

Report

A Case of Perforated Appendicitis Associated with Right Thigh Abscess**Masayoshi NISHINA, Hiroyasu SUGA, Noboru AKIZUKI, So YAMADA,
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Acute appendicitis associated with abscess in the thigh is a rare condition. We present here such a case with no abdominal symptoms. A 64-year-old man was admitted to the hospital because of right femoral pain and swelling. He suffered lumbago for two months. Three days before admission, the patients felt severe right femoral pain and swelling. He was introduced to our center by ambulance. He did not complain abdominal pain or nausea. On examination, the right femur was swollen and reddish, and the local temperature was elevated. An elastic hard mass was palpable in the right lower abdomen. A computed tomogram of the right thigh revealed an intramuscular abscess containing gas. The computed tomogram of the abdomen revealed a mass region in the right lower abdomen. We thought the appendicitis was present in this region. The abscess cavity of the right thigh continued to the abdominal region. An emergency operation was performed immediately. The intra-abdominal cavity was clear without contamination. A gangrenous appendicitis adhered strongly to cecum, mesoappendix, and retroperitoneum. The tip of the appendix was drained into the femoral retroperitoneum. An appendectomy was performed, and an incision of about 15 cm was performed in the right thigh, from which much pus was drained. The bacterial culture of the pus revealed *Escherichia coli* and *Streptococcus*. The bacterial culture of the blood revealed *Bacteroides fragilis*. The microscopic finding of the appendix was gangrenous appendicitis. The 12th and the 30th day after surgery, the drainages of the right flank were performed. Finally he was discharged from the hospital in 115th day. Only ten case reports of acute appendicitis associated with abscess in the thigh have been published. The examinations of not only the femur but also recording general findings are very important to take an accurate diagnosis.

Key words: perforated appendicitis, thigh abscess, subcutaneous emphysema**Introduction**

Acute appendicitis may occasionally become extraordinarily complicated and life threatening. Acute appendicitis associated with an abscess in the thigh is a rare condition, and only ten reports have been published¹⁾⁻¹⁰⁾. We present here such a case with no abdominal symptoms.

Case Report

A 64-year-old man was admitted to the hospital because of right femoral pain and swelling. He had a history of hypertension for nine years. He had no history of diabetes mellitus or administration of steroid.

He suffered lumbago for two months, and took a

balm. Three days before entry, the patients felt severe right femoral pain and swelling, so he could not walk. He went to another hospital at the day of admission, and the doctor discovered gas in his right thigh in roentgenograms. He was introduced to our center by ambulance because the doctor suspected gas gangrene. He did not complain of abdominal pain or nausea. There was no history of trauma to the right limb.

On examination, the patient lying in supine position appeared acutely sick. The body temperature was 37.1°C, the pulse 90, and the respiratory rate was 20/min. The blood pressure was 123/67 mmHg. No jaundice or anemia was found. The lungs were

clear, the heart was normal. The abdomen was soft and flat, and showed no tenderness. However, an elastic hard mass was palpable in the right lower area. The right femur was swollen and reddish, and the local temperature was elevated. The circumference of his right leg was 50.0 cm, his left 44.5 cm. There was no abnormal finding in the pubic area, such as femoral hernia.

The white-cell count was 18,500/ μ l, the hemoglobin was 9.2 mg/dl, the platelet count was 16.7×10^4 /ul. The C-reactive protein was 27.97 mg/dl, the urea nitrogen was 39.1 mg/dl, and the creatinine was 1.26 mg/dl. These indicated severe inflammation and acute renal failure.

A roentgenogram of the right thigh revealed subcutaneous emphysema (Fig. 1). The roentgenogram of chest and abdomen showed no abnormal finding. A computed tomogram of the right thigh revealed an intramuscular abscess containing gas. The computed tomogram of the abdomen revealed a mass region in the right lower abdomen (Fig. 2). We thought appendicitis was present in this region.

The abscess cavity of the right thigh continued to the abdominal region.

An emergency operation was performed immediately. The intra-abdominal cavity was clear without contamination. A gangrenous appendicitis adhered



Fig. 1 A roentgenogram of the right thigh at the admission day revealed subcutaneous emphysema

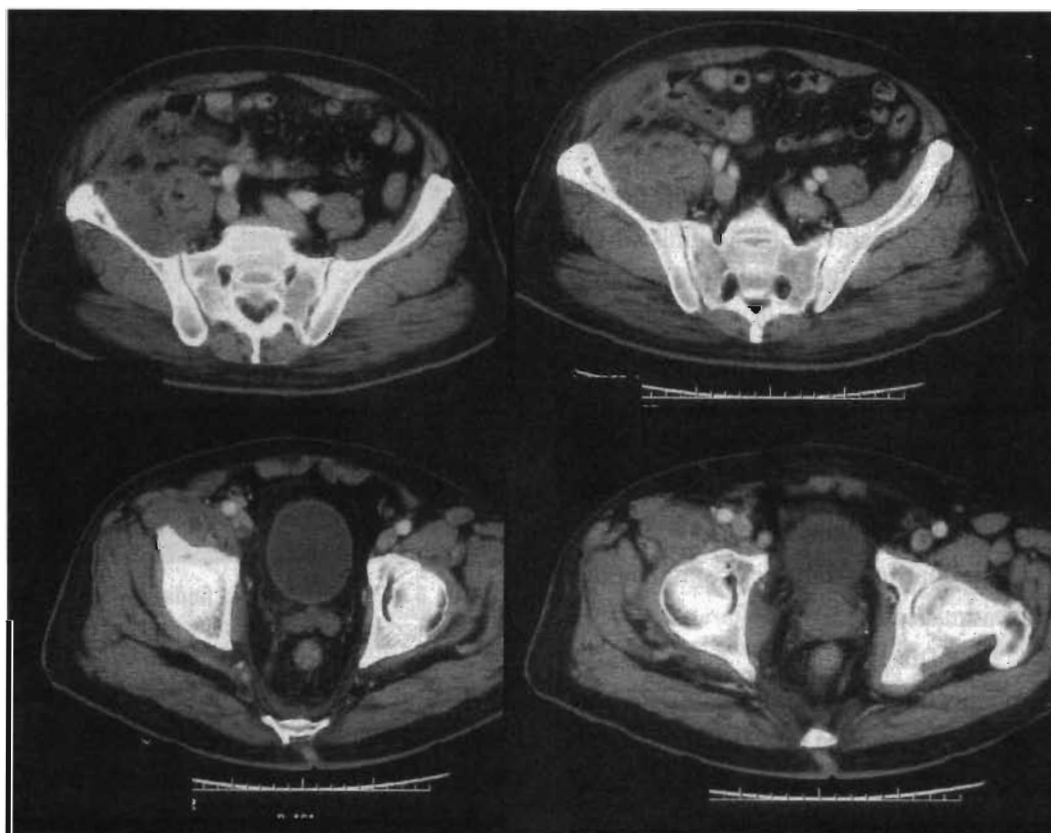


Fig. 2 The computed tomogram of the admission day revealed abscess region in the right lower abdomen to the right thigh



Fig. 3 The tip of the appendix was drained into the femoral retroperitoneum (black circle)

strongly to cecum, mesoappendix, and retroperitoneum. The tip of the appendix was drained into the femoral retroperitoneum (Fig. 3). An appendectomy was performed, and an incision of about 15 cm was performed in the right thigh, from which about 500 ml pus was drained (Fig. 4). The abscess was located inside the muscle of the right thigh. The bacterial culture of the pus revealed *Escherichia coli* and *Streptococcus anginosus*. The bacterial culture of the blood revealed *Bacteroides fragilis*. The microscopic finding of the appendix was gangrenous appendicitis with rupture (Fig. 5).

After surgery, the patient was treated in the intensive care unit, with intravenous administration of antibiotics, gabekisate mesilate and anti-thrombin third drug.

The extraperitoneal abscess of the right flank was newly examined. On the 12th and the 30th day after surgery, drainages were performed. After these operations, the extraperitoneal abscess and the thigh abscess had gradually decreased. Finally the patient was discharged from the hospital on the 115th day after admission.

Discussion

Abscesses of the thigh arise from skin and soft tissue infection, trauma, animal bite, thrombophlebitis or osteomyelitis. Acute appendicitis may occasionally become extraordinarily complicated and life threatening. Acute appendicitis associated with abscess in the thigh is a rare condition, only eight



Fig. 4 An incision of about 15-cm was performed in the right thigh, from which about 500 ml pus was drained

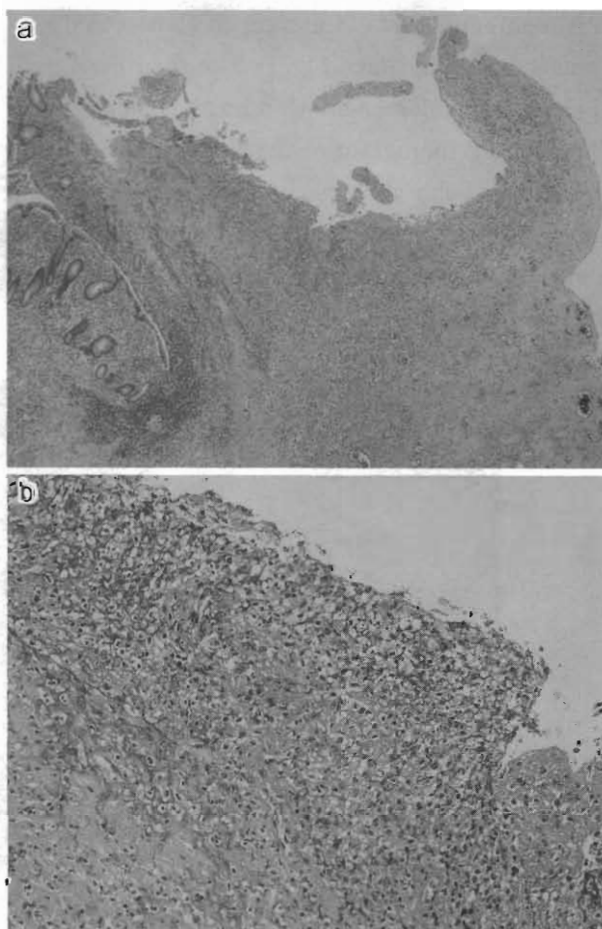


Fig. 5 The microscopic finding of the appendix was gangrenous appendicitis with rupture (HE stain)

reports have been published in English and two in Japanese¹³⁻¹⁰⁾ (Table). Eight cases were male, and seven cases were more than 50-year-old.

Subcutaneous emphysema in the thigh is rarely associated with intra-abdominal disease such as di-

Table Clinical findings in cases of appendicitis associated with right thigh abscess

No	Publication	Age	Sex	Complain	Symptoms of abdomen	Emphysema	Duration to admission	Duration from admission to operation	Outcome
1	1955 Pierleoni	74	M	rt hip pain	none	+	7 days	-	died (autopsy)
2	1975 Nicell	55	F	rt hip pain	-	+	8 days	0 day	survived
3	1986 Edwards	76	M	rt hip pain	-	+	2 weeks	0 day	died
4	1995 Tajima	68	F	rt leg pain	none	-	2 weeks	4 months	survived
5	2001 Pande	80	M	rt leg pain fever up malaise	none	+	2 weeks	unclear	survived
6	2002 El-Masry	45	M	rt loin pain rt thigh pain	none	+	7 days	6 days	survived
7	2005 Ushiyama	83	M	rt groin pain	none	+	4 months	2 months	survived
8	2005 Scharma	6	M	thigh pain fever up discharge	lower abdominal pain	-	10 days	0 day	survived
9	2006 Hsieh	56	M	rt thigh pain	flank pain	-	3 days	0 day	survived
10	2006 Kanzaki	15	M	rt thigh pain fever up	flank pain	+	26 days	0 day	survived
11	our case	64	M	rt thigh pain	none	+	2 months	0 day	survived

verticulum or carcinoma¹¹⁾. Subcutaneous emphysema in the thigh associated with appendicitis was present in seven cases in the ten reports mentioned above.

In the case of thigh abscess due to perforated appendicitis, the diagnosis is often difficult, especially in cases without abdominal symptom. In the cited reports, it took a long time to reach the correct diagnosis and institute the definitive therapy, even six or seven months⁴⁷⁾. In another case, a nephrostomy was performed before the diagnosis of appendicitis was established³⁾.

The anatomical position of the appendix is variable, and a retrocecal position may cause retroperitoneal infection and abscess³⁾. But in the present case, the position of the appendix was normal, and only the tip drained into the femoral retroperitoneal space.

In the diagnosis of a thigh abscess associated with gastrointestinal perforation, computed tomography is useful. However it is more important to suspect an abdominal region involvement. In our case, the patient had no abdominal symptoms. By carefully recording physical findings, we found an abdominal mass and reached a correct diagnosis immediately. The examinations of not only the femur

but also recording general findings are very important.

Treatment of this condition requires an appendectomy and draining of the thigh abscess. Drainage without appendectomy was not curative⁷⁾.

Conclusion

We experienced a case of perforated appendicitis associated with a right thigh abscess, and treated the condition successfully by an emergency operation. The present case had no abdominal symptoms such as abdominal pain or nausea. By carefully recording physical findings, we found an abdominal mass and reached a correct diagnosis immediately.

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大腿膿瘍を合併した穿孔性虫垂炎の1例

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ニシナ	マサヨシ	スガ	ヒロヤス	アキヅキ	ノボル	ヤマダ	ソウ
仁科	雅良	須賀	弘泰	秋月	登	山田	創
タカハシ	ハルキ	コバヤシ	タカシ	ナカガワ	タカオ		
高橋	春樹	小林	尊志	中川	隆雄		

穿孔性虫垂炎が大腿膿瘍を合併することは非常にまれである。今回我々は腹部所見を伴わない症例を経験したので報告する。症例は64歳、男性。2ヵ月前から腰痛で近医に通院していた。3日前から激しい大腿痛が出現した。近医から紹介され搬送された。経過中に腹痛はなかった。診察所見で右大腿に腫脹、発赤、熱感があり、右下腹部に腫瘤を触知した。レントゲンとCTで、右大腿に膿瘍を認め、右下腹部の病変は穿孔性虫垂炎によると推測し、緊急手術を行った。腹腔内に汚染はなく後腹膜に穿孔した虫垂が強固に癒着していた。虫垂の先端が後腹膜に穿孔していた。虫垂切除術、および15cmの大腿切開を行い膿瘍開放術を施行した。膿の培養から大腸菌と連鎖球菌が、血液培養から *Bacteroides fragilis* が検出された。病理所見は壊疽性虫垂炎であった。第12病日および第30病日に、新たに出現した側腹部の腹膜外膿瘍に対しドレナージ術を行った。第115病日に退院した。大腿膿瘍を合併した急性虫垂炎の報告は10例だけであった。正確な診断を得るためには大腿だけでなく、全身の注意深い診察が重要である。