reported at intraabdominal, mesoappendix, peripancreatic site, retroperitoneum, pelvis and omentum (10). The reported number of cases IOP, a rare form of Intraabdominal panniculitis is four in the English database of PubMed (1, 2, 6, 7). These cases together with 2 IOP cases presented by are summarized in Table 1.

However, omental infarctions that are rare causes of acute abdominal syndromes were published by Bush (11) for the first time in 1986 and less than 400 cases were reported (12). In the classification made by Leitner for acute omental infarction (Table 2), B1 category includes cases of idiopathic (spontaneous) infarction following segmental omental infarction. IOI is seen in the mean at 40-50 years of age and it is observed 2 times more in men than in women (13). All IOP cases were evaluated idiopathically and they were not etiologically defined. When IOP were evaluated 4 of 6 patients were male and their mean age was calculated as 46 (38-61). IOP is more frequently seen than IOI in the same age category and male.

Generally acute abdominal pain that begins suddenly and with a severity that gradually increases is seen in IOI. Gastrointestinal symptoms such as nausea, vomiting, anorexia and bowel dysfunction are not seen simultaneously. The patient is generally well and fever is not seen. In the physical examination local sensitivity and rebound is determined at various degrees (14, 15, 16). Although patients with IOP are generally non-specific in clinics they applied with complaints of localized abdominal pain, nausea and vomiting. However in 2 and 1 of IOP patient's subfebrile fever and 38.5° fever were detected, respectively. In the physical examination of the patients epigastric sensitivity was observed in one patient and sensitivity at right upper quadrant in one patient, at left upper quadrant in one patient, and at right lower quadrant in three patients. Mass was also detected by palpation in the patient

Table 1: *When the cases were examined it was determined that the average age was 45.66 (38-61), and M/F ratio was 4/2. The patients, generally applied with a complaint of abdominal pain. Some of them had nausea and vomiting also. Fever less than 38.5 and generally localized sensitivity was determined in the physical examination. In the laboratory findings, in all patients except one White blood cell count increased slightly. For all the cases in literature CT was taken and localized mass lesion was determined. Surgical resection was performed to all except one.*

Case (N:6)	Katz (1985)	Hirono (2005)	Jeon (2009)	Lheureux (1987)	Sukru (2013)	Sukru (2014)
Gender /Age	K/38	E/52	E/61	E/41	E/40	K/42
Complaint	Nausea, vomiting, epigastric pain	Pain at right upper quadrant	Pain at left upper quadrant, nausea	Pain at right lower quadrant	Pain at right lower quadrant, nausea, fatigue,	Pain at right lower quadrant, nausea, fatigue
Physical examination	Epigastric sensitivity	Sensitivity and mass at right upper quadrant	Sensitivity at left upper quadrant	Sensitivity at right lower quadrant	Sensitivity at right lower quadrant	Sensitivity at right lower quadrant
Laboratory	Wbc: 11.000 CRP:	Wbc:7.100 CRP: 5.42	Wbc:11.000 CRP: 10.19	Wbc: 11.000 CRP:	Wbc:12.400 CRP:	Wbc:12.600 CRP:
Radiology	BT(+)	BT(+)	BT(+)	BT(+)	BT(+))	BT(+)
Treatment	Conventional surgery Omental excision	Conventional surgery Partial colectomy + omental mass excision	Conservative approach treatment with low doses of prednisone	Conventional surgery Omental resection	Laparoscopic surgery Omental resection	Laparoscopic surgery Omental resection
Pathology	Fat necrosis and chronic inflammatory process	Fat necrosis, fibrosis chronic inflammatory process	Fibrosis, chronic inflammatory process	Chronic inflammatory process s	Fat necrosis and chronic inflammatory process	Fat necrosis and chronic inflammatory process

Table 2: *Etiological classification of acute omental by Leitner*

Classification of acute omental infarction according to etiology
A-Omantal infarction due to torsion
1- Primary (idiopathic)
2- Secondary (hernia, cyst, tumor and adhesion)
B- Omantal infarction due to thrombosis
1- Idiopathic (spontaneous) infarction
2- Omantal infarction due to cardiac and vascular diseases (hypercoagulability, congestive cardiac failure)
3- Omantal infarction due to external trauma

with sensitivity at right upper quadrant (Table 1). Specific examination findings are not observed in IOP like IOI. Sensitivity in abdomen is localized in the region where inflammation develops.

In laboratory tests of IOI patients moderate leucocyte levels, high erythrocyte sedimentation rate and high CRP values may be monitored (17, 18). These values do not help in the diagnosis generally. When IOP cases are evaluated, leucocyte count of only one patient was normal and a slight increase was observed in the remaining five patients. In four patients C reactive protein level increased. The other laboratory findings were considered normal (Table 1). Laboratory findings of IOI and IOP were similar.

In recent years in the suspected cases where some findings are considered characteristics for IOI, CT is recommended. CT is also a significant imaging method in differential diagnosis for similar clinical manifestations. In CT mass has the appearance of a heterogeneous fat tissue with round-oval wall or like a cake. This tissue involves dilated thrombosis veins and/or fibrosis bands (19, 20, 21). Yet, IOI cannot be diagnosed with only radiological and laboratory results. In the CT examination of IOPs mass was determined in all 6 cases. Hypodense and fat necrosis wad observed also in all patients. IOP can be confused

with diseases such as lymphoma, carcinoid tumor, carcinomatosis, lipoma seen in mesentery in CT or tuberculosis, mesothelioma, oedema and hematoma (22). IOP cannot be diagnosed only with radiological and laboratory examination like IOI.

Definitive diagnosis of intraabdominal panniculitis is made with biopsy (9). Three criteria are required for diagnosis of intraabdominal panniculitis; 1-Existence of massive fat lesion in mesentery, retroperitoneum, omentum and/or pelvis; 2-Chronic inflammatory reaction composed of lymphocytes and macrophage filled with lipid; 3- Absence of diseases like pancreatitis, inflammatory bowel disease or extraabdominal fat necrosis (Weber-Christian disease) (1). Panniculitis progressively develops in three pathological stages; (i) degeneration in mesenteric fat tissue (mesenteric lipodystrophy), (ii) following inflammatory reaction (mesenteric panniculitis), (iii) fibrosis that develops in adipose tissue (23). Chronic inflammatory stage was defined in all IOP cases and fat necrosis and fibrosis was monitored in all IOP cases (Table 1). Definitive diagnosis of IOI can be made with surgery and biopsy. Vascular thrombosis that ends up with infarction is typical. Hemorrhagic infarct histologically associated with fat necrosis, after that cellular infiltration and potential fibrosis and scar formation is typical (24, 25). Because fibrosis, cellular infiltration and necrosis are seen in all IOPs they have pathologically similar features with IOI.

The treatment of IOI is disputable and most of the cases reported were detected during explorative laparotomy and were treated. The cases that were not treated were unclear. In several studies published IOI was defined as having benign, self-limiting and inflammatory course consisting of gradual retraction, fibrosis and complete resolution in 2 weeks. When this course was considered a conservative treatment with analgesic and anti-inflammatory drugs under close follow-up is recommended(26, 27, 28) but surgical treatment is preferred for a better pain control, rapid recovery, to prevent complications like spontaneous bleeding, adhesion or abscess (18, 29). Only in one patient with diagnosis of IOP, preoperative diagnosis was established and low dose of corticosteroid was started and omental mass was regressed. Surgical intervention was performed to the remaining 5 patients, to 2 patients due to tumor like appearance, to 2 patients due to acute abdomen and to 1 patient due to mass on the abdomen and acute abdomen. Open surgery was performed to 3 patients and laparoscopic omental resection was applied to 2 of them (Table-1). IOP may be monitored conservatively like IOI when preoperative definitive diagnosis is established. But surgical treatment is preferred more in IOP also due to the difficulty in definitive diagnosis, long time needed for conservative treatment and for preventing complications probable complications. The mass may be removed with segmental omental resection in surgical treatment. Surgical procedure may be conventional or laparoscopic. But laparoscopic surgery is a safe and effective treatment method in omental resections (17, 18, 29).

CONCLUSION

IOPs in intraabdominal panniculitis is a rarely seen case. Even though they are conceptually named as IOP, they may be considered as IOI conforming to B1 category in the classification developed by Leitner for acute omental infarctions because their etiology is idiopathic, pathological, clinical, radiological and laboratory characteristics are similar and their treatment is same. Usually, if mass may be defined by preoperative CT and percutaneous biopsy may be performed to these patients who apply with omental mass, the patient may be treated conservatively with close follow up. But intraabdominal exploration and mass excision may be performed with minimal invasive surgery thanks to the improvements in anesthesia and laparoscopic surgery. Thus misdiagnosis is avoided. We think, that the patient may return to social life earlier.

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