



# Omental Torsion and Infarction Secondary to Omental Hernia in the Right Inguinal Canal

오른쪽 서혜부 탈장에 의해 이차적으로 발생한 대망의  
 염전 및 경색

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Omental torsion secondary to inguinal hernia has rarely been reported as a cause of acute abdominal pain. However, in our case, omental infarction due to prolonged inguinal hernia-associated omental torsion led to the formation of a large omental mass with marginal fibrosis, and the patient presented with chronic abdominal pain. A 74-year-old man presented with complaints of lower abdominal pain for 1 month; subsequently, bilateral inguinal hernias were identified through inguinal ultrasonography. CT scans revealed that the greater omentum was trapped within the right inguinal canal, leading to omental torsion. The greater omentum, distal to the pedicle, appeared as a 30 cm-sized oblong fibrofatty mass in the right lower abdomen and pelvic cavity. Laparoscopic omentectomy with hernia repair was successfully performed.

**Index terms** Omentum; Peritoneal Diseases; Hernia, Inguinal; Omentum; Peritoneal Diseases

## INTRODUCTION

Omental torsion secondary to inguinal hernia has rarely been reported as a cause of acute abdominal pain. However, to our knowledge, large infarcted omental mass as a result of prolonged omental torsion causing chronic abdominal pain has not been reported. Here, we report a case wherein chronic omental torsion caused by right inguinal hernia was diagnosed and surgically treated.

## CASE REPORT

A 74-year-old man was admitted to our general surgery department with complaints

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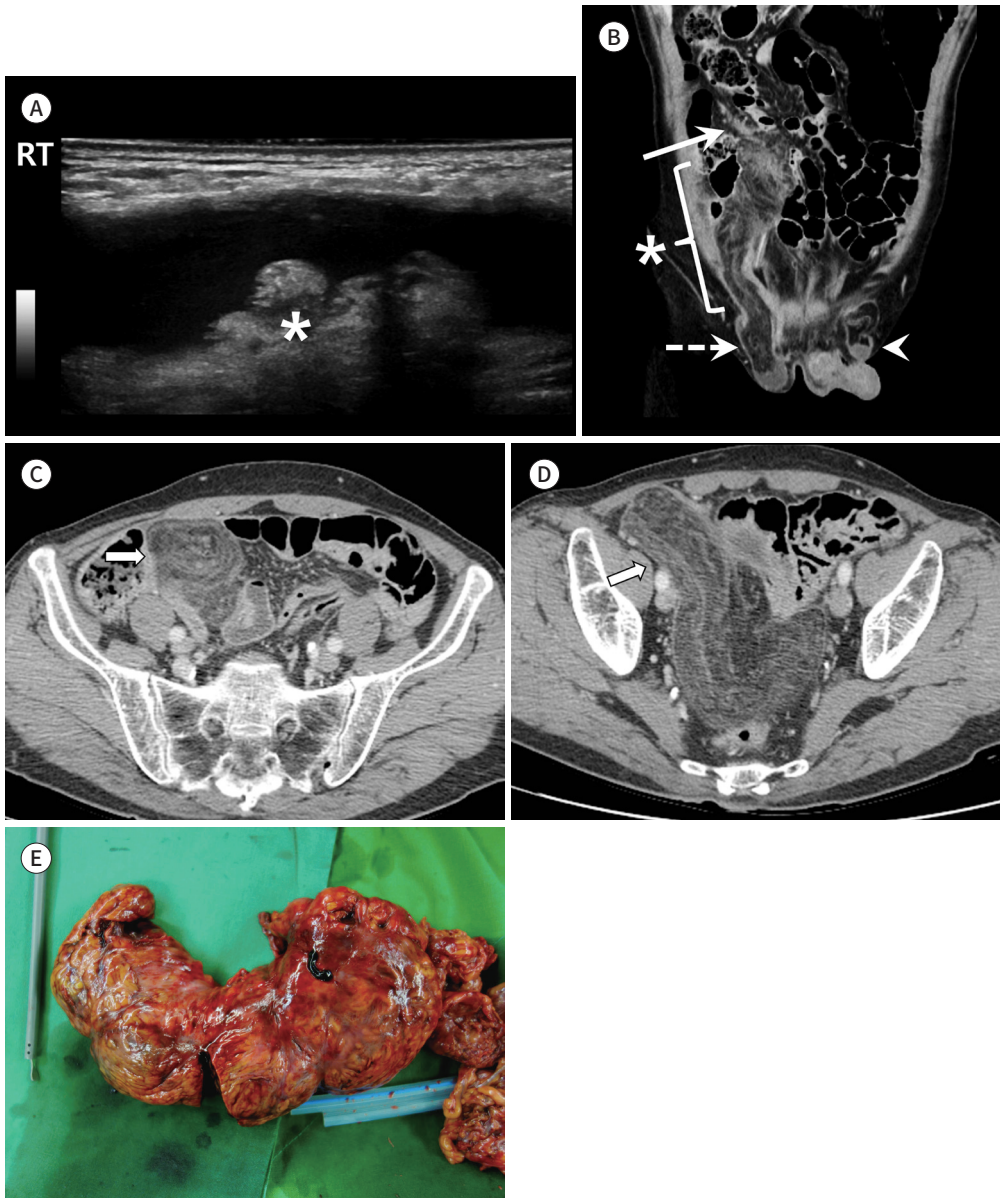
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of right lower abdominal pain and distension for 1 month. His medical history included diabetes mellitus and left undescended testis. Physical examination revealed ambiguous tenderness from the right lower quadrant extending to the suprapubic abdomen. A right inguinal hernia containing omentum and ascites was confirmed by inguinal ultrasonography (Fig. 1A).

**Fig. 1.** Omental torsion and infarction secondary to omental hernia in the right inguinal canal.

- A.** Inguinal ultrasonography reveals inguinal hernia containing hyperechoic fat (asterisk) with ascites.  
**B.** A coronal reconstructed CT image shows the greater omentum trapped within the right inguinal canal, suggesting the presence of incarcerated omental hernia (dashed arrow). A whirling fibrofatty mass (asterisk) is suspended by a torsion pedicle (arrow) at the medial side of the ascending colon. Additionally, the mesenteric fat is partially herniated through the left inguinal canal (arrowhead).  
**C.** The omentum appears as a twisted, oval-shaped, fibrofatty mass with vascular whirling (arrow).  
**D.** The extended greater omentum adheres to the right lateral pelvic wall and rectovesical space (arrow).  
**E.** Resected gross specimen shows hardened omentum with hemorrhagic and necrotic appearance, measuring 25.3 × 7 × 3.9 cm.



His vital signs were stable.

Contrast-enhanced abdominal CT showed the greater omentum trapped within the right inguinal canal and a large whirling fibrofatty mass was suspended by a torsion pedicle at the medial side of the ascending colon (Fig. 1B, C). The mass with vascular engorgement extended into the pelvic cavity (Fig. 1D). The mass was 3.5 cm in thickness, 30 cm in length and well defined by hyper-attenuated margin. A preoperative diagnosis of a large infarcted omental mass as result of prolonged omental torsion secondary to right inguinal hernia was established.

The mass in the right lower abdomen was confirmed as an omentum via laparoscopy. The mass was attached to the lateral pelvic wall of the right lower abdomen, extended downward to the pelvic cavity and adhered to the rectovesical space. A laparoscopic omentectomy with bilateral hernia repair was performed. The gross specimen showed a hardened omentum with hemorrhagic and necrotic appearance, measuring  $25.3 \times 7 \times 3.9$  cm (Fig. 1E). The mass was wrapped with yellow, glossy viable omentum but there were scattered hemorrhagic points with infarction. A histopathological examination revealed chronic active inflammation with fibrosis, hemorrhage and fat necrosis, compatible with omental torsion. The patient was discharged two weeks after surgery without any complications.

## DISCUSSION

Omental torsion is the twisting of the greater omentum along its long axis between one or two fixed points. There are some tendencies in omental torsion. First, it frequently affects the right side because the right side omentum is longer and more mobile than the left side and less richly vascularized with poor collateralization (1). Second, trigger factors of omental torsion are hyperperistalsis, obesity, and sharply increasing intra-abdominal pressure such as heavy exertion or coughing (2). Lastly, except for primary omental torsion which is associated with anatomic variance, most of the omental torsion is secondary. Secondary torsion occurs most often because of hernias, tumors, or adhesion, with the dependent omentum becoming fixed in the torted position and unable to untwist (3). Predisposing factors in our patient were untreated inguinal hernia and frequent risk of increasing intra-abdominal pressure due to constipation.

Once the greater omentum is torted, impaired venous returns lead to distal omentum congestion and edematous change (1). As the omental torsion progresses, it causes arterial occlusion leading to acute hemorrhagic infarction and eventually to necrosis (4).

The CT image of omental torsion shows a high density of whirling fatty and fibrous tissue around a central vessel (5, 6). Differential diagnoses include lipoma, liposarcoma, teratoma, and mesenteric lipodystrophy (5). Over time, the irregular margined, heterogeneous fatty lesion of omental infarction becomes more well-defined and develops a hyper-attenuated rim; the rim, corresponds to the chronic stages of inflammation and fibrosis seen on histology (7). In our case, the omental mass showed hyper-attenuated rim suggesting infarction, compatible with the histopathologic report, chronic active inflammation with fibrosis, hemorrhage and fat necrosis.

The clinical symptoms of omental torsion are nonspecific; therefore, it is difficult to diag-

nose omental torsion (5). Thus, radiology plays an essential role in accurate preoperative diagnosis and proper management. CT scans would be helpful to rule out other abdominal diseases with similar clinical symptoms such as cholecystitis, appendicitis, and diverticulitis and the multiplanar reconstructed images are useful for the identification of the pedicle and visualization of the entire omentum (8).

#### Author Contributions

Conceptualization, L.J.H.; investigation, L.Y.H.; visualization, L.Y.H., H.H.; writing—original draft, L.Y.H.; and writing—review & editing, L.J.H.

#### Conflicts of Interest

The authors have no potential conflicts of interest to disclose.

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## 오른쪽 서혜부 탈장에 의해 이차적으로 발생한 대망의 염전 및 경색

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대망의 서혜부 탈장에 의한 이차성 대망 염전은 급성 복통의 원인으로써 드물게 보고된 바 있다. 그러나 만성 복통의 원인으로써 이차성 대망 염전이 섬유성 벽을 가진 거대하고 단단한 종괴로 발견되는 것은 이전까지 보고되지 않았기에 이를 보고하고자 한다. 74세 남자 환자가 한 달간 지속된 만성적인 하복부 복통과 우하복부에 만져지는 종괴를 주소로 내원하였다. 시행한 서혜부 초음파상에서 양쪽 서혜부 탈장이 관찰되었다. 컴퓨터단층촬영영상에서 오른쪽 서혜관으로 대망의 일부가 빠져나갔고 그 축을 중심으로 대망 염전이 있었다. 염전 줄기의 원위부 대망은 우하복부와 골반강에 걸쳐 단단한 섬유성 벽을 가진 약 30 cm 정도의 거대한 종괴를 형성하였다. 환자는 복강경하 장막 절제술 및 양쪽 탈장 수술을 시행 받은 뒤 퇴원하였다.

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